OEC Elite

Premium Digital Mobile C-arm
Technical Data

12 inch Standard C-arm Model

Workstation with 4K Display

9 inch Super C-arm Model

gehealthcare.com/surgery

Technical Specifications

Image Acquisition

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 k x 1 k x 16 bit

Generator
- 60 kHz high frequency
- 15 kW power
- Up to 120 kVp
- Fluoroscopy up to 10 mA
- Continuous high level fluoroscopy (HLF) up to 20 mA
- Pulsed HLF up to 40 mA
- Digital Spot up to 75 mA
- Digital Cine Pulse up to 150 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
- Housing cooling rate:
  - Standard C 9": 15,000 HU/min
  - Standard C 12": 22,500 HU/min
  - Super C 9": 22,500 HU/min

Digital Image Orientation
- Digitally adjusts image display for live and last image hold

Digital Image Orientation (cont.)
- 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

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
- AutoTrak ABS, mA, kVp
- Low dose mode

Pulsed Fluoroscopy Mode
- kVp range: 40 - 120
- mA range: 0.2 - 28 normal mode
  - 0.2 - 40 HLF
- Pulse rate: 4, 8, 15 pps
- Pulse width: 19ms to 34ms
- Auto and manual pulsed fluoroscopy modes
- Reduces X-ray dose to patient and operator
- AutoTrak ABS, mA, kVp
- Low dose mode

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

Digital Cine Pulse Mode
- kVp range: 40 - 120
- mA range: up to 150
- Pulse rate: 15 or 30 pps
- Pulse width: 9 ms
- AutoTrak ABS, mA, kVp

Technical Specifications

Image Processing

Precision imaging with General Purpose Dynamic Range Management (GDRM)
- Enhances anatomy of interest while attenuating background features
- Preset Imaging Profiles
  - General
  - Orthopedic
  - General HD
  - Spine
  - Vascular
  - Bolus Chase

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 Quality
- 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
  - Dense collimator limits X-ray exposure area
  - Reduces scatter radiation
  - Improves image detail

Software Package

General Surgical Platform (GSP)
- Preset Imaging Profiles
  - General
  - Orthopedic
- Noise filter with on-screen indicator
- Minimal difference spatiotemporal noise filter (MDST)
- Real-time general purpose dynamic range management (GRDM)
- 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
- 40,000 image storage
- USB export 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
- Digital image rotation

Technical Specifications

Software Package (cont.)

Expanded Surgical Platform (ESP)

Includes all GSP software features plus:
- Preset Imaging Profiles
    - General HD
    - Spine
- Live Zoom
- Image annotation
- Digital Pen
    - Mark or draw on images
- Measurement
    - Distance
    - Angles
    - Percent stenosis

PMCare

Includes all ESP software features plus:
- Real-time digital subtraction (DSA)
- Reference image hold
- Peak opacification
- Up to 8 fps Cine
    - Recording/playback rate: 4, 8 fps
    - Minimum recording time: 30 minutes
    - Automatic image playback
    - Frame-by-frame review

Basic Vascular

Includes all PMCare software features plus:
- Vascular preset imaging profile
- Roadmapping
- Re-registration
- Variable landmarking
- Mask save/recall

Vascular 15

Includes all Basic Vascular software features plus:
- Digital Cine pulse mode
    - 15 pulses/sec
    - Up to 150mA
    - 9 ms pulse width
- Up to 15 fps Cine
    - Recording/playback rate: 4, 8, 15 fps
    - Minimum recording time: 60 minutes

Vascular MTS

Includes all Vascular 15 software features plus:
- Bolus chase preset imaging profile with Motion Tolerant Subtraction (MTS)
- Digital Cine pulse mode
    - 30 pulses/sec
    - Up to 150mA
    - 9 ms pulse width
- Up to 30 fps Cine
    - Recording/playback rate: 4, 8, 15, 30 fps
    - Minimum recording time: 60 minutes

OEC Elite Technical Data

Technical Specifications

Workstation

Connectivity
- Ethernet - one port
- Room interface - one port
- Video Output:
  - DisplayPort interfaces (configurable to left, right, full screen) - two ports
- Video Input:
  - DVI-D interface (PIP displays on right screen) - one port
- USB - three ports
- Wireless Data Transfer (optional)
  - Dual Band (2.4GHz and 5GHz)
  - Enterprise security - WPA, WPA2, PEAP, EAP-TLS
- Printers: Integrated film/paper/thermal (optional)

4K Image Display
- 32 in (81cm) Ultra high definition (UHD) Color Display
- Anti-reflection, anti-fingerprint
- Optically bonded cover glass
- Display mounted on an articulating arm
  - 45 in (114 cm) horizontal travel
  - 17 in (43 cm) vertical travel
  - 27 in (67 cm) forward travel
  - 5° up/5° down tilt
  - Display viewable from all four sides of workstation
  - Horizontal and vertical viewing angle 170°
- 600 cd/m^2 maximum brightness
- Touch Screen system control
- 3840 x 2160 UHD display
- Integrated PIP window to display color display port

User Interface
- Touchscreen control simplifies operation
- Automated system operation requires minimum operator interface
- Multi-functional controls
  - Footswitch (wireless optional)
  - Handheld 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
  - MPPS
- 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 Keyswitch for X-ray and powered movement disabled
  - Enabled X-rays and powered movement
  - Disabled X-rays and powered movement
  - Disabled X-rays, enabled powered movement
- Quick startup time

Technical Specifications

Additional Features

C-arm Positioning Aides	• Optional laser aimer • Motorized vertical lift

OEC Touch control panel**	• Intuitive user interface with advanced features for laser aimer, image rotate, Live Zoom, Digital Pen, profile selection and more
	  - 15.6" (40 cm) touchscreen panel
	  - 1366 x 768 resolution
	  - Viewing angle: 160°
	  - Tilt: 25° up, 10° down
	  - Swivel: +/- 135° for 270° range
	  - Portrait to Landscape display positioning with 90° rotation

TechView Monitor (optional)	• 10.4" (26 cm) 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

Uninterruptible Power	• Controlled shutdown • Power monitoring and display • Accidental power loss protection - 20 seconds battery back-up power to workstation and C-arm
Operating Range	• Temperature Range 10° to 35° C (50° to 95° F) • Humidity Range 10% to 80%
Regulatory Compliance	• U.S. 21 CFR Subchapter J • NFPA 99 • ANSI/AAMI 60601-1 (CSA/NRTL) • IEC 60601-1 (plus relevant Collateral and Particular Standards) • NEMA XR 27-2013 with Amendment 1, X-ray Equipment for Interventional Procedures User Quality Control Mode

System Configuration

OEC Elite Technical Data	GSP	ESP	PMCare	Basic Vascular	Vascular 15	Vascular MTS
Standard C 9": 15,000 HU/min	●	●	●	●	●	●
Standard C 12": 22,500 HU/min	●	●	●	●	●	●
Super C 9": 22,500 HU/min	●	●	●	●	●	●
4K 32" UHD Image Display	●	●	●	●	●	●
Rotating Anode X-ray tube	●	●	●	●	●	●
Dual Leaf collimator	●	●	●	●	●	●
Iris collimator	●	●	●	●	●	●
1k X 1k X 16 Bit Image Processing	●	●	●	●	●	●
Smart Metal	●	●	●	●	●	●
Measurement Software	●	●	●	●	●	●
Digital Image Rotation	●	●	●	●	●	●
Noise Filtering (averaging)	●	●	●	●	●	●
Minimal Difference Spatiotemporal Noise Filter	●	●	●	●	●	●
Live Zoom and Roam	N/A	●	●	●	●	●
General Dynamic Range Management (GDRM)	●	●	●	●	●	●
Image Annotation Function	N/A	●	●	●	●	●
Digital Pen	N/A	●	●	●	●	●
Radiation Dose Summary Report (RDSR)	●	●	●	●	●	●
Static Image Storage	40,000	40,000	40,000	40,000	40,000	40,000
TechView Monitor (optional)	●	●	●	●	●	●
Detector Side Laser Aimer (optional)	●	●	●	●	●	●
Integrated DICOM interface	●	●	●	●	●	●
Footswitch (wireless optional)	●	●	●	●	●	●
Hand Control	●	●	●	●	●	●
Injector Interface Capability	N/A	N/A	●	●	●	●
Room-in-Use Indicator Interface	●	●	●	●	●	●
Patient Privacy Control	●	●	●	●	●	●
Sony Thermal Hardcopy Printers (optional)	●	●	●	●	●	●

System Configuration

	GSP	ESP	PMCare	Basic Vascular	Vascular 15	Vascular MTS	
General	●	●	●	●	●	●	**Preset Image Profile**
Orthopedic	●	●	●	●	●	●	
General HD		●	●	●	●	●	
Spine		●	●	●	●	●	
Vascular				●	●	●	
Bolus Chase						●	
Digital Spot	●	●	●	●	●	●	**Imaging Features**
Fluoro Mode (PPS)	4, 8, Continuous	4, 8, Continuous	4, 8, Continuous	4, 8, Continuous	4, 8, 15, Continuous	4, 8, 15, Continuous	
High Level Fluoro Mode (PPS)	4, 8, Continuous	4, 8, Continuous	4, 8, Continuous	4, 8, Continuous	4, 8, 15, Continuous	4, 8, 15, Continuous	
Digital Subtraction Mode (PPS)			8, Continuous	8, Continuous	8, 15, Continuous	8, 15, Continuous	
Digital Cine Pulse Mode (PPS)					15	15, 30	
Peak Opacification			●	●	●	●	
Roadmapping				●	●	●	
Re-Registration (Pixel Shift)				●	●	●	
Variable Landmark				●	●	●	
4 fps			60 minutes	60 minutes	240 minutes	480 minutes	**Cine Record Time**
8 fps			30 minutes	30 minutes	120 minutes	240 minutes	
15 fps					60 minutes	120 minutes	
30 fps						60 minutes	

OEC Elite Technical Data

Physical Specifications

	9" I.I. Standard C-arm	12" I.I. Standard C-arm	9" I.I. Super C-arm
Mainframe			
Length	76.5 in (194 cm)	79.5 in (202 cm)	78.8 in (200 cm)
Height	69.5 in (177 cm)	73.7 in (188 cm)	68.9 in (175 cm)
Width	33.2 in (84 cm)	33.2 in (84 cm)	33.2 in (84 cm)
Weight	610 lbs (277 kg)	660 lbs (299 kg)	630 lbs (286 kg)
C-arm			
SID	39.4 in (100 cm)	39.4 in (100 cm)	39.4 in (100 cm)
Lateral height	41.3 in (105 cm)	43.0 in (109 cm)	41.0 in (104 cm)
Free space in arc	31.2 in (79 cm)	31.2 in (79 cm)	31.2 in (79 cm)
Depth in arc	26.0 in (66 cm)	28.3 in (72 cm)	33.0 in (84 cm)
Orbital rotation	115° (90°/25°)	120° (90°/30°)	145° (90°/55°)
Lateral rotation	360° (180°/180°)	360° (180°/180°)	360° (270°/90°)
Wig/wag	20°	20°	20°
Horizontal travel	8.0 in (20 cm)	8.0 in (20 cm)	8.0 in (20 cm)
Vertical travel	18.0 in (46 cm)	18.0 in (46 cm)	18.0 in (46 cm)
SmartView L-arm			
Flip/flop	270° (90°/180°)	270° (90°/180°)	N/A
Orbital Rotation (L-arm up)	115° (27°/88°)	120° (29°/91°)	145° (90°/55°)
Max Orbital (L-arm up & down)	178° (90°/88°)	181° (90°/91°)	N/A

Workstation	
Height	67.5 in (171 cm)
Width	34.1 in (87 cm)
Depth	25.8 in (66 cm)
Weight	411 lbs (187 kg)

AC Mains Electrical Supply System Requirements (50 or 60 Hz)	
100 V, 110 V	20 A
115 V, 120 V[1], 127 V[2]	15 A
200 V, 220 V, 230 V, 240 V	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.
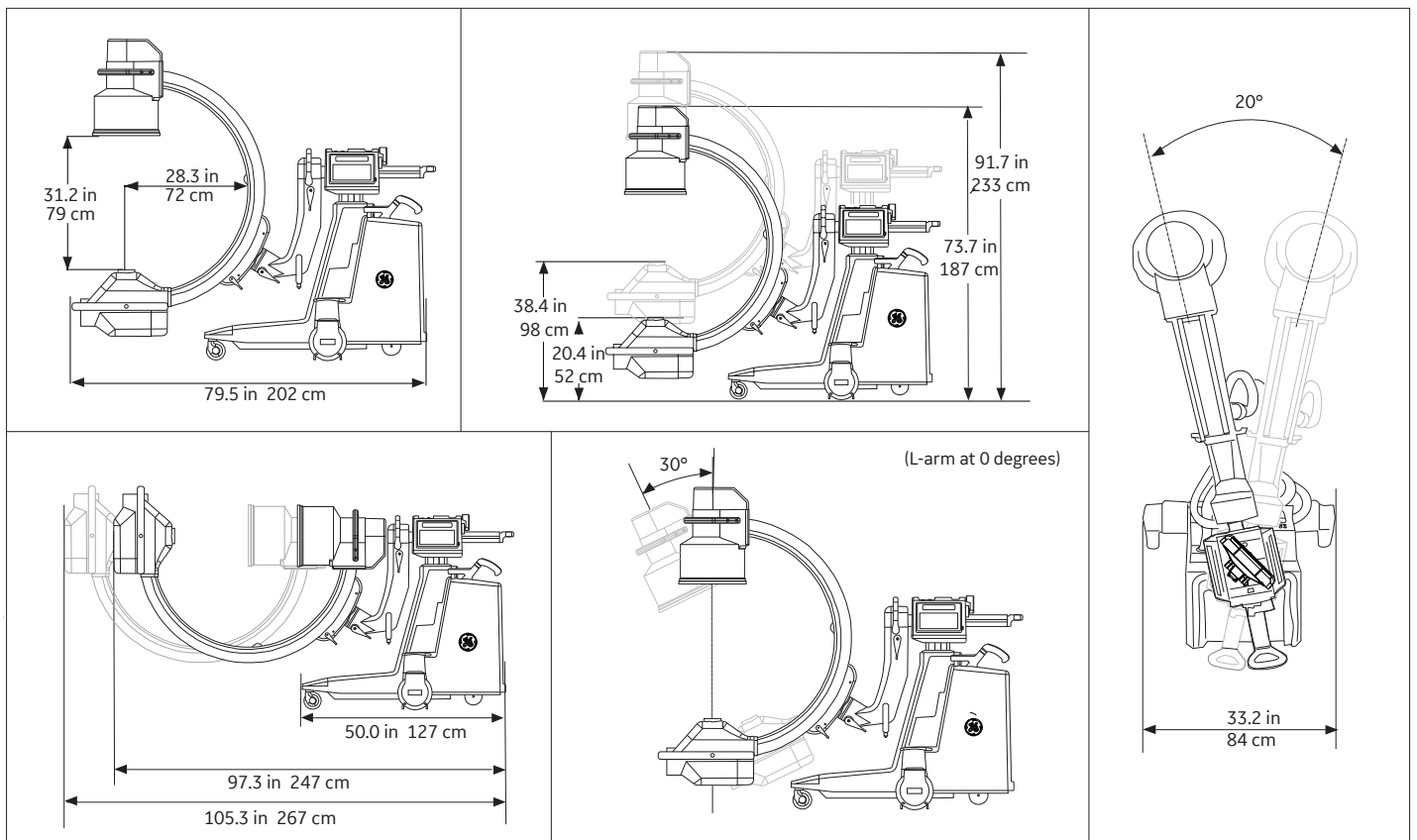
(2) 127 VAC tolerance -10% to +5%
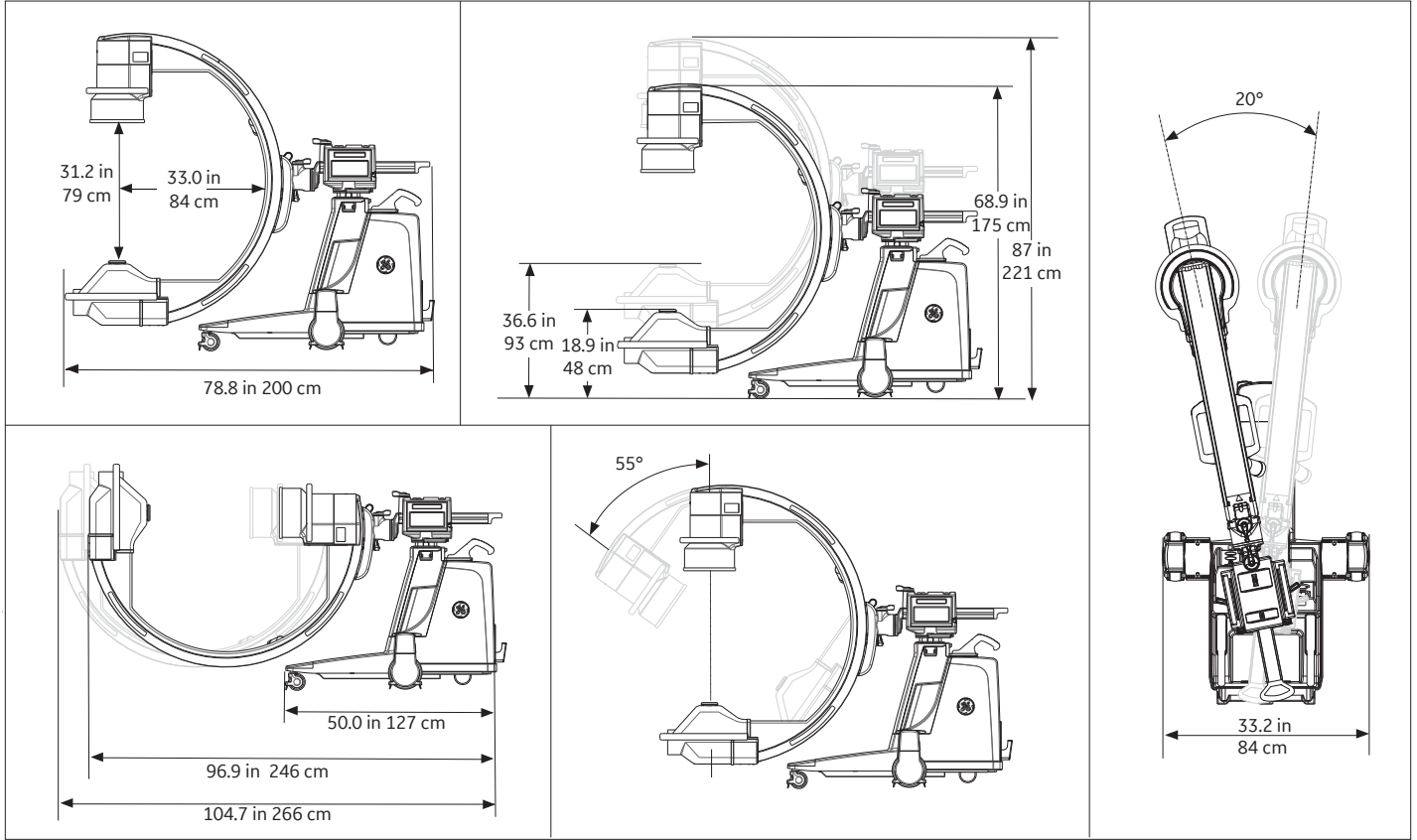
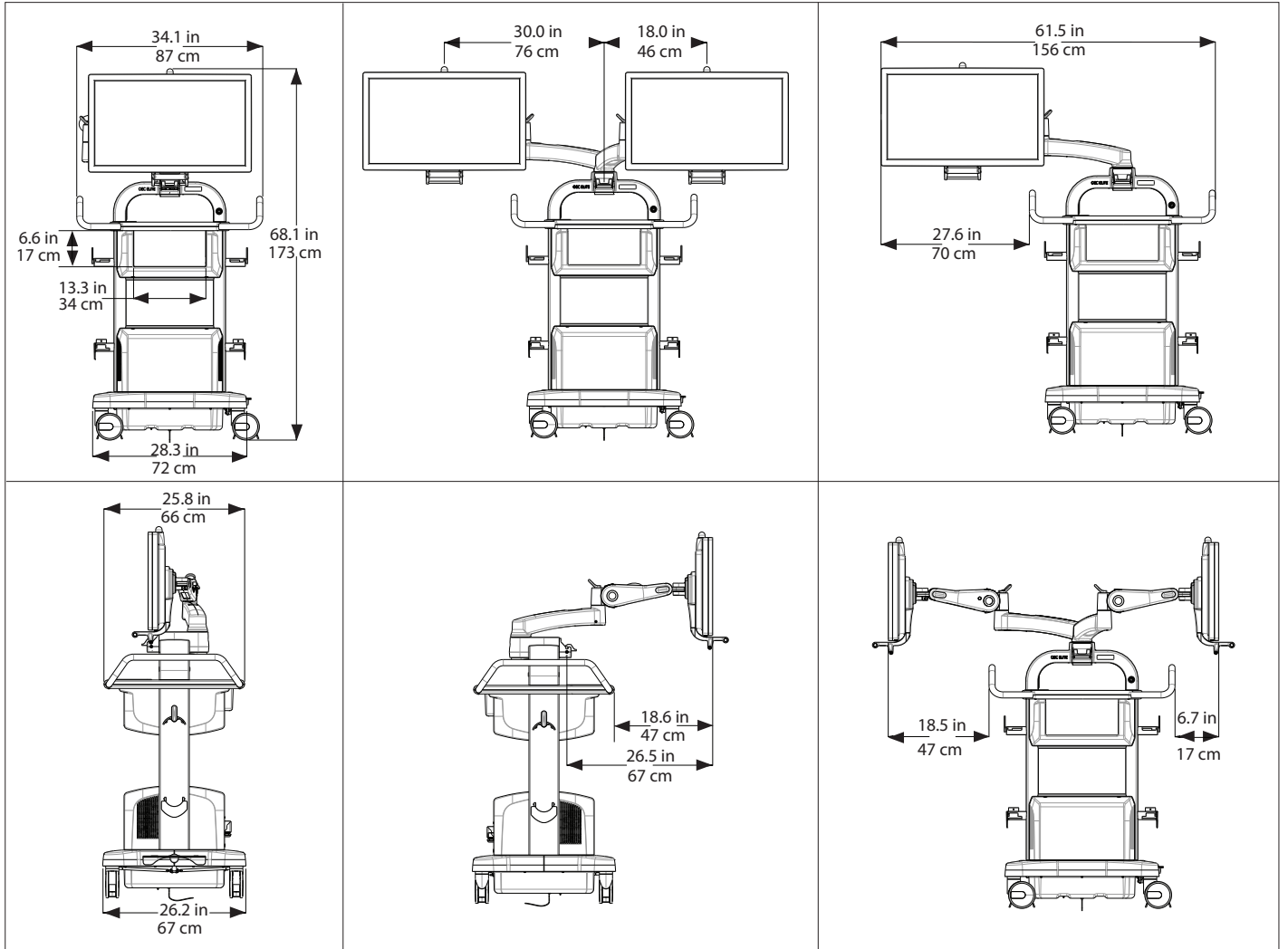# C-arm Dimensions

9" I.I. Standard C-arm

31.2 in 79 cm
26.0 in 66 cm
76.5 in 194 cm

87.5 in 223 cm
69.5 in 177 cm
39.0 in 99 cm
21.0 in 53 cm

20°
33.2 in 84 cm

50.0 in 127 cm
92.0 in 234 cm
100.0 in 254 cm

25°
(L-arm at 0 degrees)

12" I.I. Standard C-arm

31.2 in 79 cm
28.3 in 72 cm
79.5 in 202 cm

91.7 in 233 cm
73.7 in 187 cm
38.4 in 98 cm
20.4 in 52 cm

20°
33.2 in 84 cm

50.0 in 127 cm
97.3 in 247 cm
105.3 in 267 cm

30°
(L-arm at 0 degrees)

OEC Elite Technical Data
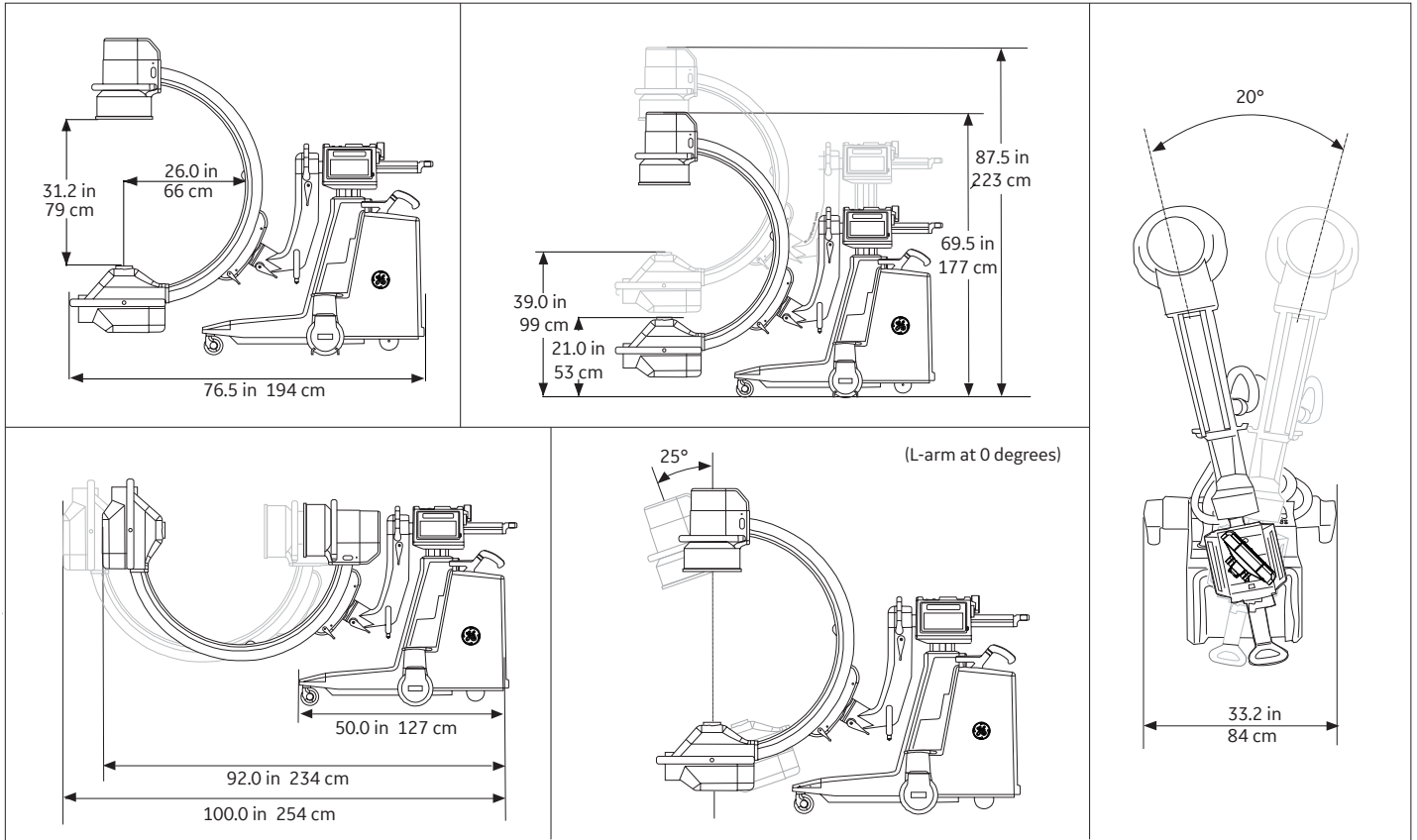
C-arm Dimensions

9 inch Super C-arm

31.2 in
79 cm

33.0 in
84 cm

78.8 in 200 cm

68.9 in
175 cm

87 in
221 cm

36.6 in
93 cm

18.9 in
48 cm

20°

50.0 in 127 cm

96.9 in 246 cm

104.7 in 266 cm

55°

33.2 in
84 cm

Workstation Dimensions

Panel 1 (top-left):
34.1 in / 87 cm
6.6 in / 17 cm
13.3 in / 34 cm
68.1 in / 173 cm
28.3 in / 72 cm

Panel 2 (top-middle):
30.0 in / 76 cm
18.0 in / 46 cm

Panel 3 (top-right):
61.5 in / 156 cm
27.6 in / 70 cm

Panel 4 (bottom-left):
25.8 in / 66 cm
26.2 in / 67 cm

Panel 5 (bottom-middle):
18.6 in / 47 cm
26.5 in / 67 cm

Panel 6 (bottom-right):
18.5 in / 47 cm
6.7 in / 17 cm

Availability of select models, configurations, and options varies by country.
Please contact your local sales representative.

Imagination at work