make it visible

EXPEDITION

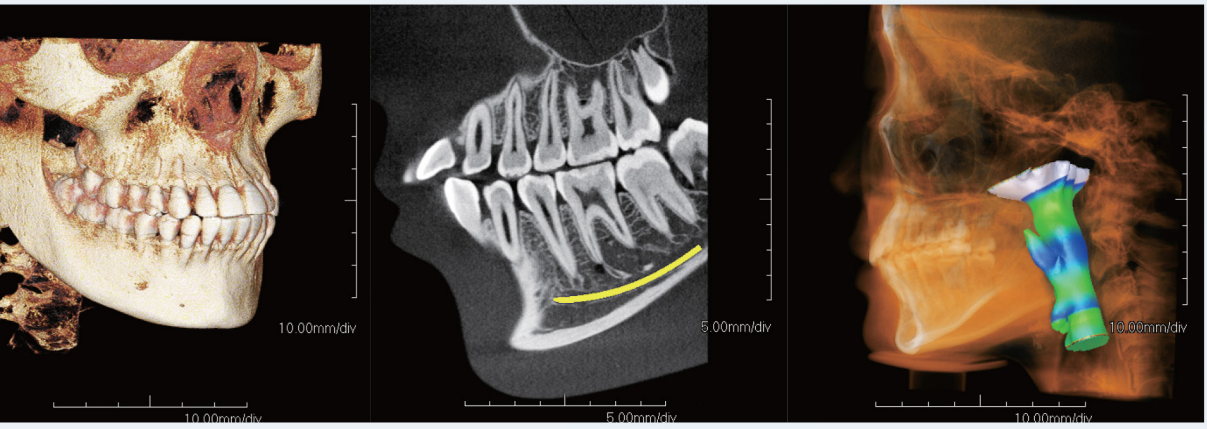
PreXion3D

More vivid, more accurate, more reliable.
Diagnostic imaging technology crafted in Japan
and recognized around the world.

“Clearer Imaging”

Making more consistent diagnosis and more confident treatment possible with 3D Imaging

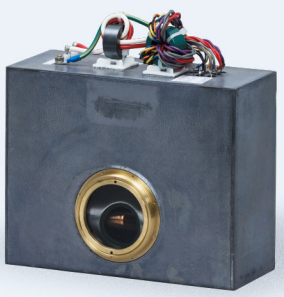
PreXion has made high resolution clinical image quality our first priority in development of dental cone beam CT. We have over 15 years of experience working with three-dimensional DICOM image processing and software, and we are currently contributing to daily oral pathology diagnostics around the world.



Responsive customer support and strict quality control standards are the defining characteristics of our in-house product development.

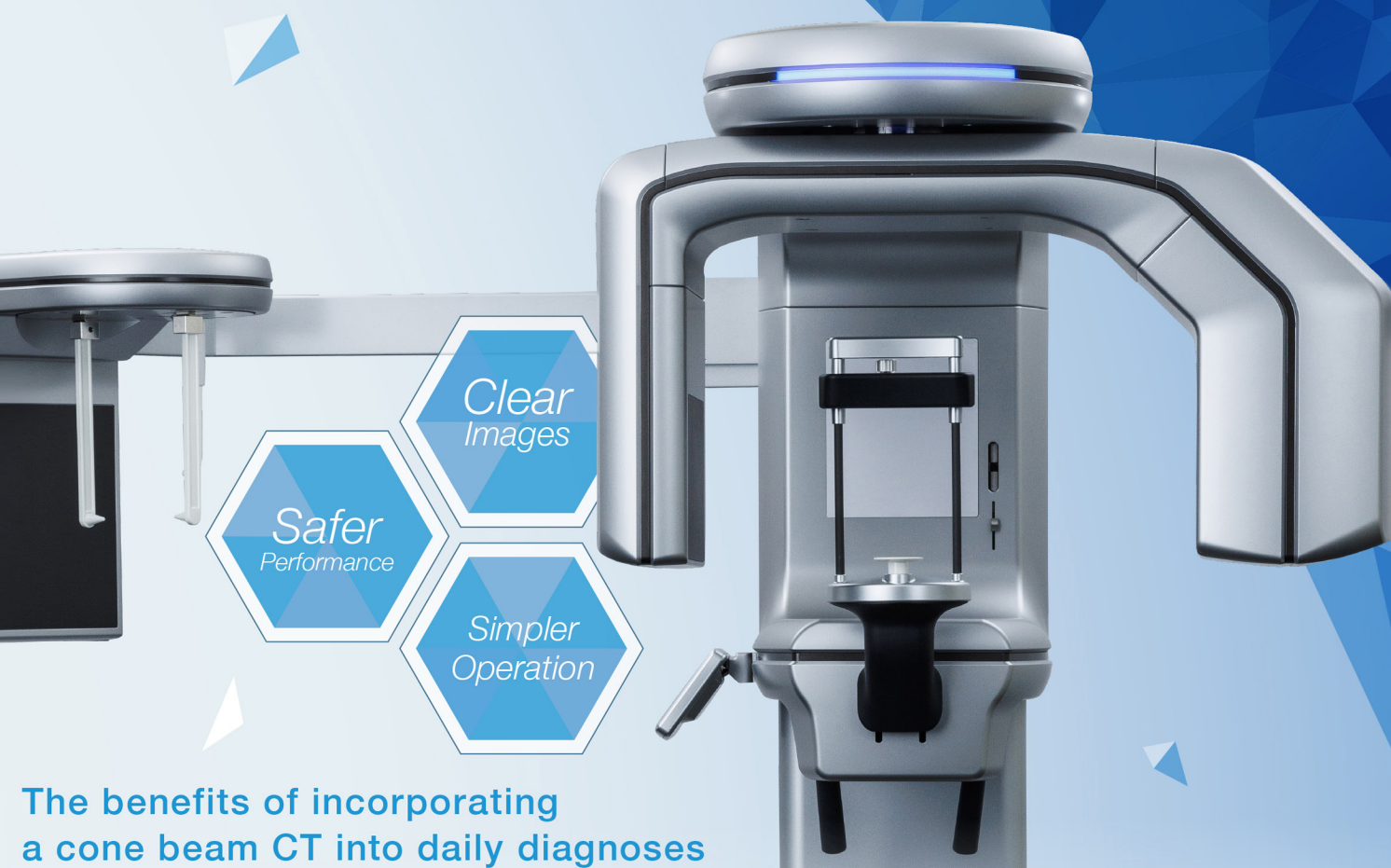
Every aspect of the PreXion3D Expedition, from our rigid quality control standards and manufacturing to our comprehensive customer support, is developed in Japan. Our software has been used for more than 15 years in clinical procedures, and we have developed our x-ray generator, a central component of a cone beam CT, in-house.

IN-HOUSE DEVELOPMENT



X-ray generator

Software



The benefits of incorporating a cone beam CT into daily diagnoses

01 Practitioners can make diagnoses and provide treatment with more precision by viewing pathology that could not be recognized with conventional 2D images, such as the spatial structure of teeth and jawbone as well as the location of nerves.

02 Cone beam CT allows for low dosage without compromising on precise, clear image quality. This not only ensures accurate diagnosis, but also reduces the patient concern.

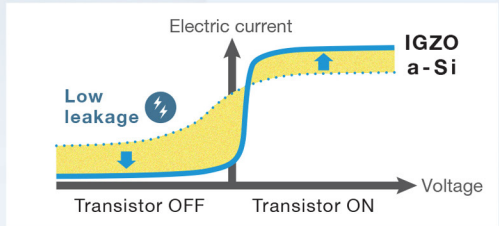
03 Easy-to-understand icons and intuitive operation during imaging allow for stress-free diagnosis and better patient understanding.

IGZO FPD

The IGZO semiconductor can conduct 20 to 50 times more current than the amorphous silicon (a-Si) semiconductor that was previously in wide usage, resulting in higher electron mobility and less leakage current. As a result, the amount of transmission per pixel can be increased, allowing for higher resolution image generation and noise reduction.

Comparison of electric current in an IGZO and a-Si semiconductor

Comparison of leakage current in an IGZO and a-Si semiconductor



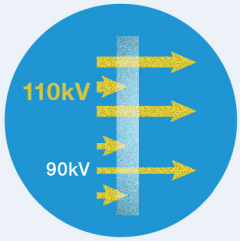
With IGZO, there is only a small leakage current when the transistor is turned off, and when the transistor is turned on, the electric current is strong. This allows for generation of high-quality images with little noise.

In Pursuit of High Image Quality

Superior image quality is produced
by combining a high-quality X-ray generator,
the key component for X-ray irradiation,
with a variety of imaging technologies.

360° rotation

PreXion3D Expedition makes higher resolution images possible by obtaining information content from the entire circumference with 360° scanning with no image rendering necessary.



110kV High X-ray Tube Voltage

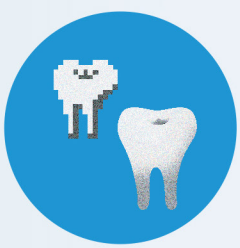
The high X-ray tube voltage of 110kV allows PreXion3D Expedition to deliver optimal image quality for all kinds of tissue while decreasing image artifacts.

X-Ray Tube Focal Spot 0.3 × 0.3mm

The focal spot is the part of the X-ray tube where electrons strike a target and emit X-rays. PreXion3D Expedition features a 0.3mm X-ray tube focal spot, among the smallest in the industry.

Voxel Size Minimum : 0.06mm Maximum : 0.3mm

PreXion3D Expedition uses voxel sizes of 0.06 / 0.08 / 0.1 / 0.12 / 0.15 / 0.2 / 0.3mm. It displays 3D images with high resolution and high image quality. This is smaller than nearly every competitor.



16-bit grayscale

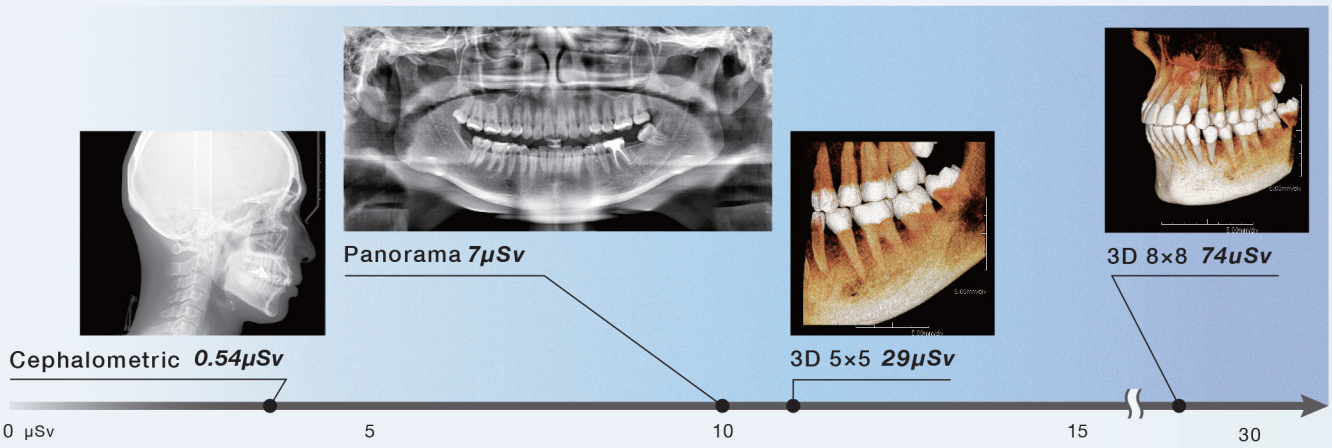
While many dental CT scanners have 14-bits (16,384 gradations), PreXion3D Expedition has a high gradation of 16-bits (65,536 gradations), enabling it to produce even smoother, higher resolution images.

Making Low Radiation Exposure a Reality

The PreXion3D Expedition is equipped with features such as pulse irradiation that emits X-rays intermittently and a low dose mode which can deliver high image quality while minimizing radiation exposure making more precise examinations possible.

Exposure dose

Comparison of radiation dose when taking cephalometric, panoramic, or 3D scans. Although 3DCT provides a very large amount of information, it achieves low exposure.



Low Dose mode

Reduces radiation exposure and shortens scan time.

FOV	Exposure dose	Scan time
5×5cm	29μSv	8 seconds
8×8cm	74μSv	
12.5×10cm	109μSv	

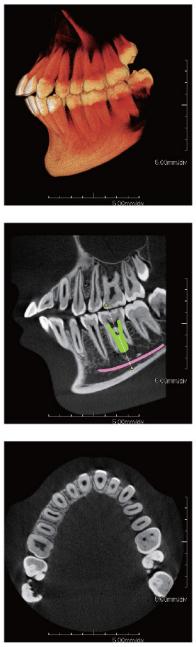
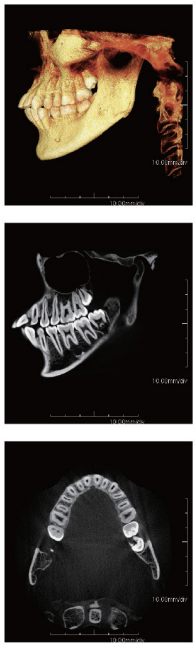
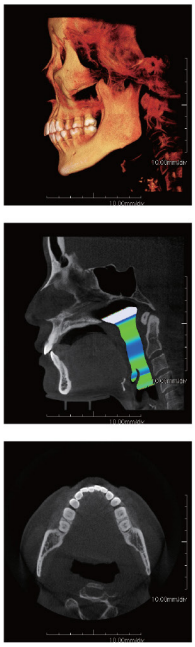
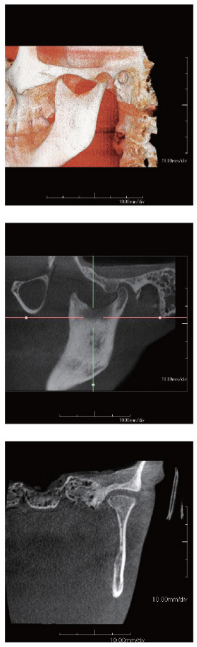
*Values are for scanning in Medium Adult mode.

Pulse irradiation

The exposure dose on the patient can be greatly reduced through the use of intermittent X-ray irradiation rather than continuous irradiation. This also reduces wear on the X-ray tube.

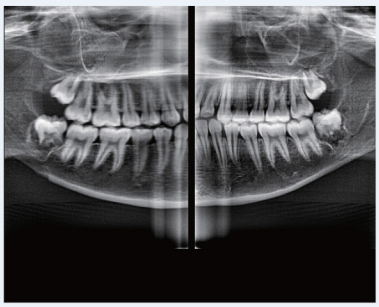
Fields of View (FOV)

PreXion3D Expedition is equipped with CT image acquisition capabilities applicable for all clinical situations at 5×5cm, 8×8cm, 12.5×10cm, and 15×15cm (optional), covering endodontic to full mouth treatment. PreXion3D Expedition uses a 360° rotation to generate high resolution images for all FOVs.

	5×5cm	8×8cm	12.5×10cm	15×15cm (Optional)	CT TMJ
Voxel size	0.06mm / 0.1mm	0.08mm / 0.1mm / 0.15mm	0.12mm / 0.15mm / 0.2mm	0.2mm / 0.3mm	0.15mm
Image					
Endodontic treatment	●	●			
Periodontal treatment	●	●	●		
Implant treatment	●	●	●		
Oral surgery		●	●	●	●
Maxillofacial treatment			●	●	
Treatment of sleep disorders				●	

2D Panorama

In addition to 3D analysis, dedicated 2D panoramic scanning is available.



Bitewing

TMJ

Panorama

2D One-Shot Ceph

The optional cephalo unit for PreXion3D Expedition takes clear cephalometric images with one-shot, reducing the patient scan time and exposure.


Ceph (LA)

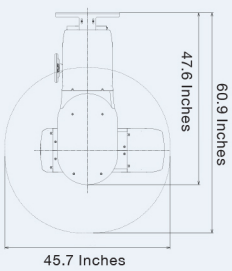

Ceph (PA)

Carpus

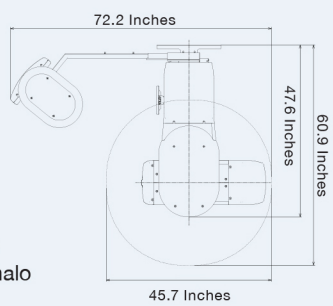
Device Type		Cone Beam Computed Tomography System
Product Name		PreXion3D Expedition
Model		P04B
Rated Power		Voltage: 100-240V AC Frequency: 50/60Hz
X-ray Tube /Focal Spot		0.3mm×0.3mm
Tube Voltage		90-110kV (Varies Depending On Scan Mode)
Tube Current		1-5.3mA
Total Filtration		Greater Than 2.7mm Aluminum Equivalent
FPD Specifications		0.19mm × 0.19mm, 16bit, Matrix 896 × 896
	With Binning	0.095mm × 0.095mm, 16bit, Matrix 1792 × 1792
FOV	Without Binning	Full : ϕ125mm × H100mm
		Arch : ϕ80mm × H80mm
		Teeth : ϕ50mm × H50mm
		Complete: ϕ150mm × H150mm (Optional)
		CT-TMJ / ϕ125mm x H100mm
Voxel Size		0.06 / 0.08 / 0.1 / 0.12 / 0.15 / 0.2 / 0.3mm
Scanner Dimension		CT Mode: 1,160mm Cephalometric Mode: 1,833.6mm
	(W)	CT Mode: 1,546.5mm Cephalometric Mode: 1,546.5mm
	(D)	CT Mode: 2,226mm Cephalometric Mode: 2,226mm
Scanner Weight	(H)	170kg (Without Cephalo) 200kg (With Cephalo)

Scan Time	CT Scan Mode	Low Dose Mode: 8sec
		HD Mode: 12sec
		Endo Mode: 25sec
		Complete Mode: 12sec × 2
		CT-TMJ Mode: 7sec × 2
	Panoramic Scan Mode	Full Arch Mode Standard: 14sec Narrow: 12sec
		TMJ2: 4sec × 2
		TMJ4: 4sec × 2 × 2
		Bitewing: 4sec × 2
	Cephalometric Exposure Mode	LA: 0.16sec
		PA: 0.16sec
		Carpus: 0.16sec

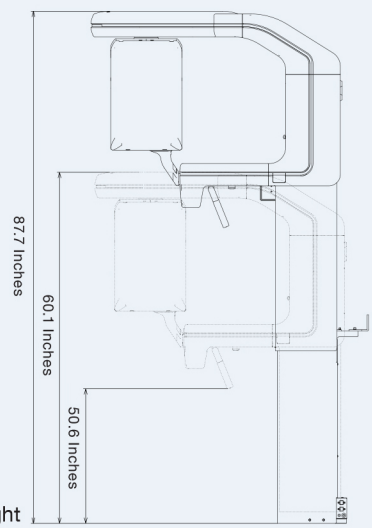
Dimensions



Without cephalo



With cephalo



Height

*A dedicated support stand is available as an option.

PreXion
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*Product specifications may change without prior notice.

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