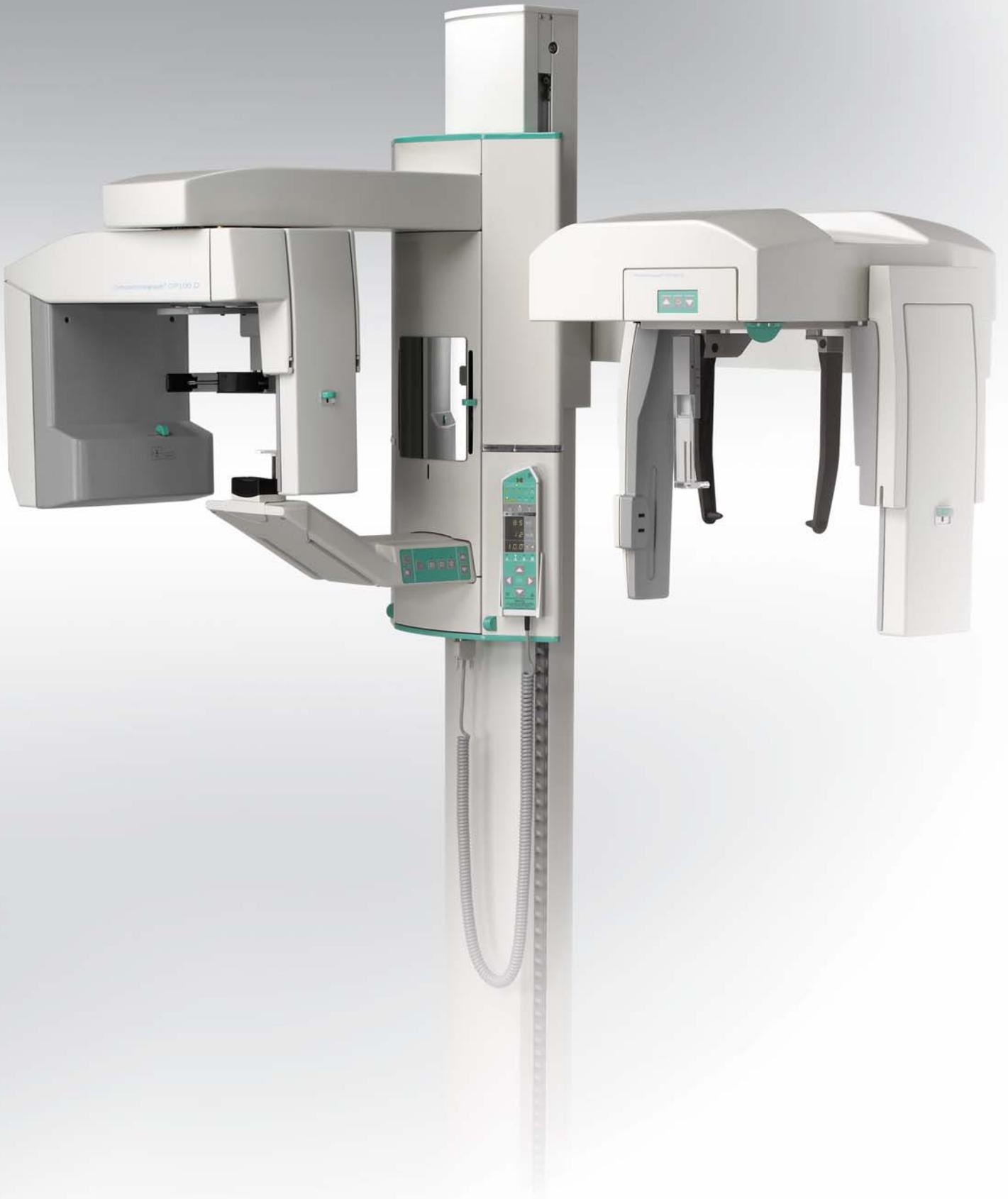


Digital dental imaging

Orthopantomograph® **OP100 D**
Orthoceph® **OC100 D**





Advanced direct digital panoramic and cephalometric imaging

Orthopantomograph OP100 D and Orthoceph OC100 D

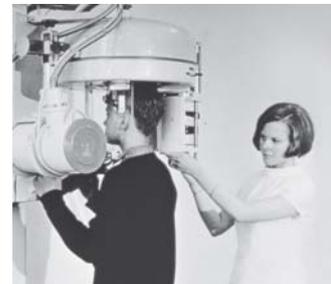
The name Orthopantomograph has always stood for consistent reliability and clinically excellent maxillofacial imaging. Since the original Orthopantomograph was first introduced in 1961, over 45,000 installations have been completed worldwide, clearly illustrating the international success of the unit. And this success continues with the all-digital Orthopantomograph product family.

The Orthopantomograph OP100 D and the Orthoceph OC100 D combine Instrumentarium Dental's long experience and know-how in x-ray generator design, digital image acquisition and information technology, in an advanced dental imaging system.

What's more, existing owners of film-based Orthopantomograph OP100's can also enjoy the benefits of digital imaging by choosing one of the digital upgrade options.

Revolutionary high tech through the decades

- 1946** Professor Y.V. Paatero published his first paper on Panoramic Tomography
- 1951** "Pantomography" equipment was first presented
- 1961** Orthopantomograph, the first dental panoramic X-ray, is developed
Orthopantomograph OP1
- 1964** Commercialization of Orthopantomograph begins
Orthopantomograph OP2
Orthopantomograph OP3
- 1978** Orthopantomograph is the leading name in the dental panoramic imaging
Orthopantomograph OP5 / Orthoceph OC5
Orthopantomograph OP6 (Zonarc)
Orthopantomograph OP10 / Orthoceph OC10
- 1991** New innovations, such as lifting cassette head and linear tomography were introduced along with the OP100 product family
Orthopantomograph OP100 / Orthoceph OC100
Ortho Trans Linear Tomography option for OP100 / OC100
- 1999** Introduction of the direct digital Orthopantomograph with the latest technology



Orthopantomograph OP2 (1965)



The Orthopantomograph OP100 D

Perfection in image quality

Benefit from high technology

The OP100 D features advanced high-frequency generator technology to produce more efficient radiation, which in combination with the small focal spot, ensures excellent high resolution images. The latest CCD technology, a fiber optic link and sophisticated image pre-processing algorithms generate high quality image capture and transmission.

Decades of experience in imaging geometry

Instrumentarium Dental's deep understanding of panoramic imaging geometry and sophisticated motorized movement automation ensures an optimum image. The patented V-shaped x-ray beam adapts to the human anatomy, providing even greater detail and a wider image layer.



Essentials for excellent imaging

- Advanced high frequency generator technology
- Small focal spot
- Clinically correct imaging geometry
- V-shaped x-ray beam
- Latest CCD technology

Successful exposures — time after time

Correct imaging values — automatically

Automatic Exposure Control (AEC) and Automatic Spine Compensation (ASC), utilizing Instrumentarium Dental's unique and patented software algorithms, generate correct imaging values, exposure after exposure, with any size patient and with all users.

Accurate and stable patient positioning

Incorporating the well-proven OP100 patient positioning system, the OP100 D is just as easy, quick and accurate to use. Correct positioning is assured by three positioning light lines. Frankfurt and mid-sagittal lights aid correct angulation of the patient's head and the Occlusion correction light guides occlusal correction. For easy adjustment, both the user and the patient can view the mid-sagittal plane in the curved panoramic mirror. An electromagnetically locked rigid forehead support is used together with a chin rest and bite fork to eliminate patient movement. Patient positioning is possible from the left or right side of the OP100 D.



Essentials for excellent imaging

- Automatic Exposure Control (AEC)
- Automatic Spine Compensation (ASC)
- Accurate patient positioning
- Open view of the patient
- Three clear positioning lights

OP100 D and OC100 D imaging programs

Versatile programs for easy diagnosis

In addition to the many standard imaging programs, special panoramic programs are also available. The Orthogonal, Ortho Zone and Wide Arch programs facilitate easy diagnosis even with difficult clinical conditions.

For temporomandibular joint (TMJ) disorder diagnosis, the OP100 D provides programs for both lateral and PA views. The lateral view program can be replaced with the alternative Ortho TMJ program for obtaining a corrected lateral condylar angle view.



Standard panoramic with AEC



Pediatric panoramic with AEC



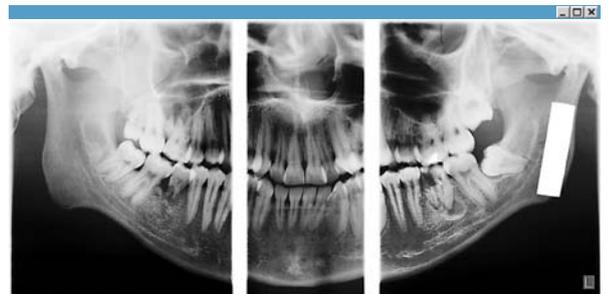
Wide Arch panoramic with AEC (alternative for Ortho Zone)



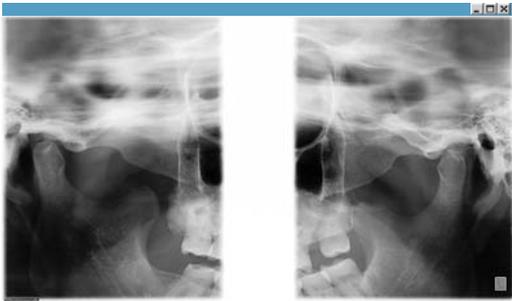
Orthogonal panoramic with AEC



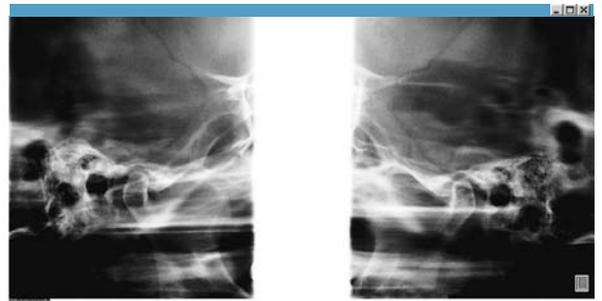
Conventional panoramic program. Standard panoramic view of a dry skull model with metal present in the ramus.



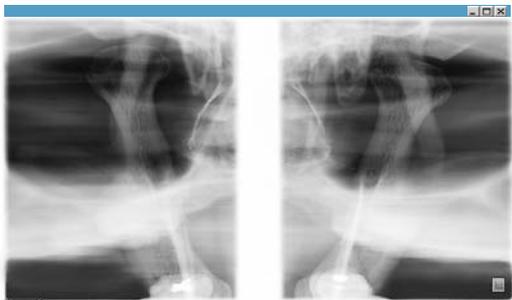
Ortho Zone panoramic with AEC. The obscuring shadow is eliminated and the anterior focal trough is twice the standard panoramic program focal trough.



TMJ lateral



Ortho TMJ (alternative for TMJ lateral)



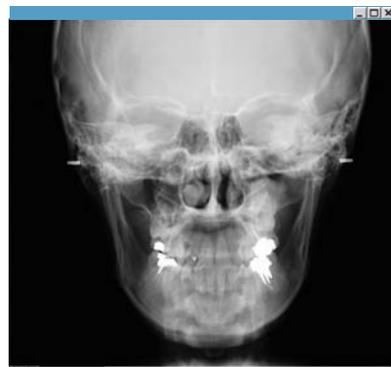
TMJ, PA



Maxillary Sinus



Cephalometric, lateral



Cephalometric, PA



Carpus (additional carpus holder is available as accessory)



Clinically correct imaging geometry due to equal horizontal and vertical magnification of cephalometric images.

Added diagnostic value

Clinically correct geometry

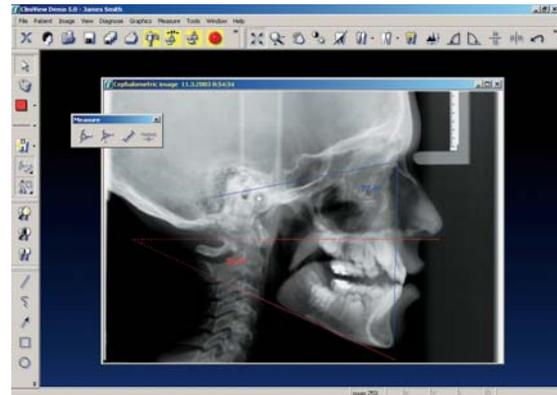
In order to produce equal horizontal and vertical magnification, the OC100 D uses a unique method of synchronized tube head horizontal sweep and sensor movements while still keeping the focal spot in the same position. The clinically correct imaging geometry is the same as traditional film imaging and allows easy determination of orthodontic reference points and comparison with previous film images.

Variety of projections

The OC100 D provides a full range of imaging projections for cephalometric radiography. It is a comprehensive diagnostic device that includes lateral, facial, posterioranterior and oblique projections as well as the possibility for hand and wrist imaging.

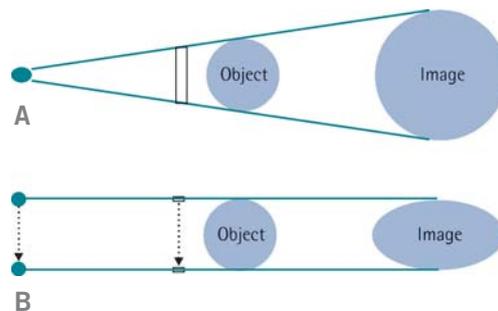
Visible diagnostic details

The CliniView image post-processing tool kit adds value to the system by providing the optimum viewing conditions. The selection of 16-bit image format improves the visibility of important orthodontic reference points.



Essentials for excellent imaging

- Clinically correct imaging geometry
- 16-bit image format



OC100 D uses a unique horizontal sweep of the tube head while keeping the focal spot steady. This results in equal horizontal and vertical magnification (A). Any focal spot movement during the scan would result in an image magnified horizontally, but not vertically (B).

Perfection in image quality

Short scanning time for less movement artifacts

An adjustable scanning time dependent on the patient size ensures the optimum exposure time. Shorter times result in reduced movement artifacts. With children, the ability to reduce the scanning time to as low as 8 seconds is especially valuable.

Clear soft tissue definition

OC100 D uses the patented method of Automatic Facial Contour (AFC), for soft tissue enhancement in lateral views. The unit automatically adjusts the exposure values during the scan for better soft tissue definition that results in improved dynamic range of the image and lower patient dose.



Essentials for excellent imaging

- Adjustable scanning time
- Automatic Facial Contour (AFC)



Excellent usability

Efficient work flow with two sensors

Two separate sensors (for panoramic and cephalometric imaging) allow easier and quicker changeover between the two modalities without the need to handle the sensor. A single interchangeable pan/ceph sensor is also an option.

Stable patient positioning

The Frankfurt horizontal plane laser light, nasion support and rigid ear rods make patient positioning easy and convenient. Motorized vertical movement controls are conveniently located on the cephalostat head for easy access. Exposure values and correct program are automatically selected depending on the image projection.

Optimum use of space

The OC100 D can be installed in your clinic for right or left-handed imaging and is “field changeable”. A standard wall mount with swivel joint allows the OC100 D to be installed at an angle for optimum use of room space and convenient patient positioning.

Essentials for excellent imaging

- 1 or 2 sensor options
- Frankfurt horizontal plane laser light
- Position controls on the ceph head
- Right or left handed versions



The Orthoceph OC100 D in a left-handed configuration.



CliniView software is the complete solution for digital dental image handling.

Versatile viewing with CliniView software

For all modalities

CliniView is an easy-to-use software program with powerful functions for digital image capturing, storage, and viewing, including a wide range of dental specific image enhancement tools.

CliniView supports image capturing from Instrumentarium Dental's Orthopantomograph panoramic, Orthoceph cephalometric x-ray units, SIGMA intraoral sensors, and from intraoral cameras. In addition, images can be imported or scanned from a wide range of other digital sources.



CliniView software provides advanced tools for easy diagnosis and superior image quality.

Fast and accurate diagnosis

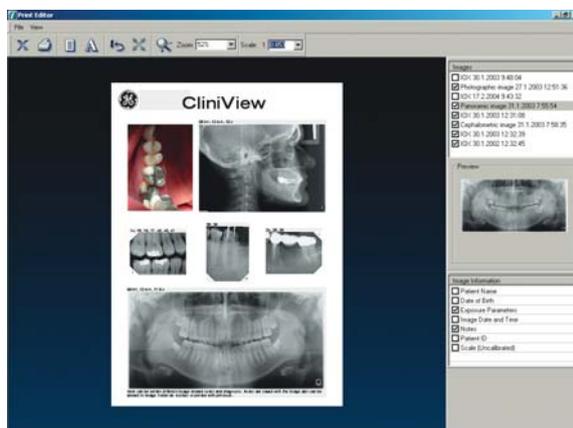
CliniView's advanced preprocessing algorithms, which together with 16 bit image format, ensure excellent image quality. No additional adjustments are necessary. For different user and modality preferences and specific details, CliniView offers a wide range of image enhancement tools, such as brightness and contrast adjustment, noise reduction, zoom, edge enhancement, invert, region of interest tools, isodensity colorization and grayscale filters.



Patient information and images are stored in CliniView SQL database.

Advanced tools

CliniView allows highlighting and explaining important areas on the image by providing different tools for adding text and graphical symbols. With CliniView, it is possible to print multiple images on the same page, design your own print layouts, resize and move images freely on the paper. Image information such as notes, tooth numbers, exposure values, and patient information can be added to printouts as well as your practice or clinic information with logos.



Advanced print editor enables multiple image printing with desired image and clinic information.



A complete dental digital imaging system from Instrumentarium Dental

Efficient clinical use

With OP100 D and OC100 D direct digital imaging, there are no delays in image acquisition. The image appears on the PC screen in real time during the exposure. Once taken, the image can be transmitted wherever it is needed to another workstation, an image archive, a printer, or by e-mail.

Open connectivity

In addition to traditional ways to integrate to practice management and cephalometric analysis software, the new Instrumentarium Dental's TWAIN module makes integration as easy as connecting a digital camera to a personal computer. With the TWAIN software module, any approved dental or medical imaging software can be used to acquire images from OP100 D or OC100 D. The obtained images can be stored and retrieved in that very same program, without having to use several applications. The main benefit from this easy integration module is that no integration work from the software vendor is needed.

For hospital or other demanding environments, a DICOM 3.0 conformant version of CliniView is available.

Expand according to your needs by upgrading your Orthopantomograph

The Orthopantomograph has been made to last. Over the years, it has earned a reputation for durability. The ability to upgrade has always been important in the Orthopantomograph family, allowing you to expand the functionality of your unit as your diagnostic needs grow. The OP100 D can be upgraded with digital cephalometric imaging (OC100 D) or with optional imaging programs. A full digital system can also be built on an existing film based Orthopantomograph OP100.

Build your total dental imaging system with Instrumentarium Dental

Whenever needed, intraoral imaging can be added as a part of your digital imaging solution, using the same CliniView diagnostic imaging software. Instrumentarium Dental's FOCUS high frequency x-ray unit, SIGMA intraoral sensors and unique, automated FocusLink system continue the family of quality, durable and easy-to-use dental x-ray products.

Technical specifications

X-ray generator

- Tube type
 - D-051S, stationary anode
- Nominal power
 - 1.2 kW
- Tube voltage and current
 - 57-85 kV, 2-16 mA
- High voltage
 - DC
- Frequency
 - 75-150 kHz
- Focus size
 - Modified 0.5 mm
- Minimum total filtration
 - 2.5 mm Al

Panoramic and cephalometric programs and technique factors

- Standard Adult (Program 1)
 - 57-85 kV / 2-16 mA / 17.6 s
- Pediatric (P2)
 - 57-85 kV / 2-16 mA / 16.8 s
- Ortho Zone or Wide Arch (P3)
 - 57-85 kV / 2-16 mA / 17.0 s (Ortho Zone)
 - 57-85 kV / 2-16 mA / 17.4 s (Wide Arch)
- Orthogonal (P4)
 - 57-85 kV / 2-16 mA / 16.8 s
- Maxillary Sinus (P5)
 - 57-85 kV / 2-16 mA / 15.6 s
- Cephalometric: Lateral view (P6)
 - 60-85 kV / 3.2-16 mA / 8-20 s
- Cephalometric: PA/AP, facial and oblique views (P7)
 - 60-85 kV / 3.2-16 mA / 8-20 s
- Cephalometric: Carpus view (P7)
 - 60-85 kV / 3.2-16 mA / 8-20 s

- TMJ lateral, 2 views or Ortho TMJ (P8), 2 views
 - 57-85 kV / 2-16 mA / 10.8 s
- TMJ PA, 2 views (P9)
 - 57-85 kV / 2-16 mA / 8.0 s
- Quality Assurance QA (P0)
 - 57 kV / 2 mA - 85 kV / 8 mA, 12.7 s, 15 values

Panoramic patient positioning

- Operation
 - Left or right side of the unit
 - Motorized carriage movement
- Positioning aids
 - Chin rest, bite fork, 3-point head support, curved mirror, 3 tungsten halogen positioning lights
 - Occlusion correction
 - Edentulous bite positioner

Cephalometric patient positioning

- Operation
 - Left or right side of the unit
 - Motorized carriage keys at cephalostat head assembly
 - Lock for ear positioner rotation movement
- Positioning aids
 - Ear rods
 - Nasion support with vertical millimeter scale
 - Frankfurt horizontal plane laser light (class II laser)
 - Contact plate in Carpus view
 - Patient positioning mirror in left handed cephalostat

Exposure control

- Automatic Exposure Control (P1-P4)
- Automatic Spine Compensation
- Pre-Programmable icons for all programs

- Automatic soft tissue adjustment through nasion setting
 - = Automatic Facial Contour (AFC)
- Manual Exposure Control

Cephalometric image scanning

- Horizontal scan, synchronized CCD camera and secondary slot motion, focus point stationary
- Scanning time
 - 8-20 s
- Image field width in lateral view
 - 260 mm / 10.2", maximum
- Image field width in PA view
 - 200 mm / 7.9"

Image receptor

- Camera unit
 - Pan camera - for panoramic imaging
 - Ceph camera, removable - for panoramic and cephalometric imaging
 - 2 cameras - for panoramic and cephalometric imaging
- Technology
 - Charged Couple Device (CCD)
- Image pixel size
 - 90 x 90 μm^2
- Resolution, panoramic image
 - 6 LP/mm
- Resolution, cephalometric image
 - 5 LP/mm
- Image field height, panoramic
 - 138 mm / 5.4" / 1538 pixels
 - Consists of 3 sensors, each 46 mm (1.8") / sensor
- Image field height, cephalometric
 - 184 mm / 7.2" / 2052 pixels
 - Consists of 4 sensors, each 46 mm (1.8") / sensor
- Data transmission
 - Fiberoptic cable
 - Transmission speed 160 Mbps

Image storing and retrieving

- File formats
 - Enhanced 16-bit .png
 - Enhanced 16-bit .jpg2000
- Typical file size
 - 2-5 MB in png, 16-bit format
- Patient database -SQL database
 - Standalone workstation
 - Server on local area network (LAN)
- Communication standards
 - DICOM 3.0 print, storage, patient worklist, import / export
- Import / export file-formats
 - BMP, TIFF, JPG, PNG, D32
- TWAIN interfaces
 - scanners
 - digital cameras

Physical measures, OP100 D

- Source-image distance (SID)
 - 487 mm / 19.2”
- Nominal magnification
 - 1.3 in panoramic and Lateral TMJ, 1.8 in TMJ PA
- Installation
 - Standard wall mount with +/- 45° angled joint
 - Optional base plate for free standing
- Height x width x depth /mm/inches
 - Max. 2225 x 830 x 1000 mm
 - 87.3 x 32.7 x 39.4” (standard column)
 - Max. 2135 x 830 x 1000 mm
 - 84.0 x 32.7 x 39.4” (short column)
- Weight
 - 175 kg / 385 lbs

Physical measures, OC100 D

- Source-image distance (SID)
 - 1745 mm/ 68.7”
- Source-object distance (SOD)
 - 1524 mm/ 60.0”
- Nominal magnification: 1.14
- Height x width x depth /mm/inches
 - Max. 2225 x 1900 x 1000 mm
 - 87.6 x 74.8 x 39.4” (standard column)
 - Max. 2135 x 1900 x 1000 mm
 - 84.0 x 74.8 x 39.4” (short column)
- Weight
 - 210 kg / 465 lbs

Electrical connections

- Nominal line voltage
 - 110/230 VAC +/- 10% 50/60 Hz
- Nominal current
 - 10 A @ 230 VAC, 15 A @ 110 VAC
- Power consumption
 - 2.3 kVA @ 230 VAC, 1.65 kVA @ 110 VAC

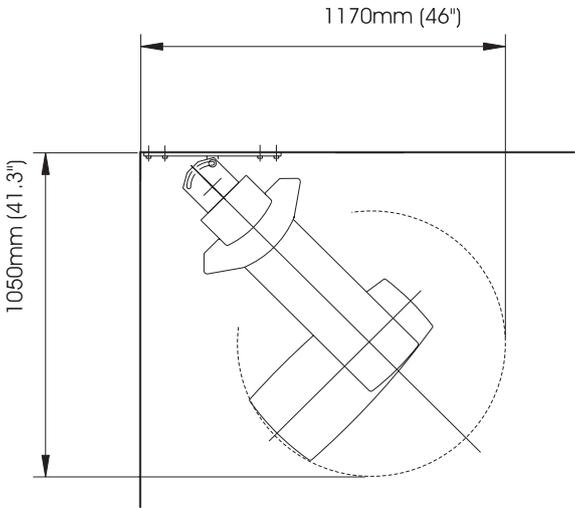
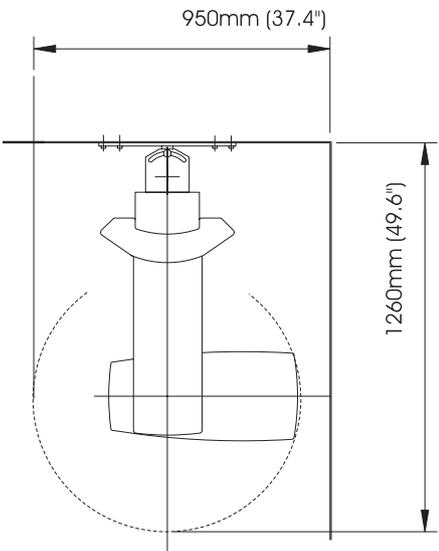
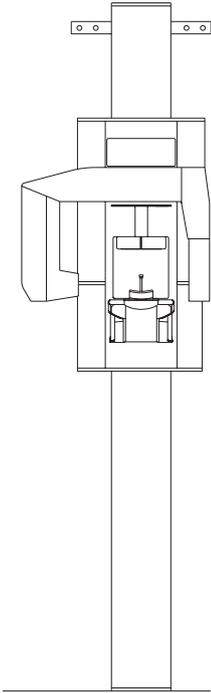
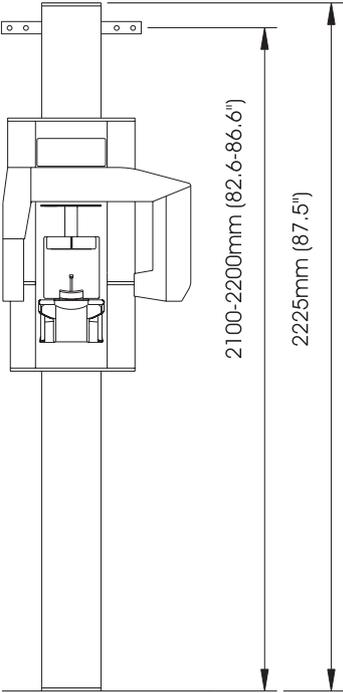
Minimum computer system

- Platform
 - Pentium® or equivalent
- Processor
 - 700MHz or higher
- Hard disk
 - 20 GB HDD minimum
- CD-ROM
 - 32X CD-ROM minimum
- Operating system
 - Windows® 2000
 - Windows® XP
- Main memory (RAM)
 - 256 MB minimum
- Display graphics
 - SVGA, 1024x768 minimum
 - 16.7M colors (24-bit), graphics card 8MB minimum
- Monitor size
 - 17” minimum
- PCI board connection
 - PCI slot
- Back-up
 - Magneto-optical disk drive, DAT or other available types of PC backup device
- Intraoral videocamera
 - Video for Windows® format

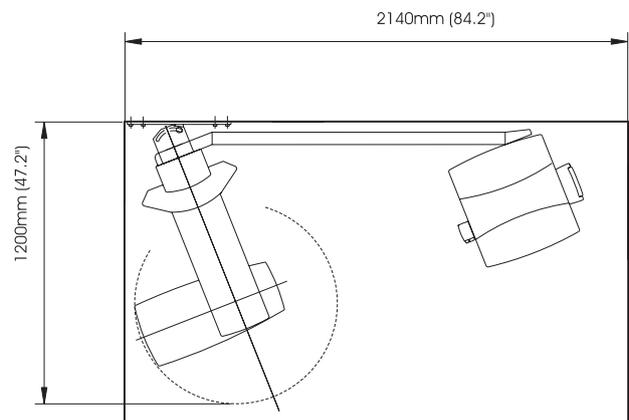
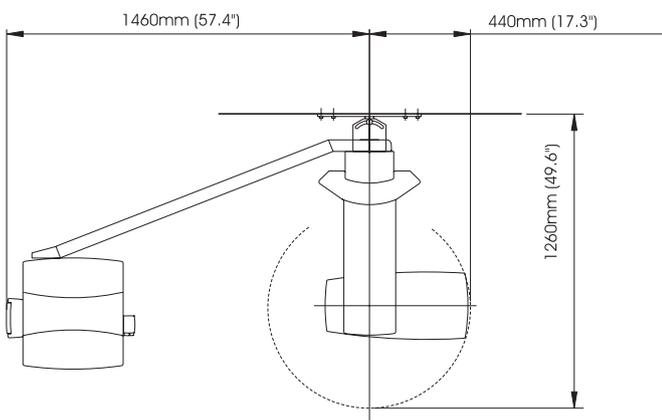
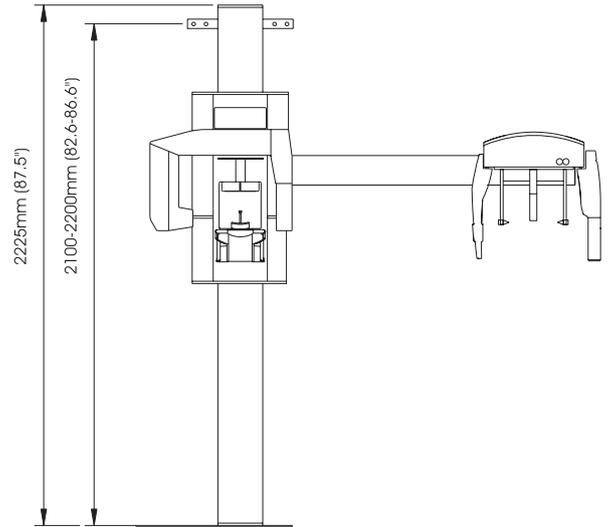
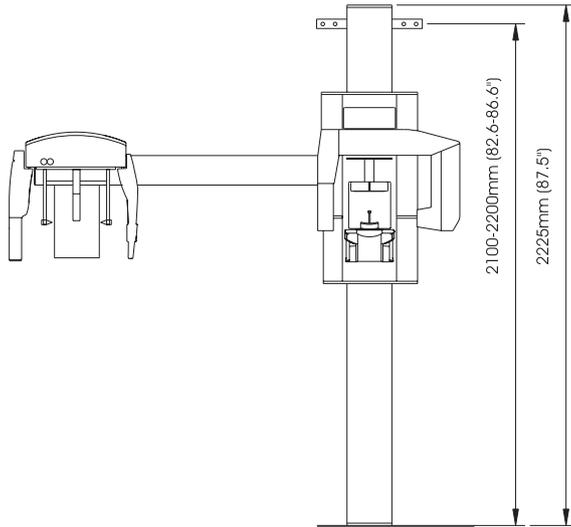
Check the latest requirements from your distributor.



Orthopantomograph OP100 D dimensions



Orthoceph OC100 D dimensions





Extraoral panoramic imaging



Extraoral cephalometric imaging



Intraoral imaging

INSTRUMENTARIUM DENTAL develops and manufactures premium quality dental imaging solutions. Present models of legendary Orthopantomograph® - OP100, OC100, OP100 D and OC100 D - serve demanding panoramic and cephalometric diagnostic needs both in film and digital environment.

FOCUS™ x-ray and SIGMA™ sensors combine an intelligent solution for advanced intraoral imaging.

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Printed in Finland

70527-10

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