

“超威特” 數位X光影像系統

“Vatech” Dental X-ray System

衛署醫器輸字第021776號

使用前請務必詳閱原廠之使用說明書並遵照指示使用
型號：PaX-Flex3D

1. 產品敘述：

本產品是一套牙科數位診斷系統，可以提供三維的電腦斷層、全口及頭顱影像。

2. 產品用途：

照相模式	全口					
	基本		智慧		高密度	
標準	一般	成人(一般)	一般	成人	自動對焦	成人
		成人(寬牙弓)		兒童		兒童
		成人(窄牙弓)				
		兒童				
	快速	成人(一般)	快速	成人	高密度	成人
		成人(寬牙弓)		兒童		兒童
		成人(窄牙弓)				
		兒童				
特殊	前牙區		矯正用		矯正用高密度	
	顳顎關節(側面)		咬翼		咬翼高密度	
	顳顎關節(正面)		前牙區		前牙區	
	鼻竇(正面)		顳顎關節(側面)		顳顎關節(側面)	
			顳顎關節(正面)		顳顎關節(正面)	
			鼻竇(正面)		鼻竇(正面)	
			鼻竇(側面)		鼻竇(側面)	

照相模式	子模式
頭顱	側顱
	全顱
	頰下頂
	腕骨
電腦斷層	上頷(左、中、右)
	下頷(左、中、右)
	咬合(左、中、右)
	顱顎關節(左、右)
	結合(選購)

3. 警告及注意事項：

- 為了維護安全，安裝時必須小心遵照手冊指示。
- 只有原廠工程人員或合格的工程師才可以安裝系統。
- 對機器施加壓力或噴灑液體，可能導致火災和電氣災害。
- 請不要將機器安裝在接近蒸氣或易燃氣體的地方。
- 為了穩定的電源供應，請避免與耗電量大的機器同時使用，並確認接地。

4. 產品規格：

一般規格

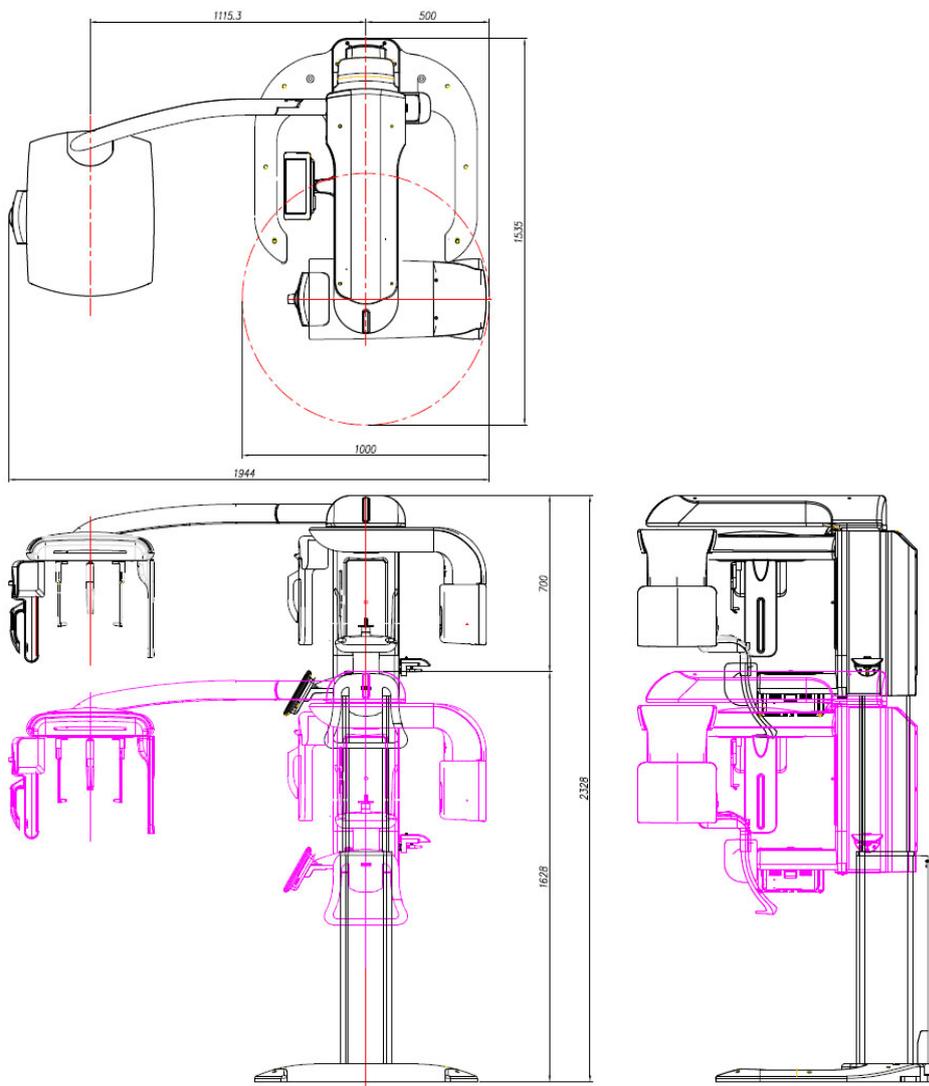
規格		規格		
		全口	電腦斷層	頭顱
X 光束			錐形射束	
感測器		碘化銫閃光屏配合互補式金屬氧化層半導體	互補式金屬氧化層光二極體陣列(主動式像素感應器)	碘化銫閃光屏配合互補式金屬氧化層半導體
灰階解析度(位元)		14 位元	14 位元	14 位元
照射時間		13.5 秒	24 秒	12.5-13.5 秒
斷層視野			5x5/8x5/8.5x8.5/ 12x8.5	
重建時間	一般模式		依電腦規格而定	
	高解析度			
立體像素尺寸			0.18mm~0.25mm	
患者定位		站立/輪椅		
焦點		0.5x0.5mm		
最大陽極對地電壓		90 kVp		
最大球管電流		10 mA		
影像放大率		1.33	1.569	1.14

焦點至物體距離	439.7mm	409.7mm	1524mm
物體至感測器距離	148.5mm	233.2mm	221mm
焦點至感測器距離	588.2mm	642.9mm	1745mm

X 光產生器

項目	描述	註釋	
	輸出電源功率	0.9kW	
高壓產生器	形式	40kHz 變頻式	
	一般/脈衝	kV	50~90kV(解析度：1kV)
		mA	2~10mA(解析度：0.1mA)
		sec	0.5~24(解析度：0.5sec)
	冷卻	Natural /Protect ≥ 60°C	
	附加過濾	1.5 mm Al	
	總過濾	2.8 mm Al	
X 光球管	製造廠	Toshiba	
	型號	D-052SB 固定陽極式	
	焦點	0.5x0.5mm	
	靶極角度	5°	
	固有阻濾	At least 0.8mm Al equivalent at 50kV	
	X 光覆蓋範圍	95 x380 mm at SID 550mm	
	陽極熱容量	35kJ	
	工作週率	1:60 (exposure time :interval time) or more	

尺寸 (mm):



物理性規格

	描述		資料
機械規格	垂直柱升降範圍		700mm
	重量		230Kg
	長 x 寬 x 高		1944mm*1535mm*2328mm
	安裝方式		站立式
電氣規格	輸入電壓		AC 110/230V ± 10%
	頻率		50/60 Hz
	相位		單相
	電源功率		1.8kVA
環境規格	操作使用	溫度	10 ~ 35 °C
		相對溼度	30 ~ 75%
		大氣壓力	700 ~ 1060 hPa

	描述	資料
運送及貯存	溫度	-25 ~ 60 °C
	相對溼度	20~ 90% non-condensing
	大氣壓力	700 ~ 1060 hPa

電腦系統需求

項目	描述	註釋
中央處理器	Intel Core 2 Duo 2.4 GHz or higher	
主記憶體	2GB for windows Vista 1 GB for Windows XP	記憶體容量攸關系統效能
硬碟	250GB	
顯示卡	Integrated graphic card in motherboard With 256MB video memory or higher	顯示卡記憶體容量攸關影像處理效能
螢幕	19" or larger 1280 x 1024 minimum screen resolution - 32 bits color mode	螢幕對於顯示影像品質非常重要，不良的螢幕會影響診斷及治療
網路卡	100/1000Mbps	
USB port	USB 2.0 supported	
序列埠	1 RS232 port	
光碟機	安裝軟體用	
作業系統	Genuine Windows XP Home Basic SW or higher version	

製造廠名稱：VATECH Co., Ltd.

製造廠地址：23-4, Seogu-dong, Hwaseong-si, Gyeonggi-do, Korea

藥商名稱：博泰醫療器材股份有限公司

藥商地址：臺北市內湖區瑞光路288號2樓之1

1 Introduction

1.1 Product features

PaX-Flex3D is an advanced digital dental diagnostic system that provides 3D imaging CT, panoramic and Cephalometric imaging capabilities into one equipment. This employs a more sophisticated digital image processing algorithm to obtain image of higher resolution in less time, compared with the previous systems.

The followings are the prominent features, among other things.

1. Adopting Auto Focusing algorithm that enables the system to
 - focus automatically on the object, using artificial intelligent algorithm
 - acquire high quality images, regardless of the Arch shape and positioning of the patient
2. Providing wide touch screen of 10.4" to streamline series of procedures from patient positioning, to image saving to image reading, thus leading to easier-to-manipulation than ever before.
3. Improving reliability and dependability by adopting CAN (controlled area network) protocol that generally is used in areas like airplane leading to greatly reduced problem occurrences.
4. Supporting various imaging modes that are appropriate for each characteristic patient.
5. Generating the HD quality of panoramic image
6. Employing the card reader for pre-paid so that the patient is able to pay flexibly
7. Employing stitching capability to obtain the larger image than the physical sensor could provide
8. Changing the CT sensors with ease(5 X5 → 8X5 or vice versa) using the attachable nozzle
9. Supporting the DICOM format based on the governing international standard
10. Providing the flexible installation of either wall mount(default) or base type
11. Affordable selection among many 2D and 3D viewer programs: 2D viewer(EasyDent, Dental Sherpa) and 3D viewer(Ez3D 2009)

1.2 Examination programs supported

The **PaX-Flex3D** has been designed to carry out the following radiological examinations.

- Panoramic(Basic)
- Panoramic(Intelligent)
- Panoramic(HD)
- Dental CT
- Cephalometric

The following table summarizes the anatomical programs that PaX-Flex3D supports.

Mode	Panoramic					
	Basic		Intelligent		HD	
Standard	Normal	Adult (Normal)	Normal	Adult	AF	Adult
		Adult (Wide)				
		Adult (Narrow)		Child		child
		Child				
	Adult (Normal)	Child	Child			
	Adult (Wide)			Child	Child	
	Adult (Narrow)	Child	Child			
	Child			Orthogonal	Orthogonal HD	
Frontal	Bitewing HD					
TML (Lateral)	Frontal					
TMJ (PA)	TML (Lateral)					
Sinus (PA)	TMJ (PA)					
	Sinus (PA)					
	Sinus (Lateral)					

 NOTE	 signifies Intelligence mode is supported.
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Mode	sub mode
Cephalometric	Lateral
	PA
	SMV
	CARPUS
CT	Maxillary (Left, Center, Right)
	Mandible (Left, Center, Right)
	Occlusion (Left, Center, Right)
	TMJ (Left, Right)
	Stitching (Optional)

Caution for System Installation

1. To maintain the safety, the installer must read and follow this manual carefully.
2. The installer must confirm the system is installed as described in this manual and perform the appropriate procedures therein.
3. Only a VATECH technician or a qualified technical expert can install the system.
4. Applying pressure or spraying liquid on the system can cause fire and electrical accident.
5. Do NOT install the system in an environment exposed to volatile gas or vapor.
6. For a stable power supply avoid using the system simultaneously with other system of high electrical capacity, and make sure to ground the system.
7. If there is any doubt on operation or condition, do NOT install the system until a VATECH customer support team confirms the reliability.

Guide Lines for Protection against Radiation

The X-ray system may cause injury to the patients if used improperly. The instructions contained in this manual must be read and followed when operating the PaX-Primo. The world standard regulations pertaining to radiation safety must be observed.

When exposing X-ray, User must be behind the protective wall, or take other protective actions. When a breakdowns or troubles appear, User keeps at least 2m (7feet) away from the X-ray system to release the exposure switch while observing patient and capture-progress.

User must provide the protective clothes to the patient. Before capturing, pregnant women must always consult with doctors.

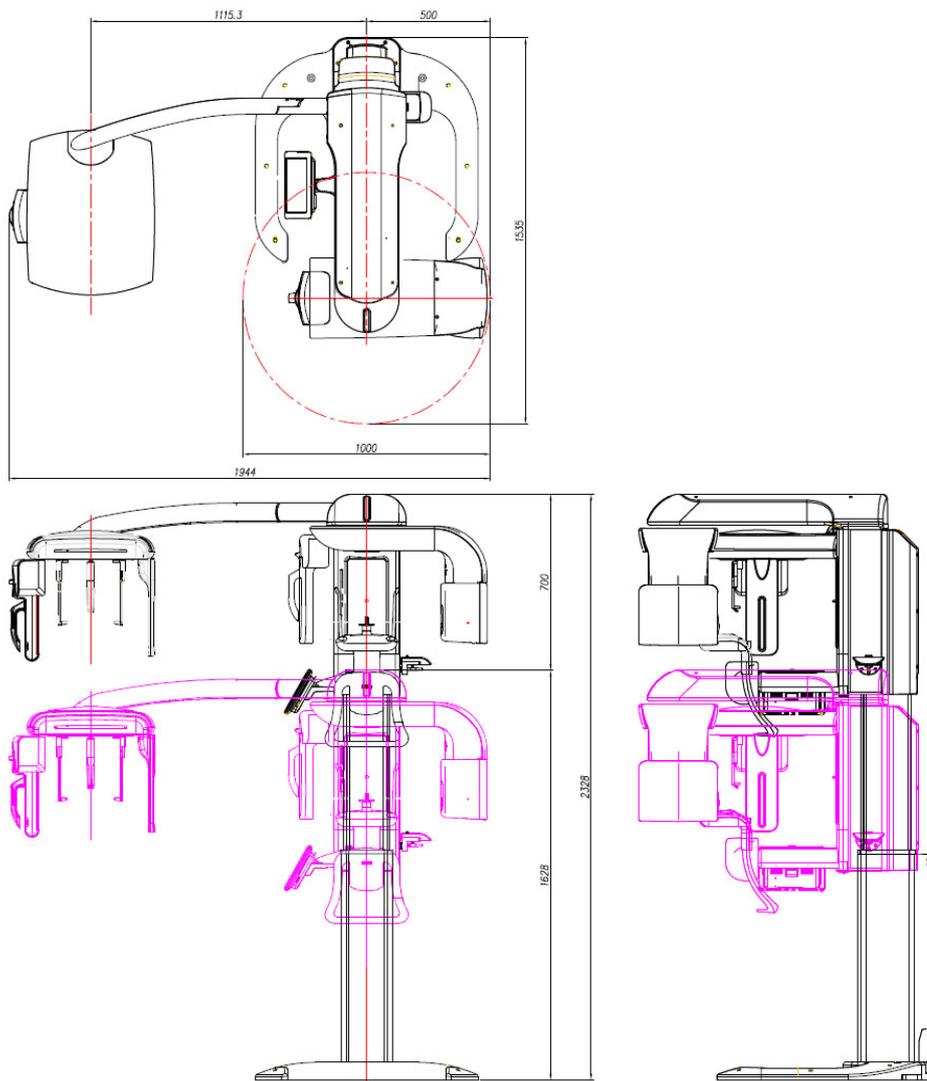
 <p>WARNING</p>	<p>Do not install or use this system in any place where there is an explosive danger.</p>
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Specification		PaX-Flex3D		
		Panoramic	CT	Ceph
X-Ray beam			Cone beam	
Detector		CMOS sensor with Cesium Iodide (CsI) scintillated screen	CMOS photodiode array (Active Pixel Sensor: APS)	CMOS sensor with Cesium Iodide (CsI) scintillator
Grayscale Resolution(bit)		14bit	14bit	14bit
Exposure time		13.5 sec	24 sec	12.5-13.5 sec
FOV size			5x5/8x5/8.5x8.5/ 12x8.5	
Reconstruction time		Normal Mode	Depends on the PC	
		High Mode		
Voxel Sizes (mm)			0.18mm~0.25mm	
Patient position		Standing/Wheelchair Accessible		
Focal spot		0.5x0.5mm		
Max. Anode Voltage to ground		90 kVp		
Max. tube current		10 mA		
Image magnification		1.33	1.569	1.14
FOD(focal spot to object distance)		439.7mm	409.7mm	1524mm
ODD(object to detector distance)		148.5mm	233.2mm	221mm
FDD (focal spot to detector distance)		588.2mm	642.9mm	1745mm
Weight		230Kg		
Max. Height		2328mm		
Length x Width		1944mm x 1535mm		
Power supply		110/230V±10%~ 50/60 Hz 1.8KVA		

6.2 X-Ray generator specifications

Items	Descriptions	Comments	
	Output power rating	0.9kW	
High voltage generator	Type	40kHz inverter type	
	Normal/pulse	kV	50~90kV(resolution of 1kV)
		mA	2~10mA(resolution of 0.1mA)
		sec	0.5~24(resolution of 0.5sec)
	cooling	Natural /Protect $\geq 60^{\circ}\text{C}$	
	Added filtration	1.5 mm Al	
	Total filtration	2.8 mm Al	
X-Ray tube	Manufacturer	Toshiba	
	Model	D-052SB(Stationary Anode type)	
	Focal spot	0.5x0.5mm(IEC 60336)	
	Target angle	5°	
	inherent filtration	At least 0.8mm Al equivalent at 50kV	
	X-Ray coverage	95 x380 mm at SID 550mm	
	Anode heat content	35kJ	
	duty cycle	1:60 (exposure time :interval time) or more	

6.4 Dimension of the Unit



(Unit: mm)

 <p>NOTE</p>	<p>The height, 2328mm, represents the maximally allowed length using extensible (adjustable) column.</p>			
		Panoramic sensor	Cephalometric sensor	CT sensor
	Distance from X-ray source to	588.2mm	1745mm	642.9mm
Size of the unit	1944mm*1535mm*2328mm			

6.5 Environmental Characteristics

	Descriptions		Data
Mechanical specification	Vertical column movement		700mm
	Weight		230Kg
	Length x Width x Height		1945mm*1535mm*2328mm
	Type of installation		Standing
Electrical specification	Line input voltage		AC 100/230V ± 10%
	Frequency		50/60 Hz
	Phase		Single
	Power rating		1.8kVA
Environmental specification	Operating	temperature	10 ~ 35°C
		relative humidity	30 ~ 75%
		atmospheric pressure	700 ~ 1060 hPa
	Transportation and storage	temperature	-20 ~ 60°C
		relative humidity	20~ 90% non-condensing
		atmospheric pressure	700 ~ 1060 hPa

5 Installing the software

There are 3 different software that are used to acquire, process and view the image.

- 2D Viewer and processing : EasyDent or Dental Sherpa
- 3D Viewer and processing: Ez3D2009
- Imaging software

5.1 The PC system requirements (recommended)

The following specifications are recommended minimum requirements that enable the operation to be stable in processing and viewing image.

	The PC system plays a great role for processing and viewing quality image. In other words it means there may be image quality deterioration from lack of resources. Thus observe the requirement guideline specified the following tables.
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Items	Descriptions	Comments
CPU	Intel Core 2 Duo 2.4 GHz or higher	
RAM	2GB for windows Vista 1 GB for Windows XP	RAM has a major impact on system performance.
HDD	250GB	
Graphic card	Integrated graphic card in motherboard With 256MB video memory or higher	The video RAM has major impact on image processing performance.
Monitor	19" or larger 1280 x 1024 minimum screen resolution - 32 bits color mode	Monitor is a vital in displaying quality images. Low-quality screens will prevent you from proper diagnoses and treatment.

Items	Descriptions	Comments
Ethernet card	100/1000Mbps	
USB port	USB 2.0 supported	
Serial card	1 RS232 port	
CD/DVD drive	This ODD drive is required to install the software	
Operating system	Genuine Windows XP Home Basic SW or higher version	



Although the manual update continues on an as-needed basis, this section may not contain the explanation for the latest version. But there should be no ambiguity as long as installation is concerned. Please ask the technical support staff for the latest information.



NEW

PaX-Flex3D

The convenient flexibility

We care for our customers

We care for the patients

We care for our partners

With insight, *Caring Insight*



The world's leading Dental

At Vatech & E-Woo, we follow a simple business philosophy; to develop our talent and technology to create superior products and services that contribute to a better medical environment.

The three circles you see on the Vatech logo signify our commitment to this philosophy. They represent passion, speciality and innovation.

These are the core values at the heart of every decision the company makes.

CARING INSIGHT VATECH

PaX-Flex3D _ CT Up-grade at anytime

PaX-Flex3D is easy to do up-grade from 5X5 to 12X8.5 by only changing a sensor. Comprehensive flexibility of PaX-Flex3D offers dentists various selectable CT machines.

Begin successfully with PaX-Flex3D. It's solution.

Flexible solution in digital radiography



Auto-Focusing



Ultra High Definition Pano



Scan CEPH



MAR



Pulsed Scan



Standing Type

Simple solution to upgrade

When customers want to change their current FOV size to a larger FOV size they usually need to buy a separate machine to satisfy their requirement. VATECH offers you total solutions for your upgrade. Customers now can add additional larger FOV sensors for their imaging needs.

For dentists who are expanding their scope in dentistry, VATECH offers state of the art technology & flexibility, like easy Upgrade from Pano to CT(3 in1), ct viewer and orthodontic analysis software as well as CT viewing Software. Intra-oral sensors are also offered depending on patients requirements. At VATECH we make our products with the strictest protocol as well as giving you ergonomics and modern technology combined. Additionally VATECH's products are ergonomic and modern for a convenience of customers.

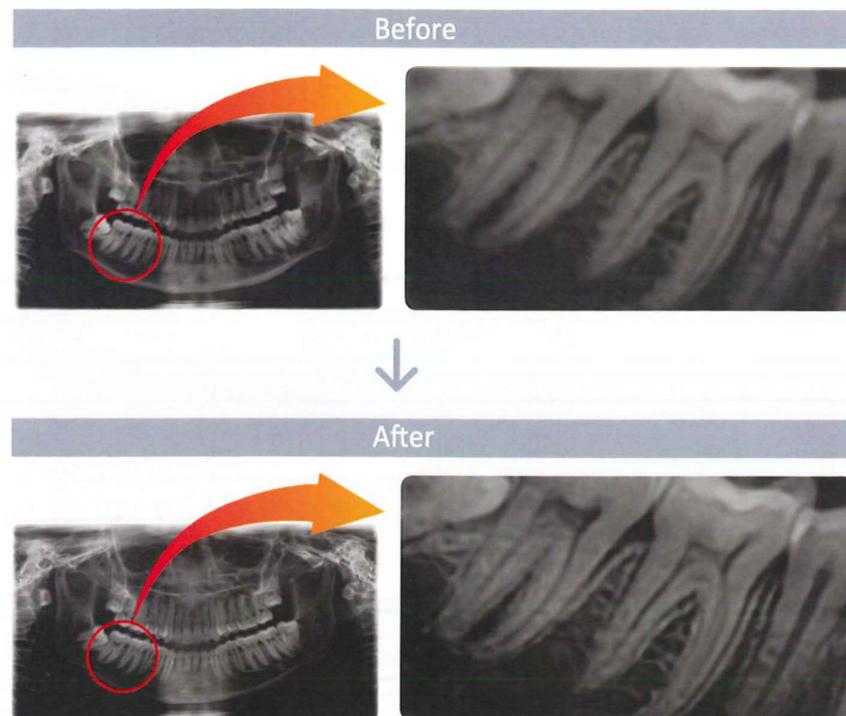


PaX-Flex3D _ The Perfect Panoramic Image

PaX-Flex3D offers high quality panoramic image with its market leading image processing technology. Our superior imaging quality let's you experience perfect image anytime, every time with PaX-Flex3D.

UD(Ultra High Definition) Panoramic Image

With VATECH's new innovative uD technology we offer you more enhanced features and advantages. With its unique 5.2lp/mm compared with the 2.5lp/mm guideline of DIN for panoramic image, clearly PaX-Flex3D provides more superior and higher quality image. (Option)



Clinical Importance UD Panoramic image, the newest technology from us, offers the exact image of caries without any distortion, especially in the lower area of enamel. Furthermore, you can precisely check the actual volume of pulp without magnification from the panoramic image. Also, after the implant surgery, it shows clear commissure of fixture as well as trabecular bone & Lamina Dura. Finally, it is possible to check the condition of alveolar bone

Technical Importance The special uD panoramic image of VATECH realizes more clear image with distinguished 5.2lp/mm. It has almost the equal quality with Intra oral sensor covering much more extended area of arch.

10.4" LCD touch Panel

Convenient GUI with LCD touch panel experience function for easy operation & manipulation (Option)

Economically perfect alternative innovation

PaX-Flex3D offers alternative innovation which provides quality images without the high price.

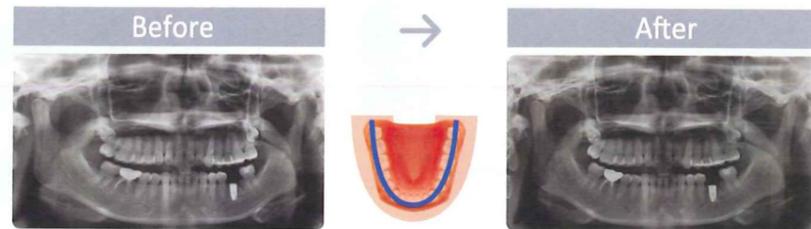
3 in 1

PaX-Flex3D is designed for dentists who are novice in implant practice. It's easily Upgradable and simple to use. With its multiple FOV size (5x5/8x5/8.5x8.5/12x8.5) it's perfect for small and middle sized FOV requirements. Metallic design cues for a touch of ultra modern luxury.



Auto-Focusing Technology

Auto-Focusing technology can select the optimized image automatically. Area sensor can take multiple images without concerning mal-positioning and untypical patient arch. Even if it cannot be used for the diagnosis, Auto-Focusing can revise original images automatically. (Option)



Ez3D 2009 _ Simple & Easy 3D viewer

Customized Software

It's an economical tomography viewer for small FOV images that ensures accurate diagnosis and simulation fit for single or short span implant procedures.

Simple, easy, user friendly

Customize your toolbar

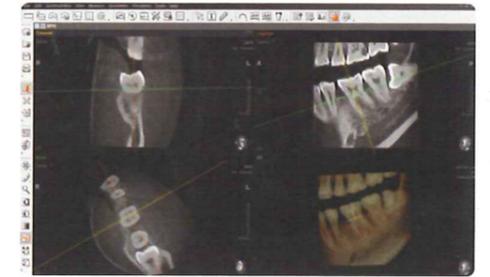
Ez3D Lite lets you customize your toolbar. With the ability to hide functions that you don't need and let's you add functions that you use all the time by making your toolbar less cluttered and complicated.

Implant simulation

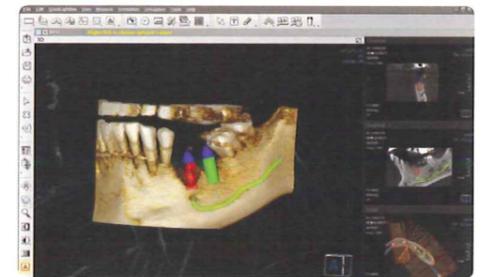
Implant simulation let you simulate different scenarios and positions possible when doing implant surgery, with this function we can reduce the risk during actual surgery.

Canal draw

Accurately traces your mandibular canal which lessens injury to your mandibular canal during surgical procedure.



MPR Mode

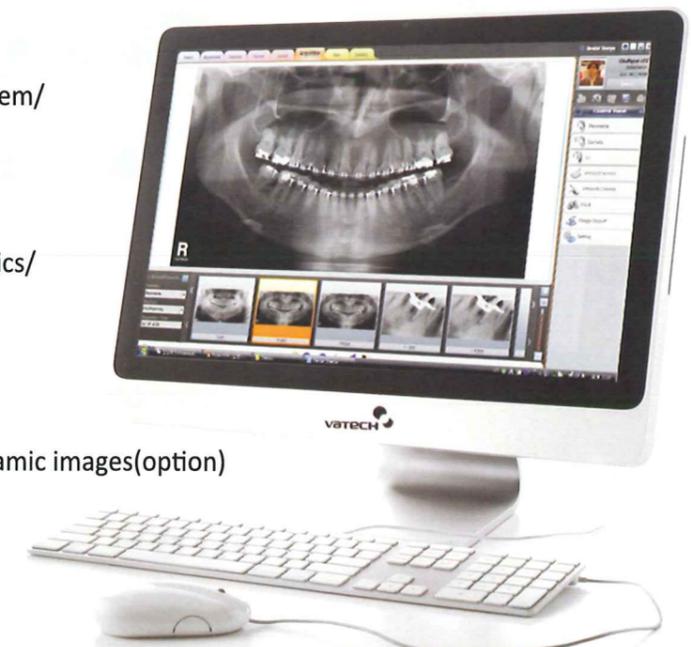


Canal draw and Implant simulation

Dental Sherpa _ Practical 2D viewer tool for the modern dental clinic

- Real Digital Clinic /Advanced network management system/ Clinic status monitoring system
- Advanced convenience/Intuitive user experience
- User friendly UI/Various Multilingual support
- Powerful function/3D graph drawing function for statistics/ Real time image processing/True type font supported
- Various counsel option/Implant simulation/Crown simulation/Whitening simulation

* Dental Sherpa is for uD Panoramic images and AF panoramic images(option)
-> EasyDent is provided for basic Panoramic images.



Which is the best PaX-Flex3D for me?

PaX-Flex3D Series - Product Configuration

Option	Pano	CBCT	Upgradeable
PaX-Flex3D (5x5)	•	•	•
PaX-Flex3D (8x5)	•	•	•
PaX-Flex3D (8.5x8.5)	•	•	•
PaX-Flex3D (12X8.5)	•	•	-

Upgradeable Module

The biggest advantage of PaX-Flex3D is that it can be upgraded.
Users don't have to invest in CBCT module or Ceph right away; it can be upgraded any time.

PaX-Flex3D	
Function	3 in 1 Panoramic, CBCT, Cephalometric
CBCT Sensor	CMOS Sensor
FOV Size(cm)	5x5, 8x5, 8.5x8.5, 12x8.5
Scan Time	CBCT:24sec Pano:13.5sec Ceph:12.5-13.5sec
Rotating Angle	360° / 240°
Generator Voltage /Current	50-90kVp/2-10mA
Focal Spot	0.5mm
Patient Position	Standing/Wheelchair accesible
LCD Touch Panel /Base	Option
Dimension	Max Hight:2328 LengthxWidth:1944x1535



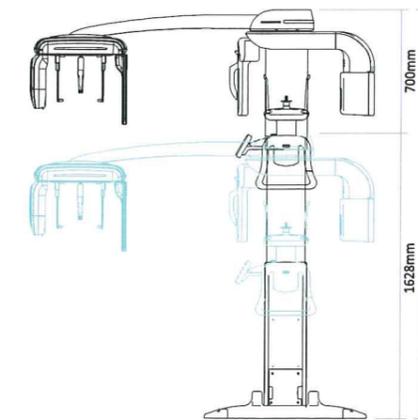
PaX-Flex3D _ Dimensions

PaX-Flex3D_With Ceph

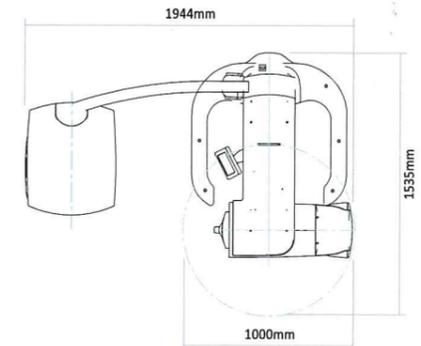
Recommended Space



Front View

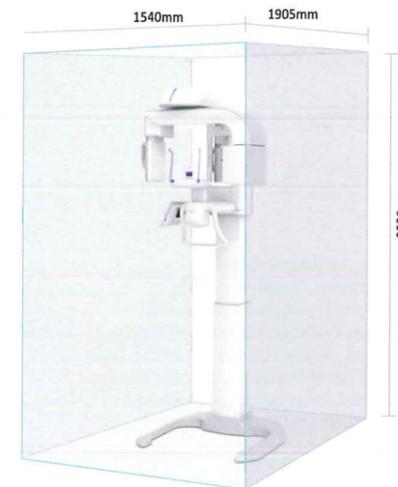


Top View

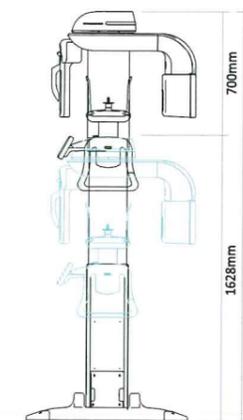


PaX-Flex3D_Without Ceph

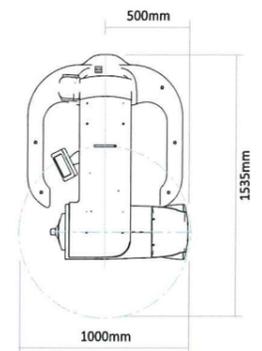
Recommended Space



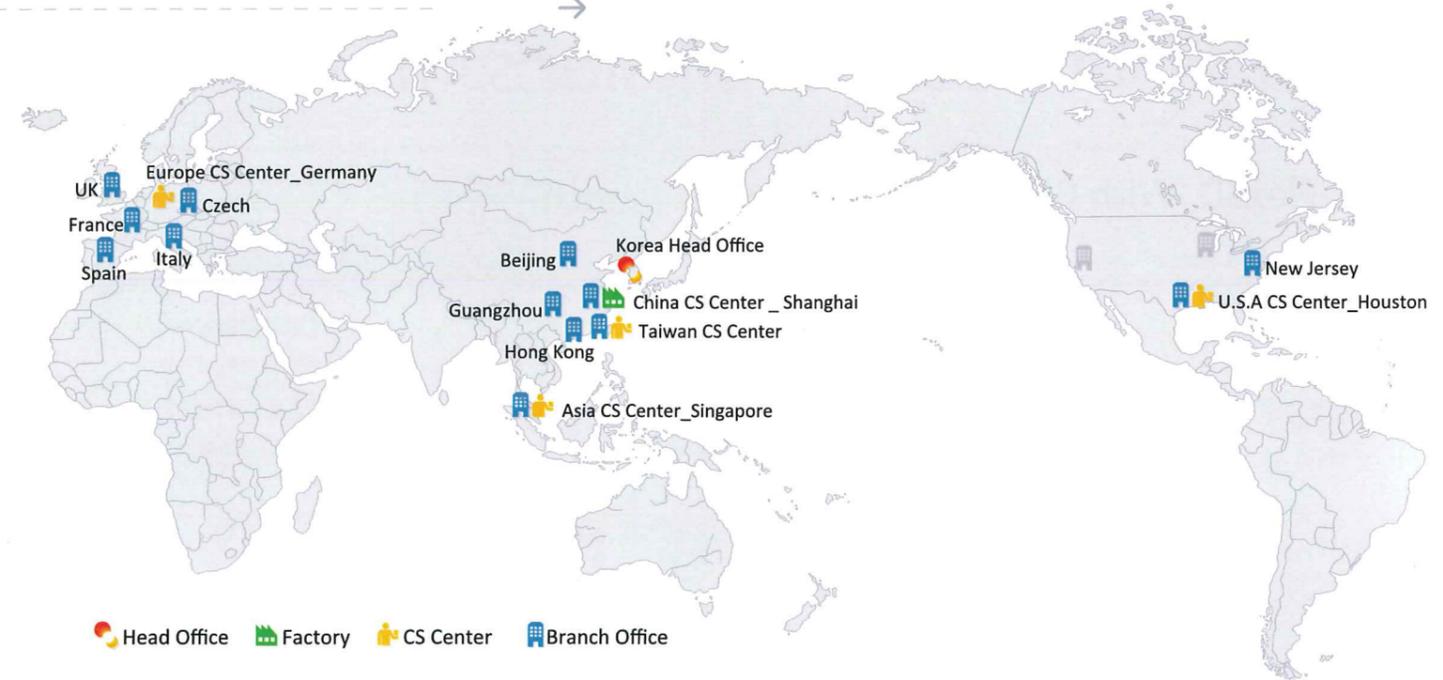
Front View



Top View



: World Wide Network



- **Head Office** | Republic of Korea
- Factory** | China Shanghai, Republic of Korea Hwaseong, Republic of Korea Yongin
- CS Center** | Europe_Germany / Asia_Singapore, Taiwan / North America_Houston
- Branch Office** | Europe_UK, France, Spain, Czech, Italy / Asia_China Beijing, China Shanghai, Guangzhou, Hong Kong, Taiwan, Singapore / North America_L.A., Chicago, New Jersey, Houston
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