



INSTRUMENTARIUM

OP200 D • OC200 D • VT

Digital panoramic imaging system

Digital cephalometric imaging system

VT – Volumetric Tomography



ORTHOPANTOMOGRAPH® OP200 D
ORTHOCEPH® OC200 D
VT – Volumetric Tomography



1951



1961



1984



1992



2006



2009



2011

Leading the way through the decades

- 1946 Professor Y.V. Paatero publishes his first paper on Panoramic Tomography.
- 1951 "Pantomography" equipment is presented.
- 1961 The first dental panoramic X-ray, ORTHOPANTOMOGRAPH® OP1, is developed.
- 1964 Commercialization of the ORTHOPANTOMOGRAPH® units begins with models OP2 and OP3.
- 1978 ORTHOPANTOMOGRAPH® becomes the leading name within dental panoramic imaging with models OP5/OC5, OP6 and OP10/OC10.
- 1992 New innovations, such as the lifting cassette head and linear tomography, are introduced along with the OP100 product family.
- 1999 Direct digital ORTHOPANTOMOGRAPH® OP100 product family is introduced.
- 2006 New ORTHOPANTOMOGRAPH® product family OP200 is launched.
- 2007 Volumetric Tomography (VT) is developed to maximize the performance of an ORTHOPANTOMOGRAPH® unit.
- 2009 A new member to the ORTHOPANTOMOGRAPH® product family – OP30 – is launched.
- 2011 ORTHOPANTOMOGRAPH® OP300, the most comprehensive 3-in-1 platform is launched to celebrate 50 years of ORTHOPANTOMOGRAPH® success.

Choose your own ORTHOPANTOMOGRAPH®

	OP30	OP200	OP300
Standard panoramic	•		
Advanced panoramic		•	•
TMJ imaging	•	•	•
Volumetric Tomography		•	
CB3D			•
Cephalometric		•	•



A wise investment for today –
and tomorrow

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A proven leader in panoramic imaging

Accurate and stable patient positioning

Correct patient positioning is assured by three positioning laser lights. Frankfurt and midsagittal lights aid finding the correct angulation of the patient's head and the occlusion correction light ensures proper anterior positioning.

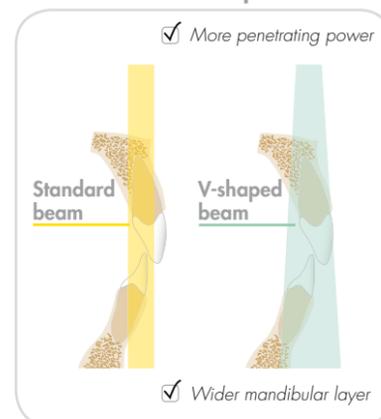
A rigid 5-point positioning system including forehead support, chin rest and bite fork eliminates patient movement. The open design allows easy viewing and positioning of the patient from either the left or right side.

V-shaped beam – clinically proven imaging geometry

The V-shaped X-ray beam adapts to the human anatomy, providing even greater detail and a wider mandibular image layer. The V-shaped X-ray beam also allows for more penetrating power for the thicker maxilla area.



Benefits of V-shaped beam



A V-shaped beam supports better imaging of the human anatomy than a standard beam and ensures a homogeneous image.



Partial programs – Decrease of dose

When a full panoramic image is not required, 1 to 5 segments of the horizontal image can be selected to expose only regions of diagnostic interest.



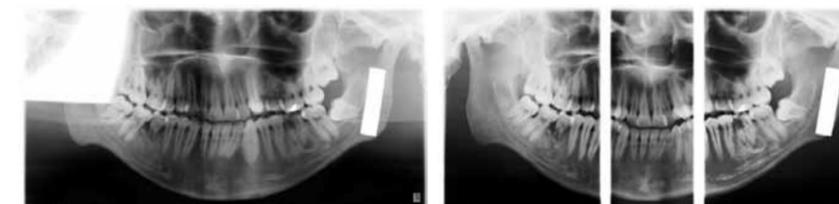
Correct imaging values – automatically

OP200 has a patented method for dose-controlled Automatic Exposure Control. The system measures patient bone thickness from the ramus and defines individual exposure values for patients with different sizes. This also enables individual Automatic Spine Compensation values to reduce spinal shadow in the image for each patient.



Special geometry

The Ortho Zone program provides a special geometry to solve two common imaging problems: metal artefacts in the molar region of the condyle, and the need for an exceptionally wide anterior layer for patients with malocclusion.



ORTHOCEPH[®] OC200 D

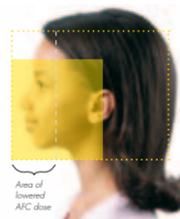


Fully adjustable scanning

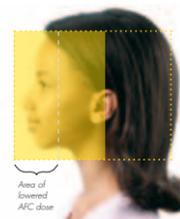
OC200 D incorporates an advanced user-adjustable lateral scan method to expose only the desired portion of the skull. This method reduces the scanning time to a minimum of 5 seconds and reduces patient dose considerably.

OC200 D uses a patented Automatic Facial Contour (AFC) method for soft tissue enhancement in lateral views. The unit automatically adjusts the exposure values during scanning for better soft tissue definition.

48% to 62% dose reduction



Area of lowered AFC dose
Only 43-32% dose with the new Core Lateral Ceph



Area of lowered AFC dose
52-38% dose with Lateral Ceph standard



100% dose, typical full scan digital cephalostat



Clinically correct image geometry

In order to produce equal and accurate horizontal and vertical magnification, OC200 D uses a patented method of synchronized tube head horizontal sweep and sensor movements while keeping the focal spot in the same position.

Stable patient positioning

The Frankfurt horizontal plane laser light, nasion support and rigid ear rods with locking system make patient positioning easy and convenient.

Perfect fit for your clinic

OC200 D can be set up in your clinic for right- or left-handed cephalometric imaging and is "field changeable". SMARTPAD™ can be installed on either side of the unit or on the wall.

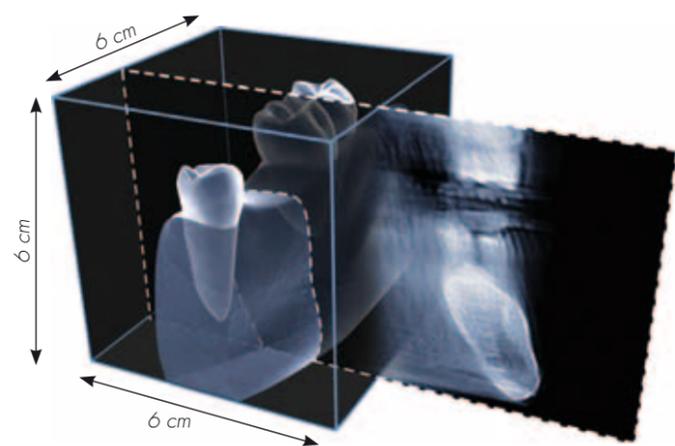
Full range of projections

ORTHOCEPH[®] patient positioning system provides a variety 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 of hand and wrist imaging.

VT – Volumetric Tomography

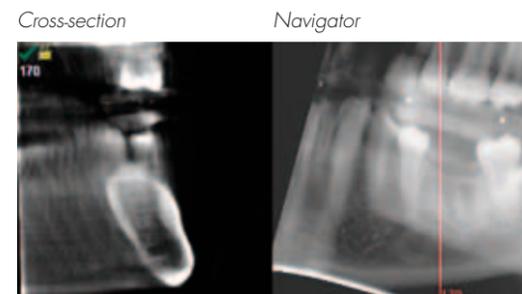
The optimal solution

ORTHOPANTOMOGRAPH® OP200 with VT is the most advanced and comprehensive cross-sectional imaging system on the market. It provides accurate and valuable information especially for implant planning. With the VT there is no need for unit modifications or purchasing expensive sensors.



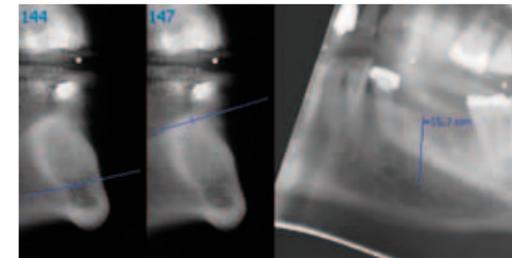
256 cross-sectional slices!

VT provides a continuously viewable stack of 256 cross-sectional slices. Each slice has a minimum thickness of 0.23 mm. Selection of the region of interest could not get easier.



Easy navigation of slices

The VT system has a slice navigator that shows the exact position of the cross-sectional slice in real time.



CLINIEW™ software provides professional tools such as accurate measurement for implant planning, implant libraries from various implant manufacturers and free space measurements between VT slices. Images can also be exported with a viewer.

Excellent image quality

Our unique reconstruction method produces high-quality images using a patented method for making cross-sectional slices with narrow X-ray beam and standard panoramic sensor. This has been proven to give better image quality than other known reconstruction methods.

Implant planning tools

The implant planning tool helps you to easily determine the correct implant for treatment. The tool contains implant models from leading manufacturers. The software also provides the necessary measuring tools.



- Very easy and forgiving patient positioning
- No measuring of patient or marking of impressions required
- Upgradeable to every OP200 unit



A new era of usability

SMARTNAV™ – Interactive navigator

SMARTNAV™ navigation software provides easy selection of imaging programs, arch sections, lateral scanning start position, and more. The user can easily set the desired imaging parameters in SMARTNAV™. All information is displayed and described in an intuitive manner.

SMARTPAD™ full-color touch screen

The large 12.1" SMARTPAD™ touchscreen has an easy-to-use menu with simple and intuitive navigation. SmartPad™ option is available for all OP200 D units.

Patient positioning animations

If in doubt, patient positioning animations specific to each imaging program demonstrate the proper patient positioning procedure.

Instant dynamic help

This feature provides quick and convenient information related to the imaging programs, such as the purpose of the program selected.

Operators of the unit and their knowledge of the imaging methods may change with time – quality of ORTHOPANTOMOGRAPH® and ORTHOCEPH® images will not.

Essentials for excellence

The quality of images is a result of many elements. A perfect image is as dependent on good patient positioning and support as technical features of the equipment or specifications of the workstation. ORTHOPANTOMOGRAPH® combines all possible factors for your benefit to ensure you a perfect image – every single time.

We master the details.

Essentials for excellent panoramic imaging

- ✓ Advanced high frequency generator technology, 2–16mA / 57–85kV
- ✓ Focal spot: 0.5 mm
- ✓ Clinically correct imaging geometry
- ✓ Correct beam shape: V-shaped X-ray beam
- ✓ Latest CCD technology
- ✓ Dose-controlled Automatic Exposure Control (AEC)
- ✓ Automatic Spine Compensation (ASC)
- ✓ Accurate and stable 5-point patient positioning
- ✓ Smooth rotation
- ✓ Positioning lights: 3 laser lights
- ✓ Professional software tools
- ✓ Proper monitor and viewing conditionings: ask for a recommendation from your dealer

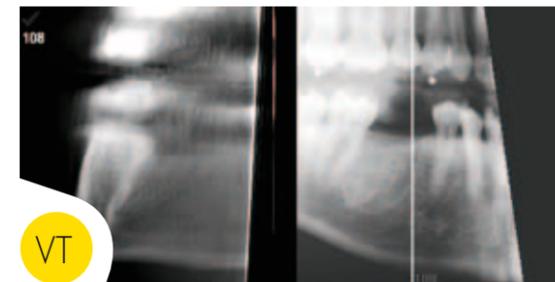
Essentials for excellent cephalometric imaging

- ✓ Clinically correct imaging geometry
- ✓ Powerful tubehead: 2–16mA / 57–85kV
- ✓ Fully adjustable lateral scan for fast exposures
- ✓ Exposure-controlled Automatic Facial Contour (AFC)
- ✓ Frankfurt horizontal plane laser light
- ✓ Stable patient positioning with ear holder locking
- ✓ Professional software tools
- ✓ Proper monitor and viewing conditions: ask for a recommendation from your dealer

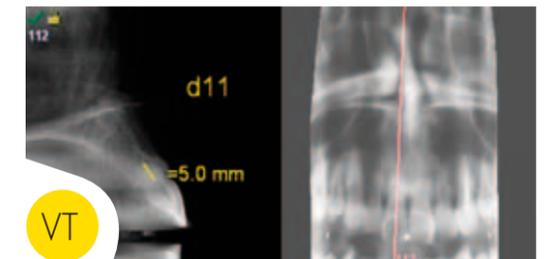
Imaging programs

Versatile imaging programs

In addition to the various standard panoramic programs, special imaging programs are available to facilitate easy diagnosis even with difficult clinical conditions.



Right mandibular region.
The Volumetric Tomography stack view and slice navigator.
Optional modality.



Maxillary anterior region.
The Volumetric Tomography stack view and slice navigator.
Optional modality.



The standard adult panoramic imaging program P1 provides a clear image.

Panoramic



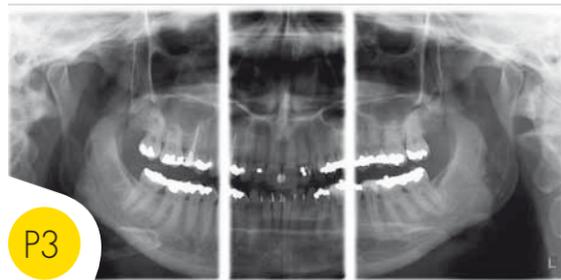
P2

The pediatric panoramic program has a clinically adapted image layer and reduced image height.



P4

The Orthogonal program reduces overlapping of the teeth.



P3

The Ortho Zone provides special geometry for an exceptionally wide anterior image layer.



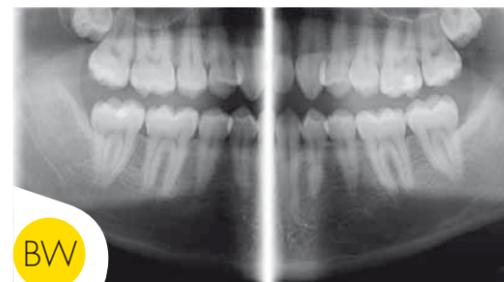
P8

Sinus maxillary imaging program.
P10 in film unit.



P5

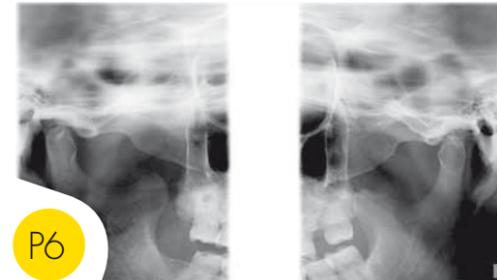
The Wide Arch program is appropriate for patients with a wider than average dental anatomy.



BW

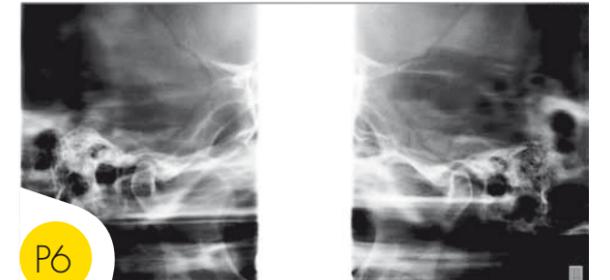
Bitewing-like view for a quick and easy alternative to intraoral bitewing imaging.

TMJ



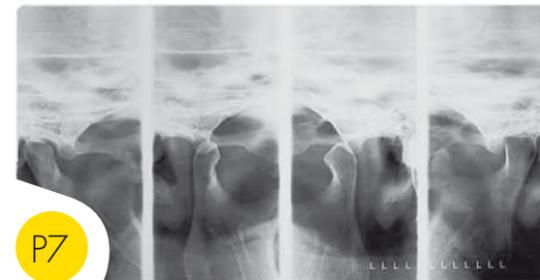
P6

Temporo-mandibular joint (TMJ) lateral view can be taken with mouth closed or open.



P6

The standard lateral TMJ program can be replaced with the alternative Ortho TMJ program for obtaining a corrected lateral condylar angle view.



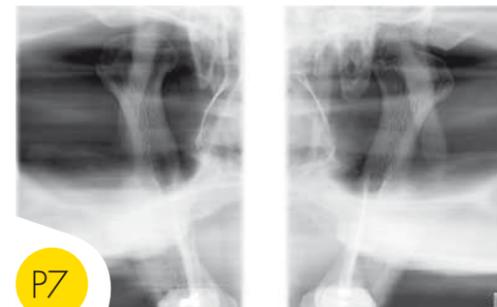
P7

With the film unit, a special program is provided for taking both open and closed TMJ views on same film.



P9

With the film unit, a special TMJ program provides both lateral and PA views on same film.



P7

TMJ PA projection gives clear view of condyles with 1.8 magnification. P8 in film unit.

Configurations – OP200 & OC200

Cephalometric



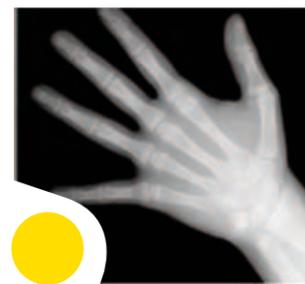
P9

Cephalostat lateral view. P11 in film unit.



P10

The ORTHOCEPH® patient positioning system enables a variety of imaging projections for cephalometric radiography. It includes facial, posterioranterior and Submentovertex projections among others. P12 in film unit.



Carpus imaging with cephalostat units. Optional in some markets.

Digital

Film



OC200 D unit shown with optional SMARTPAD™, embedded computer and optional base plate for free standing.

Film and cassette sizes

panoramic cassette	15 x 30 cm (6" x 12")
optional panoramic cassette	24 x 30 cm or 10" x 12" (CR model)
standard cephalostat cassettes	18 x 24 cm or 8" x 10"
optional cephalostat cassettes	24 x 30 cm or 10" x 12"



A hand control can be used instead of the SMARTPAD™.



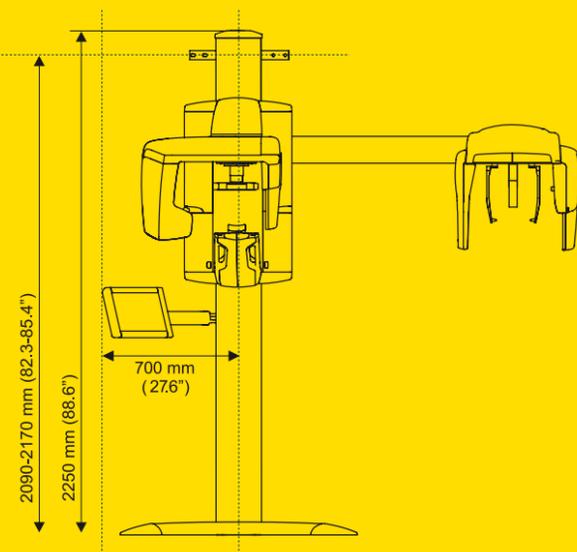
The left-handed digital cephalostat comes with an additional positioning mirror.



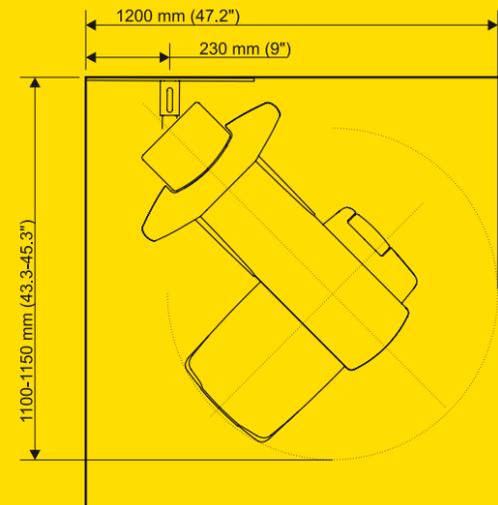
Optional carpus holder for accurate wrist imaging with dental cephalostat.

Dimensions

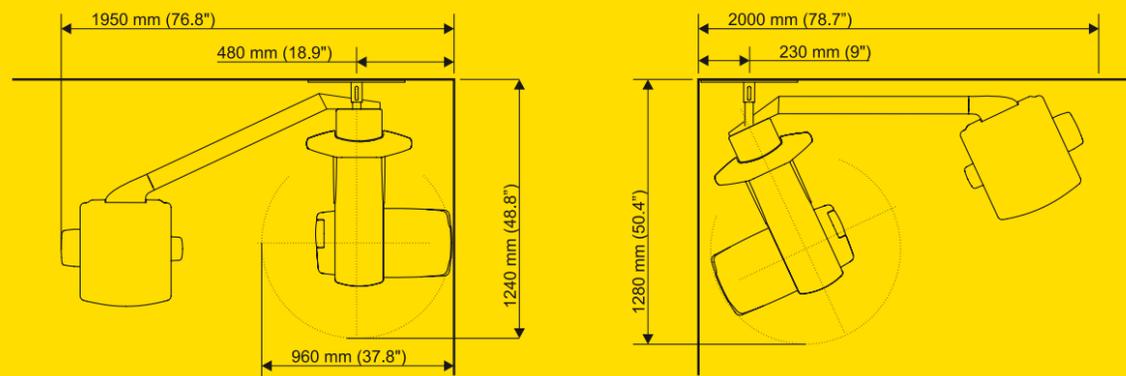
Film and digital unit height and SMARTPAD™ width



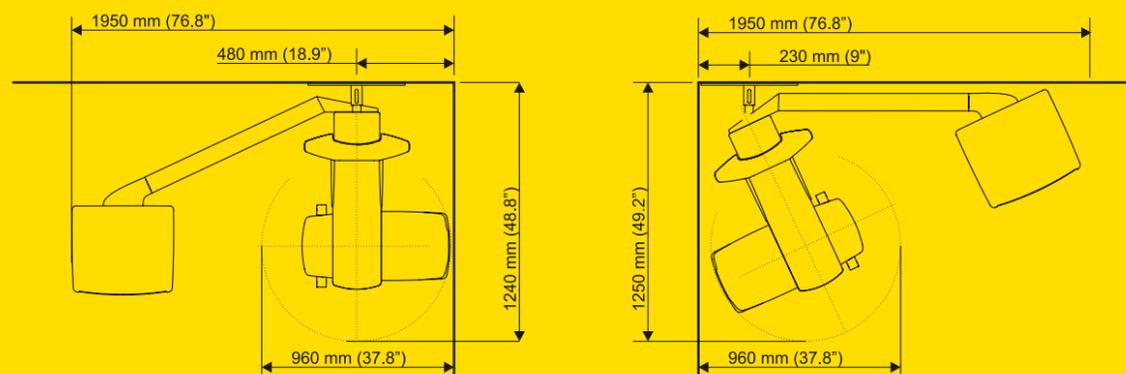
Panoramic unit corner installation (SMARTPAD™ may have to be installed on the wall)



Minimum space requirement for digital unit including built-in PC and the SMARTPAD™ mounted on cephalometric side



Minimum space requirement for film unit



Technical specification

Technical specifications

generator	high frequency DC, 75-150 kHz
X-ray tube	D-051S
focal spot size	0,5 mm, according to IEC 336
total filtration	min 2.5 mm Al
tube voltage	57-85 kV
tube current	2-16 mA
nominal voltage	110/230 VAC +/- 10% 50/60 Hz
main fuses	10 A @ 230 VAC, 15 A @ 110 VAC
power consumption	2.3 kVA @ 230 VAC, 1.65 kVA @ 110 VAC

	OP200 D	OC200 D	OP200	OC200
patient positioning lights	3	4	3	3
nominal magnification	1.3	1.14 (ceph)	1.3	1.08 - 1.14 (ceph)
number of imaging programs	9	12	10	12
imaged area variations	34	34+9	31	31+3
exposure time	2.7-14.1 s	5-20 s	2.7-14.1 s	0.1-3.2 s
weight approx.	175 kg / 385 lbs	210 kg / 465 lbs	175 kg / 385 lbs	210 kg / 465 lbs

VT specification

X-ray beam	fan beam
Volumetric image size	60 x 60 x 60 mm
Number of slices	256
Slice thickness	0.23 mm
Dose	1.3 x panoramic image (Depending on number of projection images)

Digital specifications	OP200 D	OC200 D
sensor pixel size	48 x 48 µm	48 x 48 µm
image pixel size	96 x 96 µm	96 x 96 µm
image field height	5.8 inches / 147 mm 4.7 inches / 120 mm pediatric (P2)	8.7 inches / 221 mm

	OP200 D	OC200 D
PC minimum requirement for image capture	Pentium 1 Ghz or equivalent, 512 Mb, 40 Gb, 1 PCI slot	Pentium 1 Ghz or equivalent, 512 Mb, 40 Gb, 1 PCI slot
operating system	WIN 2000 / XP / 2003 Server / Vista	WIN 2000 / XP / 2003 Server / Vista
DICOM®* compatibility	optional	optional
TWAIN connectivity	optional	optional
embedded computer	optional	optional
SMARTPAD™	optional	optional

* DICOM® is the registered trademark of the National Electrical Manufacturers Association for its standards publications relating to digital communications of medical information.

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Instrumentarium Dental develops, manufactures and markets high-tech systems and solutions for dental and maxillo-facial imaging. We work in close co-operation with dental professionals, universities and other research centers in our quest to develop solutions that will meet and exceed the expectations of our customers. As the establisher of panoramic X-ray imaging, we are committed to providing high clinical performance while still maintaining simplicity, ease of use and workflow efficiency.

The Instrumentarium Dental product portfolio consists of a full range of premium quality imaging solutions for intraoral, extraoral and 3D imaging. For more detailed information about our products, please visit www.instrumentariumdental.com.

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