

# BCA PLUS - Angio Series



Product Data **Digital Mobile C-Arm**

COMPOSITION		I.I. Tube	X-ray Tube	# Monitor	Memory	Collimator
CODE	MODEL					
MI1014	BCA - 9RK Angio Plus	9"	Rotating Anode	n°2 - 19" Monochrome	Angio 30fr/sec acq.	Iris and parallel shutters
MI1015	BCA - 12RK Angio Plus	12"	Rotating Anode	n°2 - 19" Monochrome	Angio 30fr/sec acq.	Iris and parallel shutters

## OPTIONAL

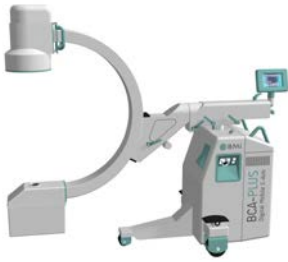
- 24x30 cm cassette holder for 9" I.I. Tube
- 30x40 cm cassette holder for 12" I.I. Tube
- Laser localizer
- Dose Area Product (DAP)
- Preview collimator
- Sterile drapes set
- Exporting software for 1Kx1K images recording (BMP or AVI format) on USB memory stick
- Dicom Store
- Dicom Worklist
- DICOM Image Storage function for USB Memory Stick recording
- DICOM Image Storage function for CD/DVD burning
- Thermostatically controlled forced ventilation
- Hybrid graphic printers

## ELECTRICAL CHARACTERISTICS

- |                         |  |
|-------------------------|--|
| • Voltage               | Standard: 230 Vac ( $\pm 10\%$ ) single phase<br>Optional: 115 Vac ( $\pm 10\%$ ) single phase |
| • Frequency             | 50/60 Hz   |
| • Max. Absorbed current | 4.5 A @ 230 Vac in fluoro mode<br>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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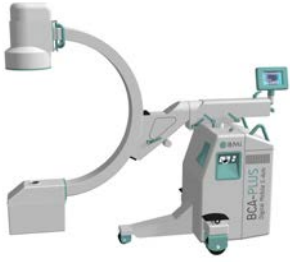


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RADIOLOGICAL DATA		ROTATING ANODE TUBE
Generator nominal power (IEC 60601-2-7)		8.0 kW @ 100kV
High frequency generator		40 kHz
Max. ripple		< 2%
High voltage range (Rad & Fluoro)		40 ÷ 120 kV
Current range in Continuous Fluoroscopy		0.2 ÷ 4 mA
Current range in Pulsed Fluoroscopy		8 mA - 12 mA
Current range in Radiography		25 mA ÷ 100 mA
mAs range		1 ÷ 125 mAs
Exposure time in Radiography		0.02 ÷ 3 sec
Total filtration		> 3,2 mmAl
X- RAY TUBE		
Model		X20P
Anode		Rotating
Anode slope		10°
Focal spot size according to IEC 336		0.3 Small Focus / 0.6 Large Focus
Anode power rating		5kW SF / 17kW LF
Max. Anode heat content		150 kJ (200 KHU)
Max. continuous anode thermal dissipation		300 W (400 HU/s)
MONOBLOC		
Monobloc thermal capacity		650 kJ (865 KHU)
Max. continuous thermal dissipation		85 W, 115 HU/sec, 6900 HU/min
COLLIMATOR		
Automatic type		
Iris and parallel shutters type		<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

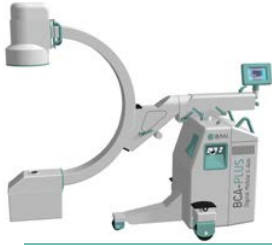
Ratio	14:1	14:1
Focus	100 cm	100 cm
# of lines	60 lp/cm	60 lp/cm

## 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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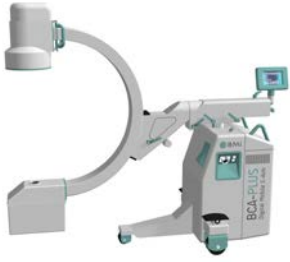


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DIGITAL IMAGE SYSTEM	MEMORY ANGIO 30 fr/sec	
<b>ACQUISITION</b>		
Image acquisition	1024 x 1024 x 14 bit - 16384 grey levels	
Video output	DVI-A & VGA 1280 x 1024	
# of images on hard disk	800.000 images 1k x 1K x 14 bit on H.D. SATA 500 GByte	
Images acquisition rate	0.5/ 1 / 2 / 4 / 7.5 / 15 / 30 fps	
Continuous Digital image rotation	Yes	
Window, Level, Brightness adj. tool	Yes	
Vertical image inversion	Yes	
Left / Right image inversion	Yes	
Gray scale inversion	Yes	
Recursive filter - Noise reduction	Yes - 4 selections: F0, F1, F2, F3	
Max. Opacification during fluoroscopy acquisition	Yes	
Image Subtraction (DSA)	Yes	
Road mapping	Yes	
Teleinjector management	Yes	
<b>POST PROCESSING</b>		
Grey scale inversion	Yes	
Window, Level, Brightness adj. tool	Yes	
Continuous Digital image rotation	Yes	
Overview windowing	Yes, 7 images with scrolling function	
Vertical image inversion	Yes	
Left / Right image inversion	Yes	
Electronic zoom (2x, 4x, 8x, 16x)	Yes	
Spatial filters, edge enhancement	Yes - Sharpness 3x3	
Land marking	Yes	
Cineloop	Yes - (Display of two different sequences simultaneously)	
Auto play	Yes	
Shifting pixel	Yes	
Automatic mask acquisition	Yes	
Re-masking	Yes	
Image subtraction	Yes	
Road mapping	Yes	
Image Snap-Shot	Yes	
Preview collimator	Yes - Optional	
<b>MEASURES</b> <i>(indicative)</i>		
Distance calculation	Yes	
Angles measuring	Yes	
<b>UTILITY</b>		
Exporting software for 1Kx1K images recording (BMP for AVI format) on USB memory stick	Yes - Optional	
DICOM Store	Yes - Optional	
DICOM Worklist	Yes - Optional	
DICOM Image Storage function for USB Memory Stick recording	Yes - Optional	
DICOM Image Storage function for CD/DVD burning	Yes - Optional	



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## MONOCHROME MONITOR

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

## CONNECTIVITY AND CONTROL

Analog video input	VGA
Digital video input	DVI-D

## ELECTRICAL CHARACTERISTICS

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

## DISPLAY CHARACTERISTICS

Resolution	1MPixel (1280 x 1024)
Contrast	900:1
Luminance	1000 nit
Visibility angle	170° H / 170° V
Pixel pitch	0.294 mm
Aspect ratio	5:4
ALC (Ambient light compensation)	YES
BLOS (Backlight Output Stabilization)	YES

## MECHANICAL CHARACTERISTICS

Dimensions	430 x 380 x 80 mm (LxHxW without basement)
Weight	8,6 kg
Mounting	VESA 100

## APPROVALS

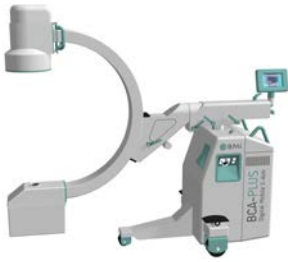
CEI 60601-1 12/98, CEI 60601-1 04/98, CEI 60601-1 02/98

## ENVIRONMENT

Operation	From 0 °C to +45 °C Humidity: 8% to 80% (not condensing)
Storage	From -30°C to +70°C Humidity: 8% to 80% (not condensing)



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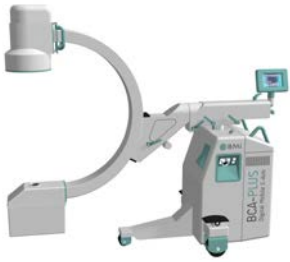


**Product Data** Digital Mobile C-Arm

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>	Two adjustable 19" Monochrome LCD monitor 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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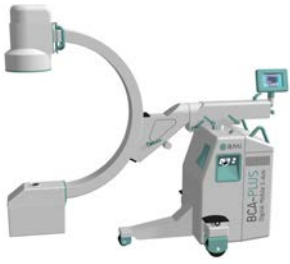
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OPERATIONAL MODES	CHARACTERISTICS	PERFORMANCES
<b>Continuous Fluoroscopy</b>	Dose control (kV - mA) mA fluoro variation range kV - mA correlation Safety timer	<b>Automatic or manual</b> 0.2 ÷ 4 mA on Small Focus Automatic <ul style="list-style-type: 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 X-ray pulse time X-ray pulse rate Safety timer	12 mA fixed on Small Focus 36 msec 6 Selections. 0.5 - 1 - 2 - 4 - 7.5 - 15 pulses/sec <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</b> <i>(High Contrast Fluoro Low Dose)</i>	mA on all kV range X-ray pulse time X-ray pulse rate Safety timer	8 mA fixed on Small Focus 36 msec 6 Selections. 0.5 - 1 - 2 - 4 - 7.5 - 15 pulses/sec <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</b> <i>(One Shot)</i>	mA on all kV range X-ray flash time	12 mA fixed on Small Focus 66 msec
<b>Film Cinematography</b>	mA Range X-ray pulse rate Acquisition rate Sequence run time	80 - 70 - 60 - 50 - 40 - 30 mA 15 / 30 pps 0.5 - 1 - 2 - 4 - 7.5 - 15 - 30 fps 12 sec
<b>Radiography</b>	mA Range Max current Exposure time Selection x-ray parameters	25mA ÷ 100 mA 100 mA 0.02 ÷ 3 sec 3 point technique (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
<b>Weight</b>	~ 340 Kg	~ 340 Kg	~ 100 Kg
<b>Width</b>	779 mm	779 mm	860 mm
<b>Depth</b>	1940 mm	1940 mm	686 mm
<b>Height</b>	1763 mm	1853 mm	1776 mm

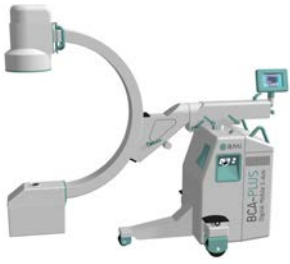
## MECHANICAL CHARACTERISTICS

	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.	983 mm	973 mm
Focus skin distance	200 mm	200 mm
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.	



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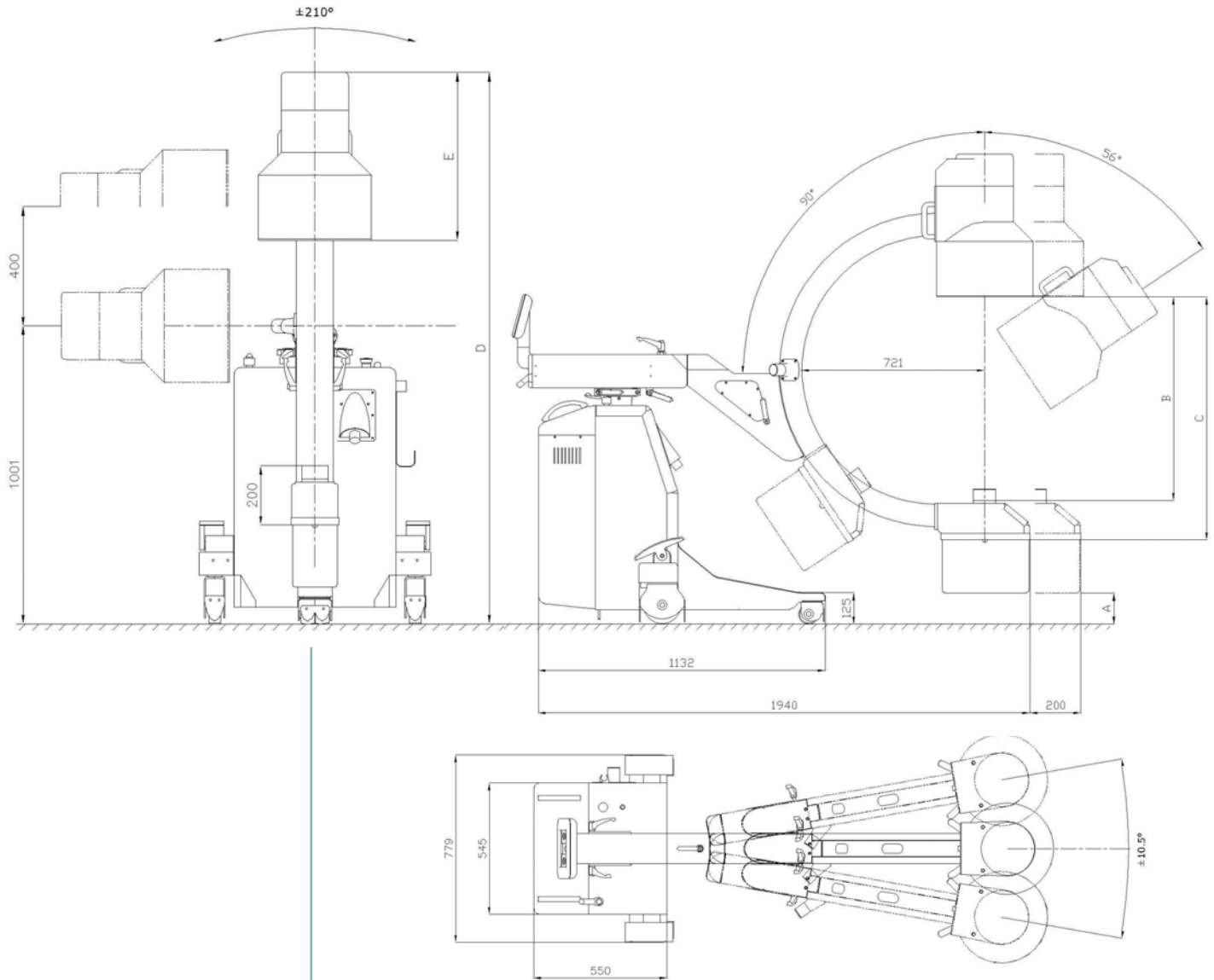
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## TECHNICAL DATA

C-ARM Dimension in mm



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



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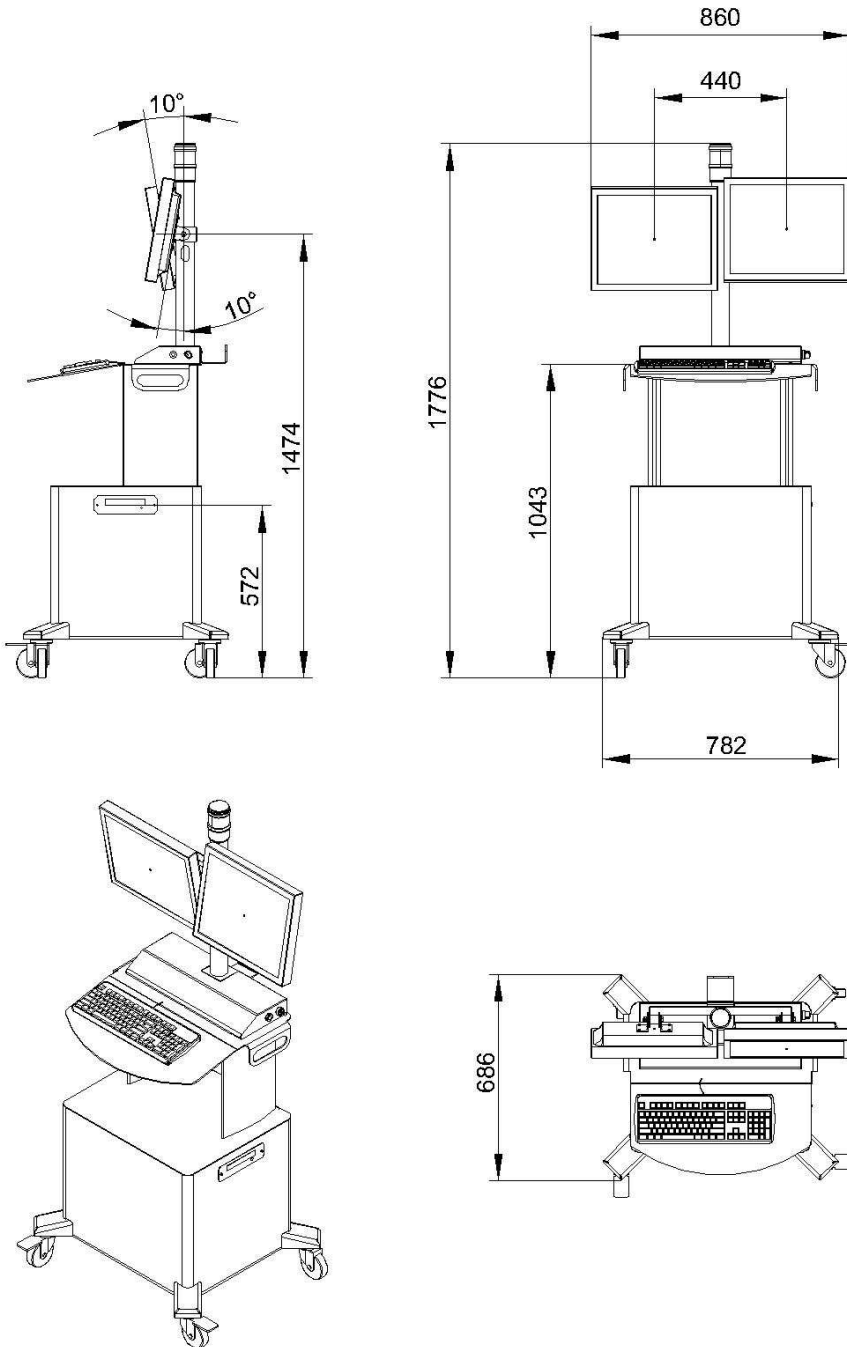
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## TECHNICAL DATA

TROLLEY Dimension in mm



PD-72-E 12/02/2013 Rev.04

Note: Data subjected to alteration without prior notice



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