CANON MEDICAL

Omnera 500A

Designed for Patient Centric Care

This digital X-ray system incorporates decades of imaging performance and reliability. The auto-positioning technology combined with focus on patient centric care maximizes your patient throughput while creating a first class working environment.

Features supporting high work flow

- **Predefined anatomical programs**
  With one touch exposure parameters, position and collimation is defined.
- **Auto positioning**
  When anatomical program is selected system goes to pre-defined position.
- **Light weight OTC**
  Allows easy and smooth fine-tuning of the tube position.
- **Auto tracking Wall stand**
  The tube tracks the vertical and tilting movements of the detector.
- **Auto tracking Table**
  When the table top height is adjusted up/down the tube will automatically move in order to keep the SID constant.
  SID = Source image distance, tube focus to detector surface.
- **Automatic stitching**
  Scoliosis and long legs examinations are performed fast and easy by automatic stitching functionality. Area of interest is easily defined with collimator light field.

OTC Display information
Patient information and information about the selected examination is shown on the tube display. Exposure parameters as for example patient size or selected AEC chamber can be changed from the tube display.

- **Remote control**
  Positioning can be performed with a Remote control (optional) for more flexible work flow.
- **Ergonomic and light-weight detectors**
  Light weight and with ergonomic interfaces for secure and efficiency.

Dose awareness

- **Detector with high DQE**
  Detector with high DQE (Detective Quantum Efficiency) is used securing good images to low patient dose.
- **Automatic Exposure Control (AEC)**
  AEC can be used for examinations performed at the Table and Wall stand. The use of AEC secures that the correct amount of dose is used in order to create a diagnostic image.
- **DAP**
  Monitoring of the patient dose; Dose Area Product Meter. The value is shown with the image and included in the DICOM header.
- **Exposure Index**
  Exposure index indicates if the correct amount of dose were used or not. This value is shown together with the image.

General information

Classification of installation and use:	Fixed / permanently installed
Device type (component/sub-assembly/ equipment/ system):	System
Intended use (Including type of patient, application location):	Radiography
Mode of operation:	Continuous standby with non-continuous loading
Supply connection:	Permanently installed

Classification (according to IEC 60601-1)

Class	Class I equipment. All dead metal parts of the equipment are electrical connected to protective earth.
Applied part	Type B

Energy consumption

Scenarios according to COCIR (March 2014).	**[kWh]**
Scenario-Off: The X-ray **scanner is in** Off mode for 12h during night-time. $E_{tot} = P_{off} \times 12h + P_{ready} \times 12h$	**2,715**
Scenario Low: The X-ray scanner is in low-power mode during 12h night-time. $E_{tot} = P_{lowpower} \times 12h + P_{idle} \times 12h$	**4,307**
Scenario-ready-to-scan: The X-ray scanner is in ready-to-scan mode for 24h as it is never switched to off or low-power modes. $E_{tot} = P_{ready} \times 24h$	**5,431**

P_{off} = 0 kW, $P_{lowpower}$ = P_{idle} = 0,13 kW, P_{ready} =0,23 kW

X-ray Generator

Generator name/type number	High Frequency Generator
Switching Frequency	100 kHz
Nominal kW output of generator	65 kW Option: 80kW
kVp range	40 – 150 kV
mA range	10 to 630 mA (50 kW) 10 to 800 mA (65 kW) 10 to 1000 mA (80 kW)
mAs range	0.1 to 630 mAs (50 kW) 0.1 to 800 mAs (65 kW) 0.1 to 1000 mAs (80 kW)
Exposure time	0.001 – 6.3 s
System Cabinet (L x W x H) mm	750 x 600 x 1125 mm

Electrical characteristics

Mains voltage for the systm	380 V 3~ or 400 V 3N or 400 V 3~ or 480 V 3~ 50/60 Hz Long-time (stand by / positioning) 2A Momentary (exposure): 150 A, Class 1, Type B
Heat dissipation	1713 BTU/H

			Minimum Recommended			
Generator Series and Mains Voltage	**Generator Momentary Line Current**	**Apparent Mains Resistance**	**Mains Disconnected to Generator (15 ft/5m max)**	**Generator Service Rating**	**Distribution Transformer Rating**	**Ground Wire Size**
50 kW 400 VAC, 3p.	100 A	0.17 Ω	13.3 mm^2	100 A	65 kVa	13.3 mm^2
65 kW 400 VAC, 3p.	125 A	0.13 Ω	13.3 mm^2	100 A	85 kVa	13.3 mm^2
80 kW 400 VAC, 3p.	155 A	0.10 Ω	13.3 mm^2	100 A	105 kVa	13.3 mm^2

Environmental Requirements

Ambient transport and storage temperature	-40 °C - +70 °C
Ambient operating temperature	+10 °C - +40 °C
Transport and storage humidity (relative)	10-90%, non-condensing
Operating humidity (relative)	30-75% RH, non-condensing
Maximum transport and storage altitude	500-1060 hPa
Maximum operating altitude	700-1060 hPa

Overhead Tube Crane

General

Rotation range ceiling (beta)	>340°
Rotation range tube arm (alpha)	>±135°
Column (Z stroke)	1750 mm
Longitudinal movement (X stroke)	3190 mm (X-rail 4 000 mm)
Transverse movement (Y stroke)	4160 mm (Y-rail 5 000 mm) *(if cable carraige is used, the stroke is reduced 105 mm for each wagon)*

Electrical Characteristics

Mains voltage	230 VAC, 50/60 Hz center tapped single phase 4A

Speed

	Low speed – Maximum speed
Z movement	60 mm/s
X movement	250 mm/s – 500 mm/s
Y movement	250 mm/s – 500 mm/s
α movement	16°/s
β movement	16°/s

Image receptor holder movement (with 50 kg mass)	166 mm/s – 350 mm/s

OTC Display

Size	12,1"
Viewing area	262W x 164H mm
Type	TFT
Resolution	1280 x 800 pixels
Information:	Patient name, ID, Birth date, age, gender Beta and alpha angle. SID or height above table. Active mode; Table – Wall stand – Free or Stitching.
Information and changeable parameters:	Technique, X-ray tube voltage, X-ray tube current, radiography time, density, AEC (Automatic Exposure Control), beam hardening filter, patients size setting selection etc.

X-ray Tube Unit

Max kVp rating	150 kV
Focal spot input power	40/100 kW
Focal spot sizes	0.6/1.2 mm
Anode heat storage	400 kHU, 600 kHu (option)
Anode angle	12°
Housing heat storage	2.000 kHU
Anode cooling rate	125 kHU/min
Anode rotation speed	180 Hz

Collimation

Aluminum equivalent contribution to total filtering (X-ray beam = 75 kV)	Min. Al 1.2 mm
Additional Filtration (X-ray beam = 75 kV; EN60601-1-3: §7.3, §7.5)	1 mm Al + 0.1 mm Cu 1 mm Al + 0.2 mm Cu Combined 2 mm Al + 0.3 mm Cu
Shape of the radiation field	Rectangular
Lamp:	LED
Rotation angle:	±90°
Center marker:	Center if the radiation field is indicated by a cross.
Bucky light:	Radiation field center is indicated by a laser beam for positioning.
Beam limiting method:	Automatic (adjusted to detector size and location in detector holder) Manual (adjusted by the user)

Wall stand

General

Vertical stroke	~1582 mm (1897 mm with tilted detector)
Motorized rotation range of imaigng unit	-20° - +90°

Configuration

Operating method:	Motorized and manual vertical Motorized tilting (option)
Balancing mechanism:	Counterweight

Table

General

Movement	6-Way
Operating method:	Motorized vertical and floating table top
Patient load (Dynamic load center):	300 kg

Table top height

Lowest table top position (from floor to table top surface)	55 cm
Vertical stroke	38 cm

Table top

Al eqv.	0,9 mm
Table top dimension	2424 mm x 850 mm
Table top transparent area	2400 mm x 613 mm
Table top thickness	21,5 mm
Length of stroke, X direction	± 600 mm
Length of stroke, Y direction	± 150 mm
Movement ragne of the imaging unit	>650 mm

Electrical Characteristics

Maximum power without external electronics	500 W

External Electrical Characteristics

The external electronics must be approved according to IEC60601-1. If any external electronics is installed the end product must be tested according to IEC60601-1.

Power output to external	110-240 VAC 50-60 Hz Single phase 10A
Power output external 24 VDC	24 VDC 3A

X-ray grids

Interspace material	Al
Cover material:	Al or Carbon
Grid density	40 lp/cm or 52 lp/cm
Grid ratio:	10:1

Focusing distance:	110, 115, 140, 150, 180
	Stationary
	Detachable
701/710 Portable W/Holder with grid	Light weight detector holder with integrated grid. Portrait version Grid specification: Carbon fiber cover + fiber interspaced 52 lines/cm, ratio 8:1, Focal distance: 110 cm.
801/810 Portable W/Holder with grid	Light weight detector holder with integrated grid. Grid specification: Carbon fiber cover + fiber interspaced 52 lines/cm, ratio 8:1, Focal distance: 110 cm. Portrait version
401/410 Portable W/Holder with grid	Light weight detector holder with integrated grid. Grid specification: Carbon fiber cover + fiber interspaced 52 lines/cm, ratio 8:1, Focal distance: 110 cm. Portrait version
401/410 Portable W/Holder with grid	Light weight detector holder with integrated grid. Grid specification: Carbon fiber cover + fiber interspaced 52 lines/cm, ratio 8:1, Focal distance: 140 cm Portrait version

Flat Panel Detector

High end detectors	
Wireless	
Scintillator	CsI
Fluid Resistance	IPX7
On-board image storage	Up to 99 images
Pixel size:	125 µm
A/D conversion:	16 bit
Resolution:	4.0 lp/mm
DQE:	0.74 @4.3µGy, Spatial frequency 0 lp/mm
Preview Image time:	1 sec.
Cycle Time:	7 sec.
Wireless channel/band	2.4 GHz, 5 GHz (W52, W53*, W56*, W58) **) W53, W56 supports only in Module receiver mode*
Local storage	Able to store 99 images
Load capacity:	Uniform load (over the whole area of the detector surface): 310 kg or less Uniform load (effective imaging area): 150 kg or less Local load (On an area 40 mm in diameter): 100 kg or less
CXDI-710C Wireless	
Size	35.0 x 42.6 cm
Effective imaging area:	350 x 426 mm

Image matrix size:	2800 x 3408 pixels
Weight	2.3 kg
CXDI-810C	
Size	35.0 x 27.4 cm
Effective imaging area:	350 x 274 mm
Image matrix size:	2800 x 2192 mm
Weight	1.8 kg
CXDI-410C	
Size	42.6 x 41.5 cm
Effective imaging area:	426 x 415 mm
Image matrix size:	3320 x 3408 mm
Weight	2.8 kg
Mid range detectors	
Scintillator	CsI
Fluid and dust resistance	IP55
Pixel size:	125 µm
Resolution:	4.0 lp/mm
DQE:	Typical 65% (0 lp/mm)
Preview Image time:	1 sec.(*Dependent on acquisition mode)*
Cycle Time:	7 sec.(*Dependent on acquisition mode)*
Wireless channel/band	2.4 GHz, 5 GHz (W52, W53*, W56*, W58) **) W53, W56 supports only in Module receiver mode*
Load capacity:	310 kg
Battery performance	• Standard synchronization mode: 1000 images @ 7 sec. cycle, 108 images @ 100 sec. cycle. • Non-Generator Connection mode: 1000 images @ 7 sec. cycle, 90 images @ 100 sec. cycle.
Charging performance	Detector charging in docking station: approx. 120 min.4 In battery charger approx. 150 min.(*At an ambient temperature of 25ºC.)*
CXDI-702C	
Size	38.4 x 46.0 x 1.57 cm
Effective imaging area:	35.0 x 42.6 cm
Image matrix size:	2800 x 3408 pixels
Weight	3.1 kg
CXDI-402C	
Size	46.0 x 46.0 x 1.57 cm
Effective imaging area:	41.5 x 42.6 cm
Image matrix size:	3320 x 3408 pixels
Weight	3.7 kg
Fix	
CXDI-401C Compact	
Scintillator	CsI

Effective Imaging area:	415 x 426 mm
Resolution:	4.0 lp/mm
Gray scale:	4096 gray scale
Pixel size:	125 x 125 µm
Image matrix size:	3320 x 3408 pixels
Attenuation of the detector front panel:	Max 0.37 mmAl
Environmental requirements Operation Temperature: Humidity: Atmospheric pressure:	 +5°C to +35°C 30 to 85% RH (without condensation) 700 to 1060 hPa
Operation Temperature: Humidity: Atmospheric pressure:	 -305°C to +50°C 10 to 95% RH (without condensation) 700 to 1060 hPa
Dimensions	Approx. 460 (W) x 490 (H) x 15 (D) mm
Weight:	Approx. 7 kg (including cable)

Workstation / Control Software

DICOM Conformance (3.0)	
DICOM Storage SCU/SCP, Query/Retrieve SCU, Modality work list SCU, Storage Commitment SCU, Basic grayscale Print SCU, MPPS Print Conduction Off-line examinations	Supported *See DICOM Conformance statement for details.*

Control Software	Provide a steady and efficient workflow in the field of digital radiography when linked to an RIS/HIS network. Connect Flat panel detectors. Automatically processing of captured images to achieve diagnostic image quality. Advanced image processing features. Preprogramed anatomical programs are available and can be selected and adjusted. Exposure parameter can be selected and adjusted: kV, mA and mAs, focus size and AEC/manual exposure. New patient entry, generator parameters adjustments and post processing operations can be done by single console and monitor.
DICOM Conformance Statement Overview	The Control software implements necessary DICOM services to download work lists from an information system, save acquired DX images, CR images and associated Presentation States to a network storage device or Storage Medium, print to a networked hardcopy device and inform the information system about the work actually done. Media Storage Application Profile supported by the Control software: Compact Disk –Recordable, General Purpose CD-R.

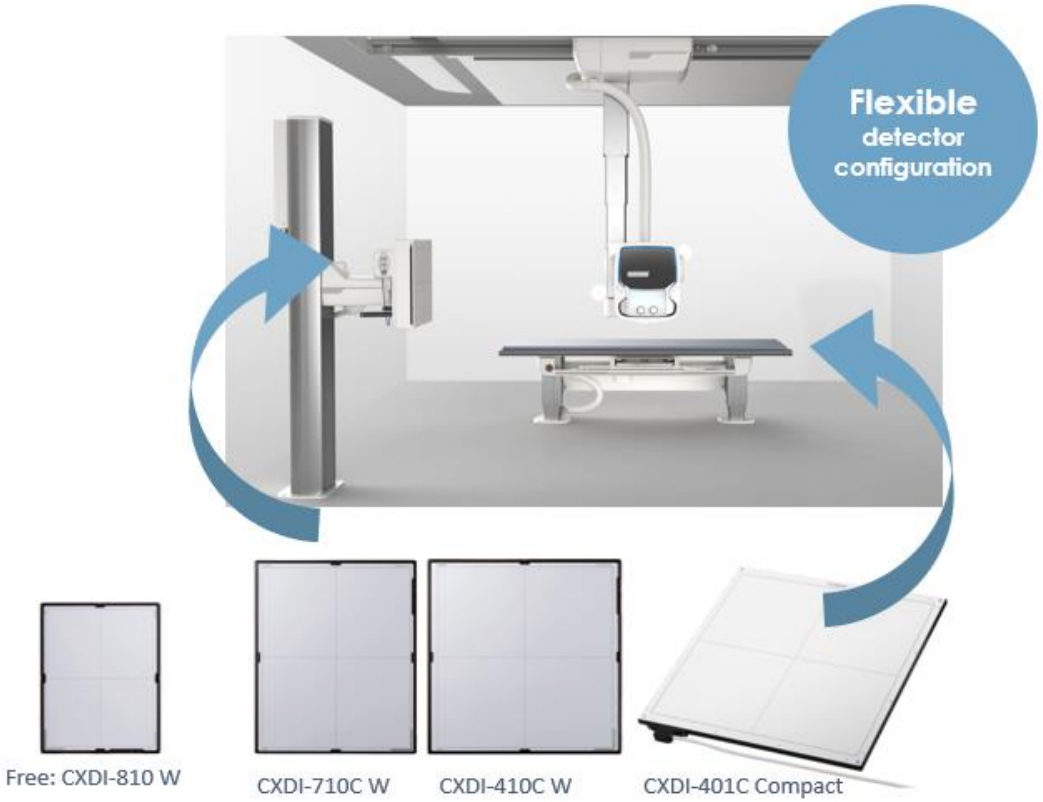
	SOP classes (SCU – Yes, SCP – No) Transfer Digital X-Ray Image Storage – For Presentation Computed Radiography Image Storage Grayscale Softcopy Presentation State X-Ray Radiation Dose SR Workflow Management Modality Worklist Storage Commitment Push Model Modality Performed Procedure Step Print Management Basic Grayscale Print Management Multiple images can be print on a single paper with different formats like 1:1 and 2:1 etc. Presentation LUT
Digital Image Processing	Basic Processing: Free image rotation, Flip, Inversion (Negative/positive), Panning, Zoom, Brightness/Contrast, laterality mkarkers (L/R marking), Brightness adjustment based on Region of Interest, Crop, Mask, Reset/Undo Measure in image: Distance, angle Image histogram can be shown after exposure Advanced Image processing Anatomic Part (Category and Anatomical Part, Direction) LUT adjustments Enhancement Dynamic Range Adjustment Noise Reduction Grid Suppression Sharpness Adjustment Peripheral Mask Scatter Correction (option) Advanced Edge Enhancement (option)
PC Specification	CPU: Intel Xenon 8.25M Cache, 2.90 GHz, 4 cores RAM: 8 GB HDD: 2x500 GB, 7200 RPM
Monitor	2MP, Monitor size: 23 " Monitor resolution: 1920 x 1080 Brightness: 260 cd/m2 2nd monitor (option): High Brightness Review monitor 2MP, Monitor size: 21,3" Monitor resolution: 1200 x 1600 Brightness: 800 cd/m2

Weights

Overhead Tube Crane (OTC)	~ 240 kg
Tube and collimator	38,5 kg
Ceiling wagon	95 kg
Column	40 kg
Ceiling rail Y (4 m standard)	28 kg
System Cabinet	134 kg
Table	~150 kg
Detector holder	~ 21 kg
Table top	~ 47 kg
Wall stand (standard)	~180-200 kg regarding option.
Wall stand, motorized tilt (option) *without lateral armrest, grid and detector*	~195 kg
Lateral armrest	2,5 kg
Grid (standard Al version)	~2,6 kg
Detector holder	~ 21 kg
Flat Panel Detectors	
CXDI-710C Wireless	2.3 kg
CXDI-410C Wireless	2.8 kg
CXDI-810C Wireless	1.8 kg
CXDI-401C Compact	~7 kg

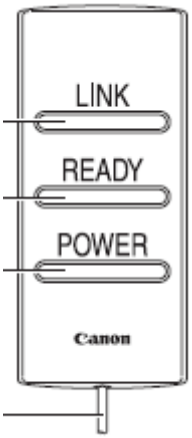
Options and Accessories

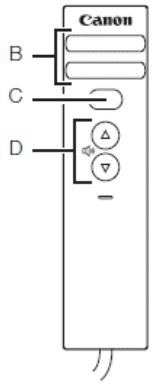
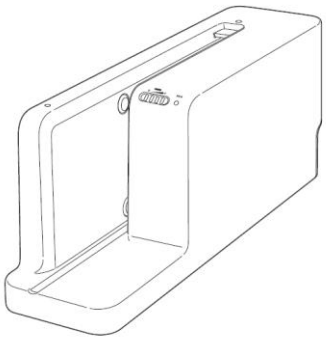
Detector configuration



The system can be configured with up to four detectors. When the CXDI-710 W, CXDI-702W, CXDI-402C or CXDI-410 W detector is positioned in the detector holder battery is automatic charged and the image transferred via wire. The detector can be loaded both from the left and right side of the Wall stand in order to suit the specific room layout in the best way.

	**Status Indicator** *Option when CXDI-710C Wireless or CXI-410C Wireless selected.* When the detector is set in the Wall stand or Table detector the LED lamps on the detector are no longer visible. The status indicator can be used to display the power and ready status indicated on the detector´s LED lamps. You can turn on the detector on and off by pressing the POWER switch on the status indicator or switch the detector to ready status by pressing and holding	**Option**

	the READY switch on the status indicator. The status indicator can be in a place where it can be easily checked during examination.	
	**Status Indicator** *CXDI-401C Compact (included when Compact detector is selected)*	**Included for fix detector**

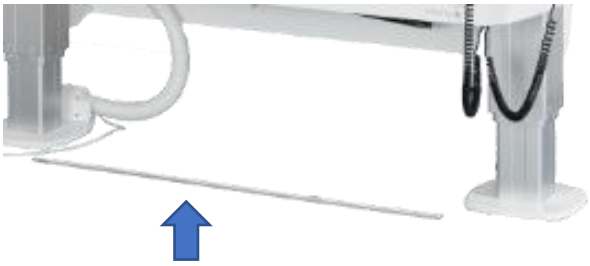
	**Ready Indicator** (B) The LED status indicator lights up or flashes to indicate detector status, detector registration and connection status. C) IR data port, communication port for the detector link. D) Sound level up/down. Sound signals indicating when the X-rays are received by the detector.	**Accessories**
	**FPD Docking station**	**Accessories**
	**Battery Charger**	**Accessories**
	**Battery Pack**	**Accessories**

FEATURES	
Scatter correction Option (Software)	Option
Edge Enhancement (Software)	Option
Automatic Stitching, Wall stand and table	Option
Integrated DAP	Option
	**Remote control** Servo button: Activating auto positioning. Overhead tube crane up. Collimator light on/off.

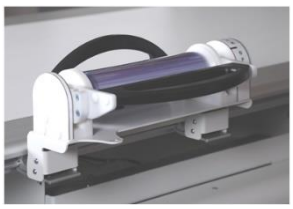
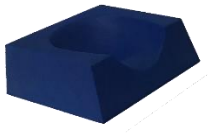
X-RAY GRID

Interspace material	Al
Cover material:	Al or Carbon
Grid density	40 lp/cm or 52 lp/cm *) **) required for CXI-401C Compact*
Grid ratio:	10:1
Focusing distance:	110, 115, 140, 150, 180
	Stationary
	Detachable

	**Light weight detector holder with integrated grid.** Carbon fibre cover + fibre interspaced 52 lines/cm, ratio 8:1 Focal distance: 110 cm 401/410 701/710 801/810 Focal distance: 140 cm 401/410	

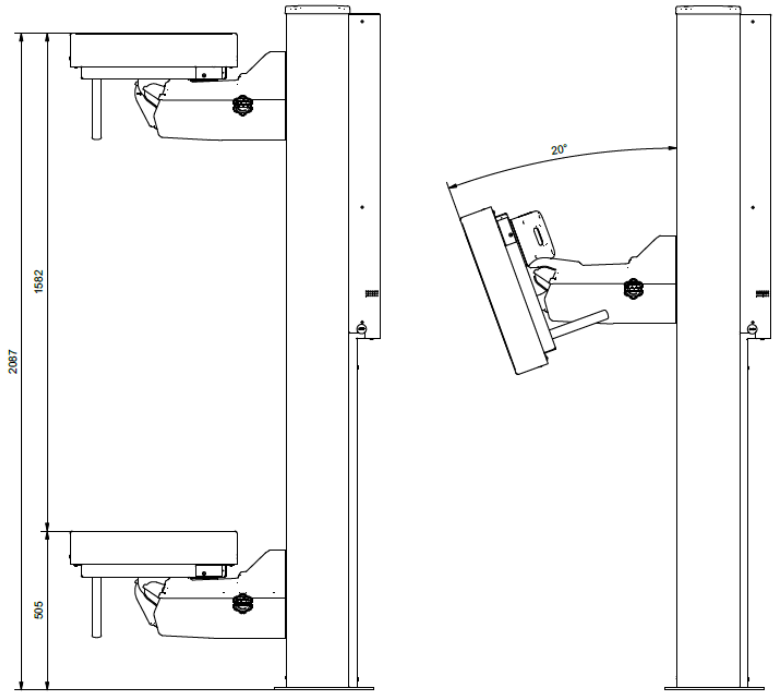
TABLE		
FLEXIBILITY - USER INTERFACES		
	**Hand control for automatic collimator (1 pcs)**	
	**Foot Hand control for automatic collimator (1 pcs) control strip type X/Y**	

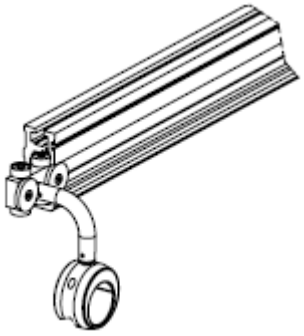
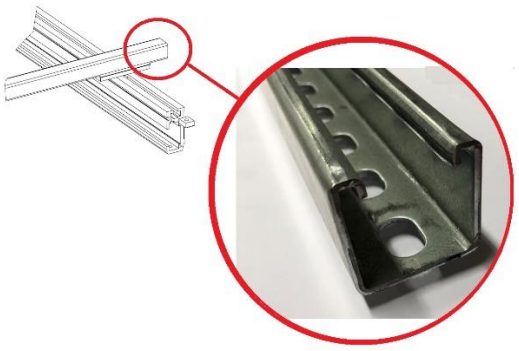
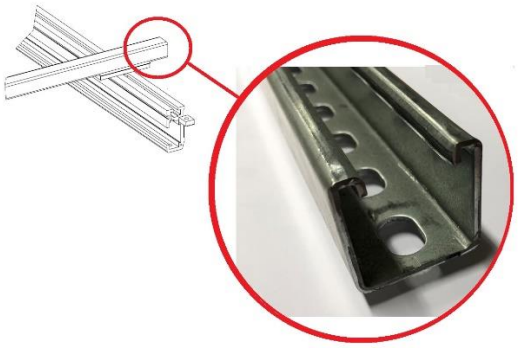
	**Foot control X/Y/Z** *(pedals, colour: blue)*	**Accessories**
	**Wireless foot control.** *Up/down of table top and release of brake for floating table top.*	**Option**
PATIENT COMFORT		
	**Mattress, Basic**	**Accessories**
	**Mattress, Comfort**	**Accessories**

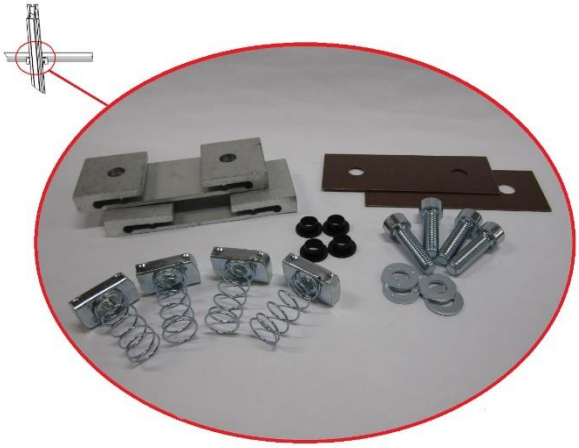
	**Patient handgrip** *(colour: blue)*	**Accessories**
WORKFLOW		
	**Lateral cassette holder**	**Accessories**
DOSE REDUCTION & IMAGE IMPROVEMENT		
	**Compression belt cost effective**	**Accessories**
	**Compression belt high-end**	**Accessories**
	**Form pad large** – **head** (25x24.5x9 cm)	**Accessories**

	**Form pad medium – wedge** (50x28x10/1 cm)	**Accessories**
	**Form pad small - rectangle** (25x24.5x9 cm)	**Accessories**

WALL STAND		
	**Wireless foot control.** *Up/down of table top and release of brake for floating table top.*	**Option**

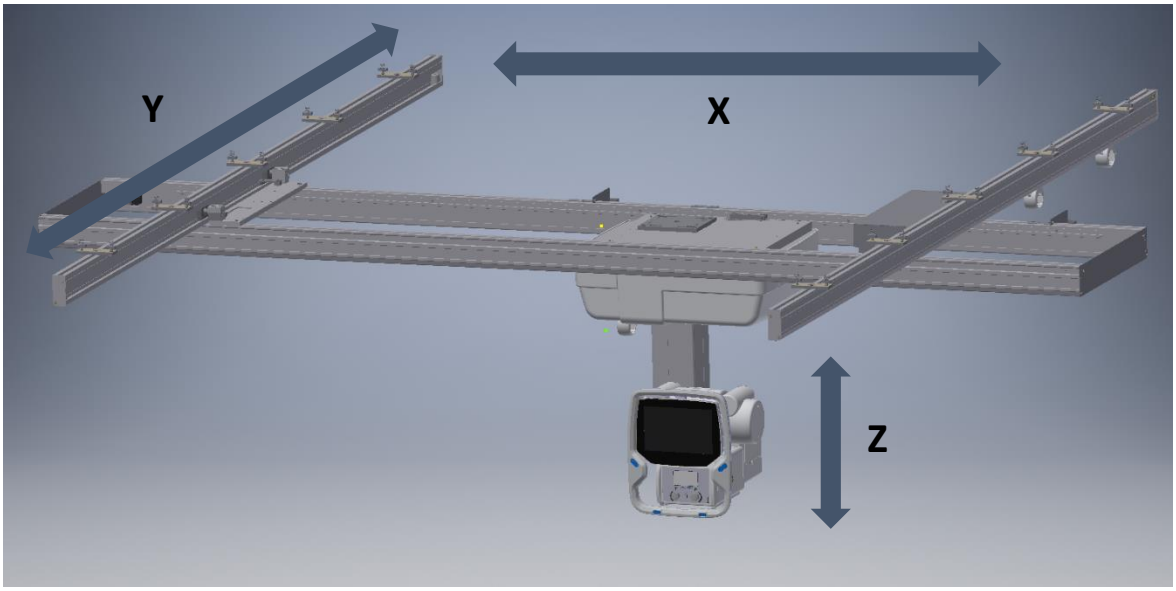
	**Wall stand, motorized tilt** -20°, 0°, 90°	**Option**

INSTALLATION RELATED OPTIONS		
	**Extra Cable carriage (One included in the basic system)**	**Accessories**
 **x 5**	**Unistrut rails,** ***for 4 x 4 meter installation*** ***0512-099-001*** Used for rail attachment to ceiling. Needed if no other attachment possibility is present in the room where the installation is carried out.	**Accessories**
 **x 7**	**Unistrut rails,** ***for 4 x 5 installation*** ***0512-099-002*** Used for rail attachment to ceiling. Needed if no other attachment possibility is present in the room where the installation is carried out.	**Accessories**
	**Mounting kit for Unistruts rails 4 x 4** ***0512-099-003*** *Bolts, nuts and washers to prepare Unistrut rails for a 4x4 meter rail installation.*	**Accessories**

	**Mounting kit for Unistruts rails 4 x 5** ***0512-099-004*** *Bolts, nuts and washers to prepare Unistrut rails for a 4x5 meter rail installation.*	**Accessories**
	**Transverse Y kit** ***0170-810-020*** Kit for attaching Y-rails to Unistrut rails in ceiling. 10 kits are included in a standard delivery (4x4 m). If more attachment points are needed, this is the kit to buy! 1 kit = 2 attachment points.	**Accessories**

Installation

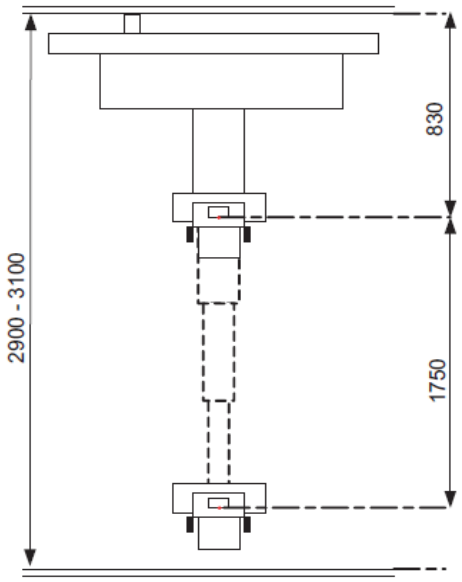
Rail (Y) and Traverse (X) lengths



4x4m Ceiling rails (XxY)
4x5m Ceiling rails (XxY)
4x6m Ceiling rails (XxY)
5x4m Ceiling rails (XxY)
5x5m Ceiling rails (XxY)
5x6m Ceiling rails (XxY)

Lengths can also be adapted for customer requirements; X < 5m and Y < 6 m (option).

Drawings



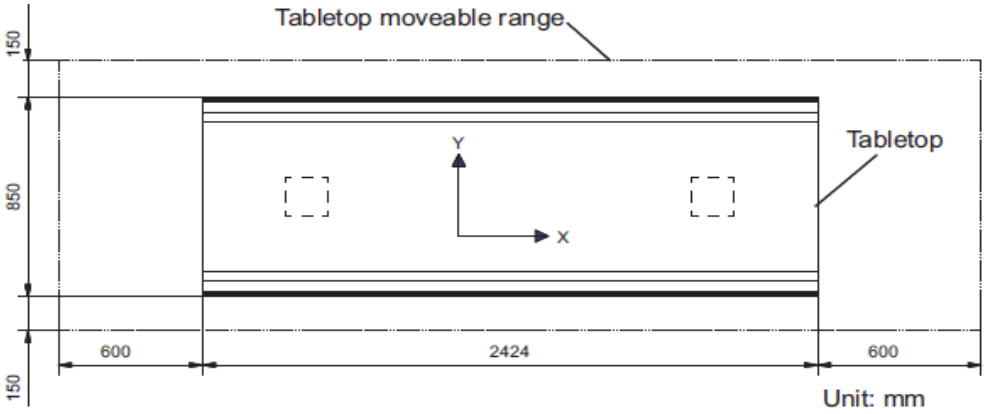
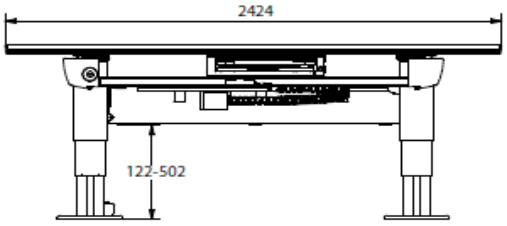
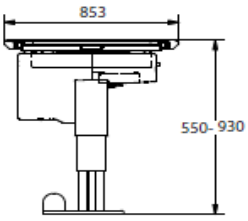
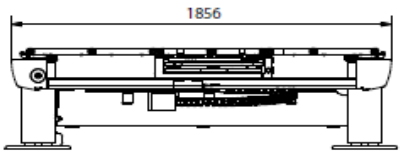
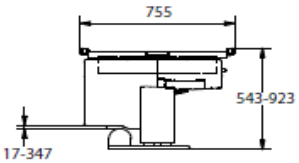


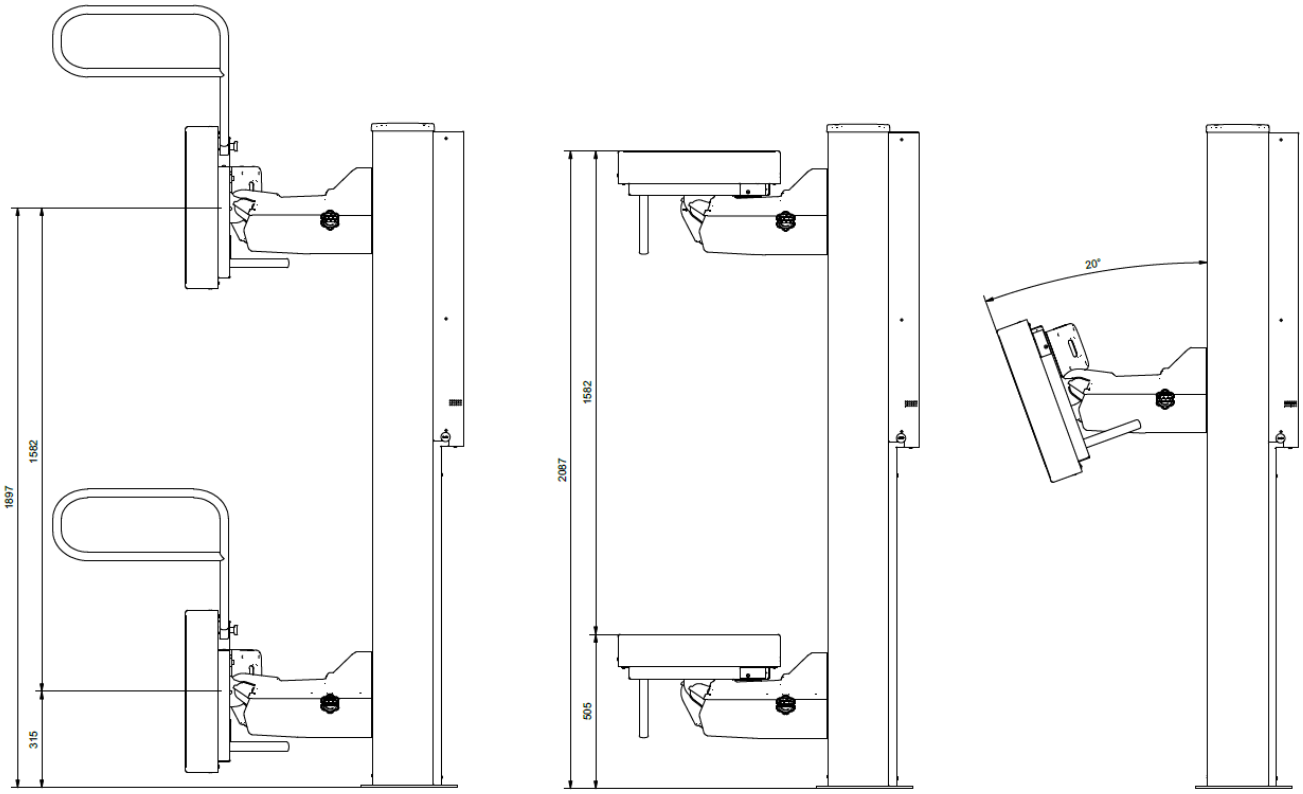
Figure 4-6










1897
1582
315
2087
1582
505
20°