

# BCA PLUS - Trolley Series



Product Data **Digital Mobile C-Arm**

STANDARD	COMPOSITION	I.I. Tube	X-ray Tube	# Monitor	Memory	Collimator
CODE	MODEL					
MI1006	BCA-9S Plus	9"	Stationary Anode	n°1 – 19" Colour LCD	LIH	Standard
MI1007	BCA-9S Plus	9"	Stationary Anode	n°2 – 19" Colour LCD	3000 images	Standard
MI1008	BCA-9R Plus	9"	Rotating Anode	n°1 – 19" Colour LCD	LIH	Standard
MI1009	BCA-9R Plus	9"	Rotating Anode	n°2 – 19" Colour LCD	3000 images	Standard
MI1010	BCA-12R Plus	12"	Rotating Anode	n°1 – 19" Colour LCD	3000 images	Iris and parallel shutters
MI1011	BCA-12R Plus	12"	Rotating Anode	n°2 – 19" Colour LCD	3000 images	Iris and parallel shutters

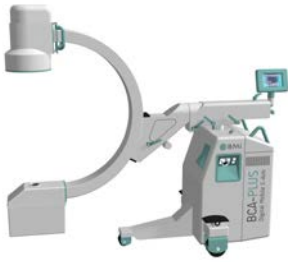
## OPTIONAL

- Digital Image System 1024 x 1024 x 14 bits image acquisition with recording up to **3.000** images
- Upgrade for Digital Image System from 3.000 images to **6.000** images
- 24x30 cm cassette holder for 9" I.I. Tube
- 30x40 cm cassette holder for 12" I.I. tube
- Iris and parallel shutters collimator
- Preview collimator *(Only in combination with iris and parallel shutters collimator)*
- Laser localizer
- Dose Area Product (DAP) *(no TOTAL DOSE REPORT available for LIH units)*
- Sterile drapes set
- Exporting software for 1Kx1K images recording (BMP format) on USB memory stick *(not for LIH units)*
- DICOM Worklist *(not for LIH units)*
- DICOM Store *(not for LIH units)*
- DICOM Image Storage function for USB Memory Stick recording *(not for LIH units)*
- Software for angles and distances measurement, overlay texting and notes *(not for LIH units)*
- Hybrid graphic printers

## ELECTRICAL CHARACTERISTICS

- Voltage Standard: 230 Vac ( $\pm 10\%$ ) single phase  
Optional: 115 Vac ( $\pm 10\%$ ) single phase
- Frequency 50/60 Hz
- Max. Absorbed current 4.5 A @ 230 Vac in fluoro mode  
20 A @ 230 Vac in radiography mode
- Line compensation Automatic
- Line resistance  $< 0.4 \Omega$  (supply at 230 Vac)
- Standard mains plug 16 A (for supply at 230 Vac)





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RADIOLOGICAL DATA	STATIONARY ANODE TUBE	ROTATING ANODE TUBE
Generator nominal power (IEC 60601-2-7)	3.5 kW @ 100kV	5.0 kW @ 100kV
High frequency generator	40 kHz	40 kHz
Max. ripple	< 2%	< 2%
High voltage range (Rad & Fluoro)	40 ÷ 110 kV	40 ÷ 120 kV
Current range in Continuous Fluoroscopy	0.2 ÷ 4 mA	0.2 ÷ 4 mA
Current range in Pulsed Fluoroscopy	6 mA - 8 mA	8 mA - 12 mA
Current range in Radiography	25mA ÷ 80 mA	25 mA ÷ 100 mA
mAs range	1 ÷ 125 mAs	1 ÷ 125 mAs
Exposure time in Radiography	0.02 ÷ 3 sec	0.02 ÷ 3 sec
Total filtration	> 3,2 mmAl	> 3,2 mmAl

X- RAY TUBE	STATIONARY ANODE TUBE	ROTATING ANODE TUBE
Model	OX 110-5	X20P
Anode	Stationary	Rotating
Anode slope	12°	10°
Focal spot size according to IEC 336	0.5 Small Focus / 1.5 Large Focus	0.3 Small Focus / 0.6 Large Focus
Anode power rating	0.8 kW SF / 4 kW LF	5kW SF / 17kW LF
Max. Anode heat content	40 kJ (54 kHU)	150 kJ (200 kHU)
Max. continuous anode thermal dissipation	270 W (360 HU/s)	300 W (400 HU/s)

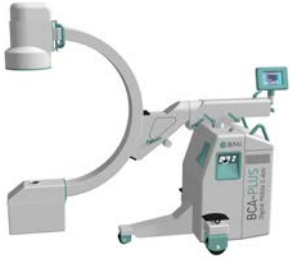
  

MONOBLOC	STATIONARY ANODE TUBE	ROTATING ANODE TUBE
Monobloc thermal capacity	590 kJ (785 kHU)	650 kJ (865 kHU)
Max. continuous thermal dissipation	80 W, 107 HU/sec, 6420 HU/min	85 W, 115 HU/sec, 6900 HU/min

COLLIMATOR	Automatic type
Standard type	<ul style="list-style-type: none"> <li>Square (Radiography) and Circular (Fluoroscopy) fixed sizes, and automatically interchangeable</li> </ul>
Iris and parallel shutters type ( <i>Optional</i> )	<ul style="list-style-type: none"> <li><b>Iris shutters:</b> beam collimation from the smallest field to the selected I.I. Input field</li> <li><b>Semi transparent shutters:</b> n°2 parallel shutters, Cu 0.6 mm, 360° rotating</li> </ul>
Preview collimator ( <i>Optional</i> )	Adjustment of the collimation on the displayed image without making x-ray. Automatic positioning of the iris and parallel shutters to the selected position, when x-ray is ON





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## IMAGE INTENSIFIER

Size	9"	12"
Model	E5830SD-P4A	E5796SD-P2A
Number of fields	3 (9" / 6" / 4.5")	3 (12" / 9" / 6")
Input nominal diameter	230 mm	310 mm
Central Resolution (typ.)	52 / 58 / 68 lp/cm	46 / 50 / 56 lp/cm
Conversion factor (cd*s/m <sup>2</sup> *μGy)	29	34
Contrast ratio (10% area)	30:1	30:1
Contrast ratio (10 mm dia.)	19:1	18:1
DQE (IEC Standard)	65%	65%

## ANTI-SCATTER GRID

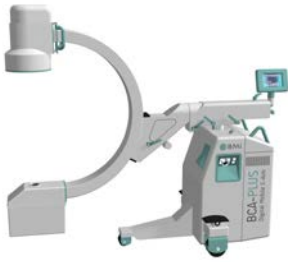
Ratio	14:1	14:1
Focus	100 cm	100 cm
# of lines	60 lp/cm	60 lp/cm

## CCD CAMERA 1K × 1K

Matrix	1024 x 1024 pixels
Technology	interline transfer CCD progressive scan with microlenses
Acquisition	1024 x 1024 x 14 bits
Contrast resolution	16384 grey levels
Signal - Noise Ratio	61 dB



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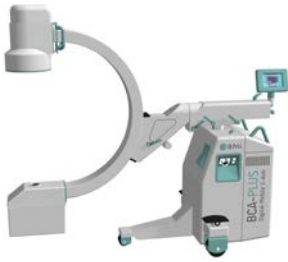


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DIGITAL IMAGE SYSTEM	LIH	3000 images	6000 images
<b>Image resolution</b>	1024 x 1024 x 14 bits	1024 x 1024 x 14 bits	1024 x 1024 x 14 bits
<b>Grey Levels</b>	16384 grey levels	16384 grey levels	16384 grey levels
<b>Number of images</b>	1 RAM	1 + 3000	1 + 6000
<b>Number of images on Hard Disk</b>	NO	3000	6000
<b>Frame rate acquisition</b>	Single store image	Single store image	Single store image
<b>Flicker Free</b>	YES	YES	YES
<b>Window, Level</b>	NO	YES	YES
<b>Contrast &amp; Brightness</b>	NO	YES	YES
<b>Recursive Filters Noise reduction</b>	4 LEVELS (F0,F1,F2,F3)	4 LEVELS (F0,F1,F2,F3)	4 LEVELS (F0,F1,F2,F3)
<b>Continuous Digital Rotation</b>	YES	YES	YES
<b>Vertical Image inversion</b>	YES	YES	YES
<b>Left / Right image inversion</b>	YES	YES	YES
<b>Edge enhancement</b>	NO	YES - Sharpness 3x3	YES - Sharpness 3x3
<b>Grey scale inversion (negative / positive)</b>	NO	YES	YES
<b>Patients Directory</b>	NO	YES	YES
<b>Editing data patient</b>	NO	YES	YES
<b>Zoom (2x, 4x, 8x, 16x)</b>	NO	YES	YES
<b>Overview windowing</b>	NO	Yes, 7 images with scrolling function	Yes, 7 images with scrolling function
<b>Image Snap-Shot</b>	NO	YES	YES
<b>USB and LAN socket</b>	NO	YES	YES
<b>Exporting software for USB memory stick recording</b>	NO	YES - Optional	YES - Optional
<b>DICOM Worklist</b>	NO	YES - Optional	YES - Optional
<b>DICOM Store</b>	NO	YES - Optional	YES - Optional
<b>DICOM Image Storage to USB Memory Stick</b>	NO	YES - Optional	YES - Optional
<b>Angle and distance Measurement</b>	NO	YES - Optional	YES - Optional
<b>Overlay texting and notes</b>	NO	YES - Optional	YES - Optional
<b>Preview Collimator</b>	YES - Optional	YES - Optional	YES - Optional
<b>Real Time Subtraction (DSA)</b>	NO	NO	NO
<b>Road-mapping</b>	NO	NO	NO
<b>Max Opacization</b>	NO	NO	NO



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## MONITOR

Size	<b>19" (483 mm)</b>
Active area	14.80" x 11.85" (376 x 301 mm)
Type	TFT active matrix colour LCD, medical

## CONNECTIVITY AND CONTROL

Analog video input	VGA (DB15)
Digital video input	DVI-I

## ELECTRICAL CHARACTERISTICS

Standard power supply	110-230V
Line frequency	50-60 Hz

## DISPLAY CHARACTERISTICS

Resolution	1MPixel (1280 x 1024)
Contrast	800:1
Luminance	270 cd/m <sup>2</sup>
Visibility angle	178° H / 178° V
Pixel pitch	0.294 mm
Color depth	16.8 M
Dicom calibrated luminance	250 cd/m <sup>2</sup>
Aspect ratio	5:4
Display LUT	10 bit
Display function	Gamma, DICOM
ALC (Ambient light compensation)	YES (from OSD - On Screen Display)
BLOS (Backlight Output Stabilization)	YES

## MECHANICAL CHARACTERISTICS

Dimensions	430 x 384 x 85 mm
Weight	9.8 kg
Mounting	VESA 100

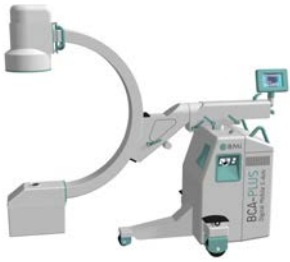
## APPROVALS

CEI 60601-1 12/98, CEI 60601-1 04/98, CEI 60601-1 02/98

## ENVIRONMENT

Operation	From 0 °C to +35 °C Humidity: 5% to 90% (not condensing)
Storage	From -30 °C to +60 °C Humidity: 5% to 80% (not condensing)





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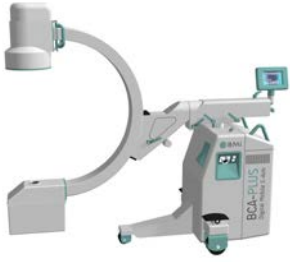


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FUNCTIONALITY	DESCRIPTION	DATA
<b>User's interface</b>	Touch-screen 7" LCD monitor for all the operation parameters and messages concerning possible faulty conditions. The LCD Monitor can be rotated $\pm 180^\circ$	
<b>Languages</b>	Italian, English, French, German, Spanish (selection at setup)	
<b>I.I. field selection</b>	Electronic zoom selection according to the number of I.I. Fields with automatic limitation of the irradiated field.	
<b>Thermal units</b>	Real time control and visualization of monobloc thermal capacity percentage (% HU) according to the selected parameters (kV - mA). Continuous Fluoro up to 4'30" then there is an acoustic alarm. At the 5 <sup>th</sup> minute of continuous fluoro the x-ray is stopped and the timer is re-setted.	
<b>Fluoroscopy control</b>	Multi-functioning footswitch: <ul style="list-style-type: none"> <li>• One pedal for continuous, pulsed, single shot (boost) and low dose pulsed fluoroscopy (the selection occurs from the console)</li> </ul>	
<b>Radiography control</b>	Two-step hand switch complete of spiral cable	
<b>Monitor positioning</b>	One or two adjustable 19" LCD monitors mounted on trolley	
<b>Safeties devices</b>	<ul style="list-style-type: none"> <li>• General automatic magneto-thermic circuit breaker switch</li> <li>• Safety key switch</li> <li>• Emergency pushbutton</li> <li>• Filament current</li> <li>• Monobloc temperature</li> <li>• Overload</li> <li>• kV min/max. or faulty H.V.</li> <li>• Stored data check</li> </ul>	



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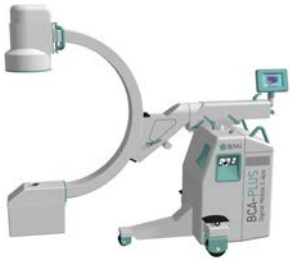
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Product Data **Digital Mobile C-Arm**

OPERATIONAL MODES	CHARACTERISTICS	PERFORMANCES	
		Stationary Anode Tube	Rotating Anode Tube
<b>Continuous Fluoroscopy</b>	Dose control (kV - mA)	<b>Automatic or manual</b>	
	mA fluoro variation range	0.2 ÷ 4 mA on Small Focus	0.2 ÷ 4 mA on Small Focus
	kV - mA correlation	Automatic	
	Safety timer	<ul style="list-style-type: none"> <li>• Acoustic alarm resettable after 4'30" fluoroscopy exposure.</li> <li>• Automatic stop after 5 minutes of continuous X-ray emission</li> </ul>	
<b>Boost fluoroscopy</b>	mA on all kV range	8 mA fixed on Small Focus	12 mA fixed on Small Focus
	X-ray pulse time	36 msec	
	X-ray pulse rate	6 Selections. 0.5 - 1 - 2 - 4 - 7.5 - 15 pulses/sec	
	Safety timer	<ul style="list-style-type: none"> <li>• Acoustic alarm resettable after 4'30" fluoroscopy exposure.</li> <li>• Automatic stop after 5 minutes of continuous X-ray emission</li> </ul>	
<b>HCFLD (High Contrast Fluoro Low Dose)</b>	mA	6 mA fixed on Small Focus	8 mA fixed on Small Focus
	X-ray pulse time	36 msec	
	X-ray pulse rate	6 Selections. 0.5 - 1 - 2 - 4 - 7.5 - 15 pulses/sec	
	Safety timer	<ul style="list-style-type: none"> <li>• Acoustic alarm resettable after 4'30" fluoroscopy exposure.</li> <li>• Automatic stop after 5 minutes of continuous X-ray emission</li> </ul>	
<b>Digital Radiography (One Shot)</b>	mA	8 mA fixed on Small Focus	12 mA fixed on Small Focus
	X-ray flash time	66 msec	
<b>Radiography</b>	mA Range	25mA ÷ 80 mA	25mA ÷ 100 mA
	Max. current	80 mA	100 mA
	Exposure time	0.02 ÷ 3 sec	
	Selection x-ray parameters	kV, mA, time	





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## ENVIRONMENTAL CONDITIONS

Environmental conditions in standard use

- Temperature: from +10 °C to +40 °C
- Humidity: 30% to 75% (not condensing)
- Pressure: from 700 to 1060hPa

Environmental conditions in transport and warehouse

- Temperature: from -25 °C to +70°C
- Humidity: 10% to 90% (not condensing)
- Pressure: from 500 hPa to 1060 hPa

## WEIGHT AND DIMENSIONS

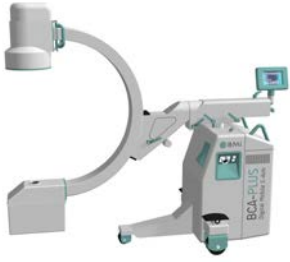
Description	C-Arm 9"	C-Arm 12"	Trolley 1 Monitor	Trolley 2 Monitors
<b>Weight</b>	~ 340 Kg	~ 340 Kg	~ 60 Kg	~ 70 Kg
<b>Width</b>	779 mm	779 mm	846 mm	860 mm
<b>Depth</b>	1940 mm	1940 mm	834 mm	834 mm
<b>Height</b>	1763 mm	1853 mm	1717 mm	1717 mm

## MECHANICAL CHARACTERISTICS

	C-Arm 9"	C-Arm 12"
Vertical travel	400 mm, motorized in 30 sec.	400 mm, motorized in 30 sec
Horizontal travel	200 mm	200 mm
Panning movement	± 210°	± 210°
Orbital rotation	146° (+90° ÷ - 56°)	146° (+90° ÷ - 56°)
Pivotal rotation	± 10.5°	± 10.5°
Free Space	829 mm	802 mm
Depth	721 mm	721 mm
S.I.D.	1000 mm for Stationary Anode 983 mm for Rotating Anode	973 mm
Focus skin distance	200 mm	200 mm
Unit movement	Manual. Operator manual control of rear wheels. Swivelling front wheels. Stationary foot-brake.	
C-Arm wheels diameter	<ul style="list-style-type: none"> <li>• Rear: Two double wheels ø 150 x 51 mm</li> <li>• Front: Double wheels ø 80 x 46 mm</li> </ul>	
Protection against cables squashing	Semi-rigid rubber core-hitch on wheels.	







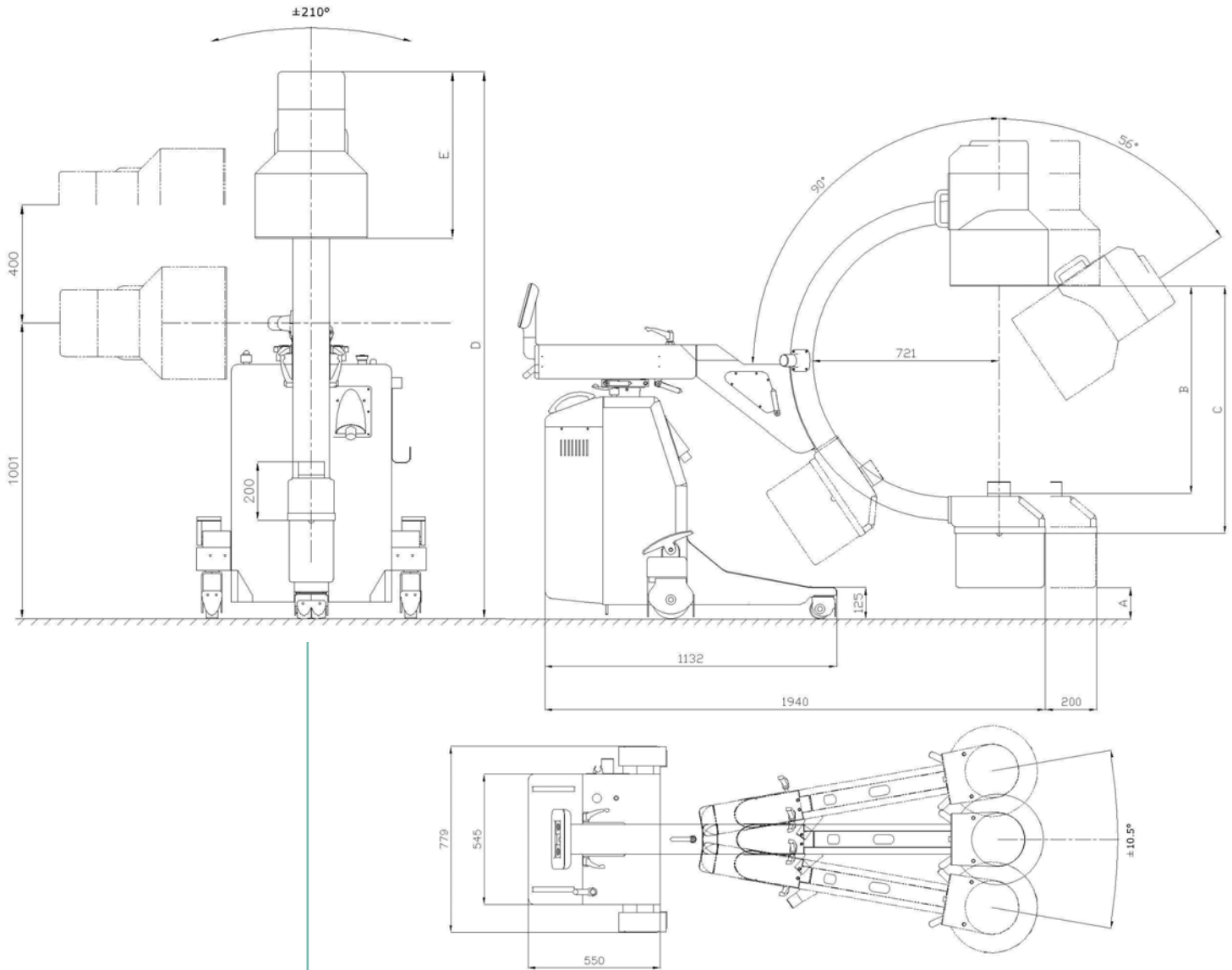
# BCA PLUS - Trolley Series

Product Data Digital Mobile C-Arm



## TECHNICAL DATA

C-ARM Dimension in mm



	Stationary Anode 9" I.I. Tube	Rotating Anode 9" I.I. Tube	Rotating Anode 12" I.I. Tube
<b>A</b>	124 mm	148 mm	149 mm
<b>B</b>	829 mm	829 mm	802 mm
<b>C</b>	1000 mm	983 mm	973 mm
<b>D</b>	1763 mm	1763 mm	1853 mm
<b>E</b>	448 mm	448 mm	563 mm



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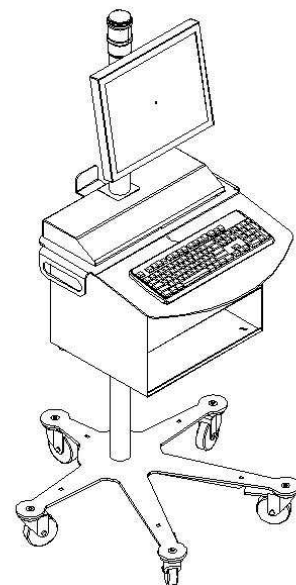
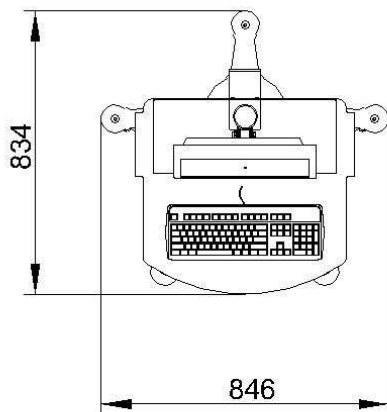
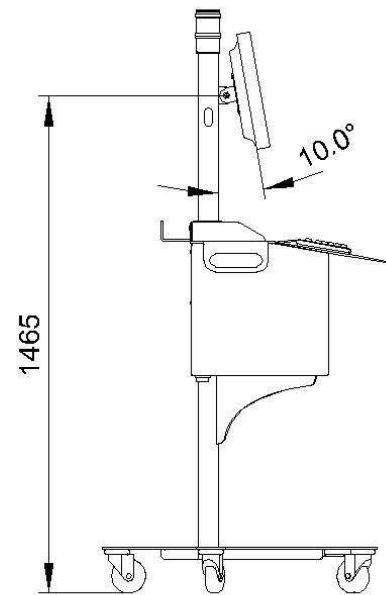
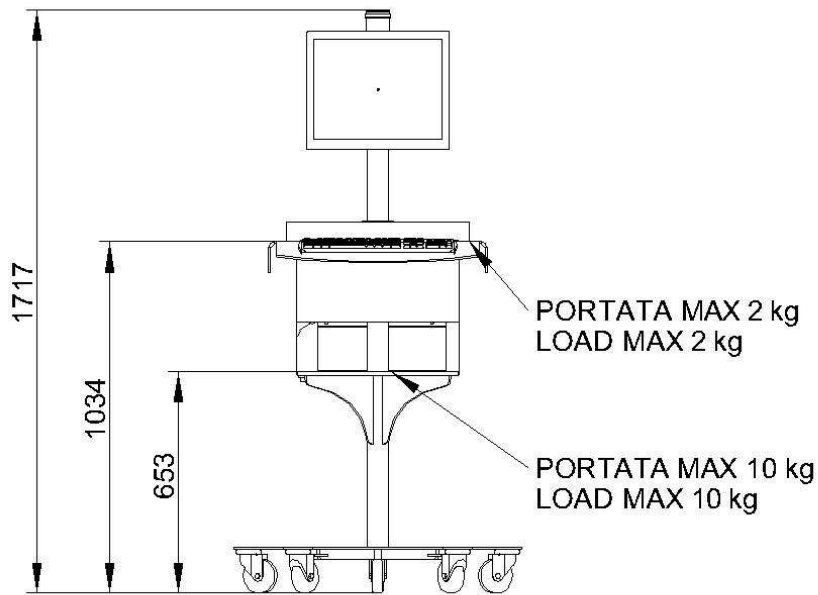
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Product Data Digital Mobile C-Arm



## TECHNICAL DATA

C-ARM Dimension in mm



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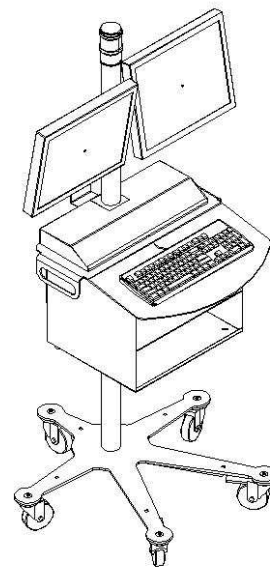
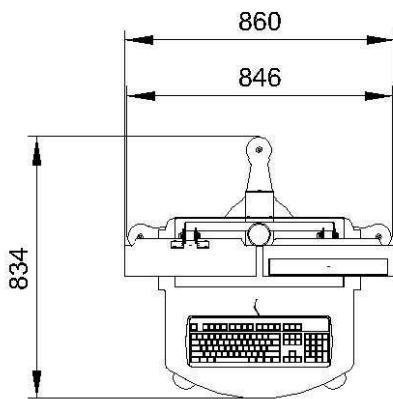
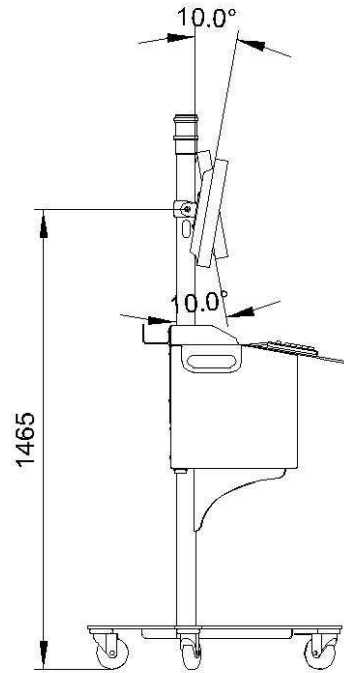
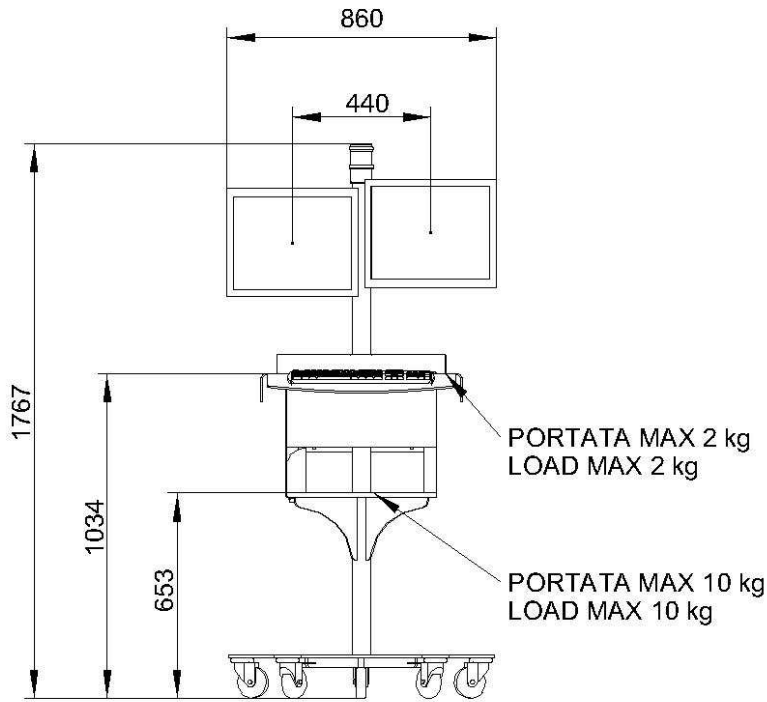
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## TECHNICAL DATA

TROLLEY Dimension in mm



PD-70-E 12/02/2013 Rev.03

Note: Data subjected to alteration without prior notice



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