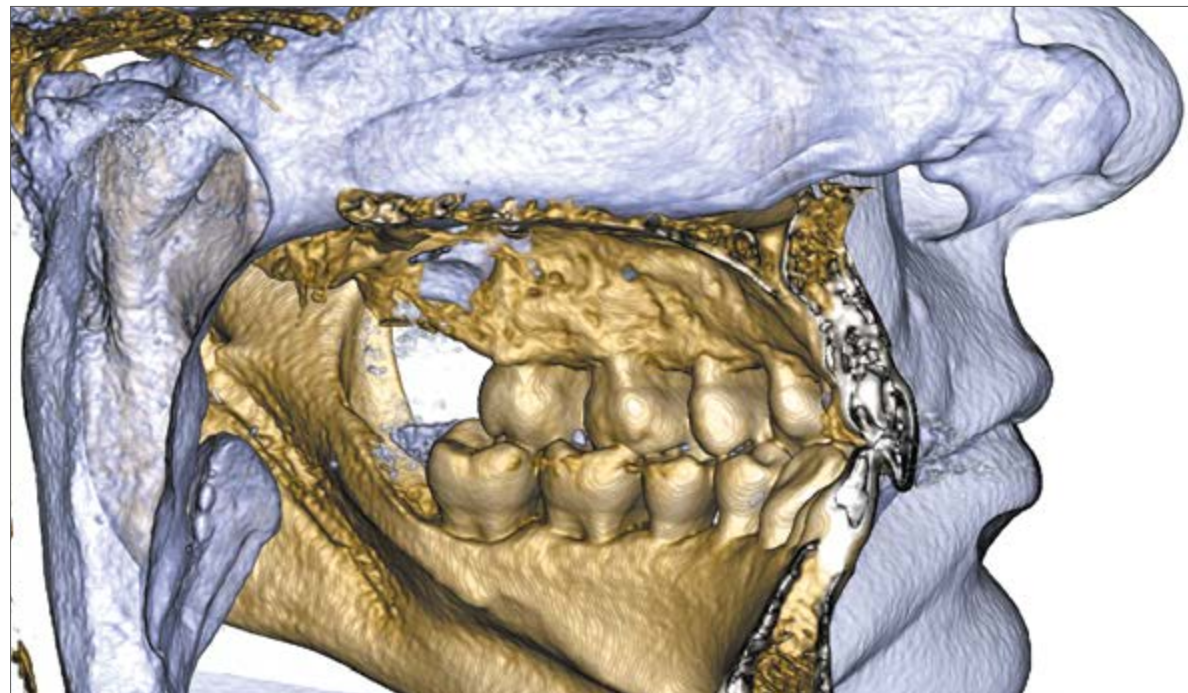# X MIND
trium

3D technology that facilitates implant planning with instant volume measurement and bone density assessment features.

ACTEON

CREATOR
OF INNOVATIONS
IN IMAGING

MORE INVENTIVE

By combining **high quality spatial resolution with a significant reduction in X-ray doses,** ACTEON®
has made X-MIND® trium :
the most powerful and comprehensive Cone Beam Volumetric Tomography system on the market.

LESS INVASIVE

The X-MIND® trium implementation of therapy from the diagnosis is:
• **safer**
• **quick**
• **less traumatic and stressful**
• **minimised surgical effects**

The X-MIND® trium contributes to successful osteointegration with:
• assessment of bone density and volume
• easier clinical decision-making
• more reliable treatment planning
• focus adapted to the region of interest

Bone density information, obtained using X-MIND® trium, supports the diagnosis based on other clinical data, under the expertise and supervision of the clinician.

[1]Evaluation of a Novel Cone Beam Computed Tomography Scanner for Bone Density Examinations in Preoperative 3D Reconstructions and Correlation with Primary Implant Stability
Lars Sennerby, DDS, PhD; Peter Andersson, DDS; Luca Pagliani, MD, DDS; Claudio Giani, BioEng; Giacomo Moretti, BioEng; Massimo Molinari, BioEng; Alessandro Motroni, BioEng

COMPREHENSIVE SOFTWARE

ACTEON imaging suite

The Acteon Imaging Suite software offers **intuitive navigation** with the mouse and **advanced functionality**. It alone lets you manage all of your images, from scanning to viewing images from all ACTEON® imaging devices (CBCT, Panoramic, intraoral digital X-ray system, intraoral camera, etc.) and much more.

A QUALITY IMAGE
VIA AN INTERFACE THAT IS
## SIMPLE, QUICK, INTUITIVE

DICOM COMPATIBLE

EXPORTS TO STL FORMAT

Mac

ADVANCED FUNCTIONALITY
FOR INTUITIVE NAVIGATION

- IMPLANT PLANNING
- CROWN PLACEMENT
- MANDIBULAR NERVE TRACING
- EASY NAVIGATION IN DIFFERENT SECTIONS
- MOUSE CONTROL
- BONE DENSITY ASSESSMENT
  AND VOLUME MEASUREMENT
- SURFACE, DISTANCE AND ANGLE MEASUREMENT
- SUBSTANTIAL AND SCALABLE IMPLANT LIBRARY
- PRINTED IMPLANT REPORT

- SHARING OF INFORMATION ON A NETWORK
- CASES EXPORTED ON A CD OR USB KEY
- EXPORTED IN STL FORMAT
- METAL ARTEFACT REDUCTION FILTER
- PANORAMIC AND CEPHALOMETRIC IMAGE DETAIL
  OPTIMISATION FILTER
- ENT MODULE
- VIRTUAL ENDOSCOPE
- INTEGRATES WITH VARIOUS PATIENT
  MANAGEMENT SOFTWARE
- DICOM COMPATIBLE
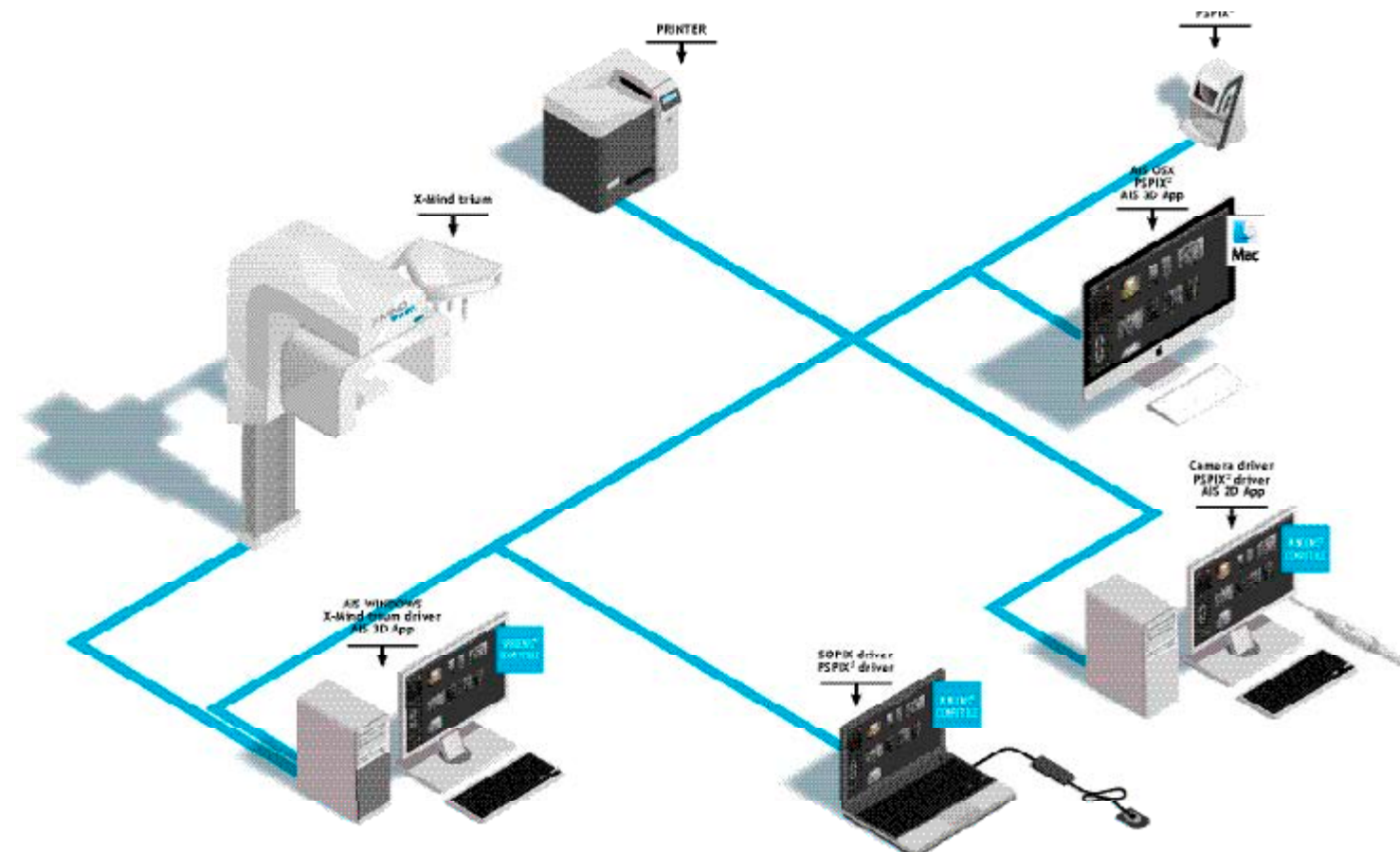
INSTANTLY ASSESS BONE DENSITY AND VOLUME

X MIND trium

ACTEON

Easy-to-use software

A precise and detailed analysis of the existing bone volume is highly recommended in order to reduce complications associated with implant placement. AIS* software displays **the assessment of bone density all around the implant with just one click**.

Communicate with the patient

If bone volume is low, the images and information supplied by the AIS* 3D software can help you **clearly explain your therapeutic recommendation to your patient**. This explanation is particularly helpful if surgery and/or bone filling is necessary.

A RELIABLE ASSESSMENT OF BONE QUALITY WILL HELP YOU IMPROVE YOUR SUCCESS RATE

Indicator colours

Bone density information is clearly represented by the colours red and green.

■ High density

■ Low density

3D mapping

This completes the colour indicators.

Acteon Imaging Suite

SIMPLIFIED IMPLANT PLANNING

CARRY OUT IMPLANT PLANNING USING JUST ONE PIECE OF SOFTWARE

Combined with its AIS* software, X-MIND® trium is an essential tool for planning the treatment and post-procedure follow-up. Its 3D imaging offers **high precision of the anatomy from a single scan** and provides a full understanding of the patient's jaw. Its **results** are **quick and accurate, thereby streamlining your workflow.**

*Acteon Imaging Suite

1 Locating and tracing the mandibular canal precisely is the first step in the implant planning procedure. It also **measures the distance between the implant and the anatomically structures**.

2 Import the STL file generated from your digital impression and match it with the 3D image X-Ray in order to define the gum thickness. Add your virtual STL wax-up created by your lab or get it from our universal virtual prosthesis library to obtain a better implant placement.

3 3D rendering can then be used to choose the size and shape of the implants in relationship to the patient's morphology based on our cloud implant library.

4 AIS* gives useful information to assess volume and bone density for implant placement, which can effectively be used to guide the diagnosis and surgical treatment.

5 In less than a minute, you can edit and print a full implant report, to illustrate your written report (required). This illustrated report can also help you better inform your patient or a referring dental surgeon.

6 AIS* exports imaging data generated from X-MIND® trium scans in STL format. This data can be imported into a surgical guide design software.

7 Thank to our dedicated feature you can create you own surgical guide for a minimal invasive solution and predicted surgery.

DETAILED IMAGING FOR ENDODONTICS

A THREE-DIMENSIONAL IMAGE
### FOR A MORE ACCURATE DIAGNOSIS

The multiple slices obtained with X-MIND® trium allow to navigate from the outside to the core of the tooth, and beyond.

X-MIND® trium is equipped with a dynamic artefact reduction filter to eliminate streaks and dark bands caused by the presence of metal. The image can be freely reconstructed with adjustable filter levels based on the target level of information and the need to cut out artefacts. The goal is to best isolate the desired information during the examination.

5 REASONS TO USE
DETAILED IMAGING

• Highlight the list of potential risks prior to surgery

• Obtain very precise information about anatomical relationships

• Procure a valuable support in making decision for a safe and good therapy

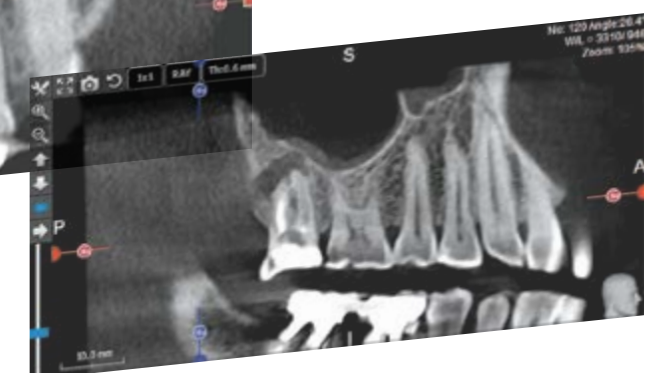• Accurately determine the working length of the tooth when resuming treatment

Through its performance, X-MIND® trium contributes **significantly to the accuracy** of **endodontic analyses**, such as:
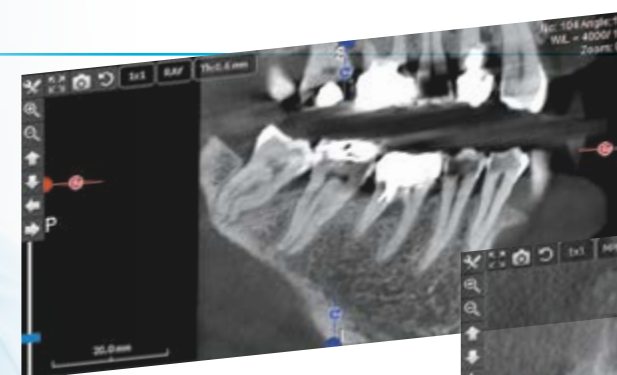
The determination of the anatomy of dental roots

The diagnosis of apical lesions and the diagnosis of fractures

The apex/sinus relationship

MANY MORE CLINICAL BENEFITS THAN YOU CAN IMAGINE

HUGE VARIETY OF APPLICATIONS

In addition to applications designed exclusively for implantology or endodontics, X-MIND® trium **responds directly to the needs of specialists and general practitioners** in the diagnosis of pathologies related to periodontics, orthodontics and maxillofacial surgery. Benefits include:

- Evaluating a detailed morphology of the bone tissue
- Helping to diagnose infectious diseases
- Examining maxillofacial fractures
- Determining the protocol for extracting impacted teeth
- Conducting an orthodontic assessment
- Detecting dental anomalies
- Helping to diagnose temporomandibular joint disorders
- Exploring the maxillary sinuses

Diagnosing temporomandibular joint disorders

Diagnosing infectious diseases

Exploring the maxillary sinuses

Determining the anatomical situation and depth of periodontal pockets

Conducting an endodontic diagnosis

Determining the protocol for extracting included teeth

FOCUS ON THE REGION OF INTEREST

X-MIND® trium offers you **a broad selection of field of view**, letting you focus on the region of interest for the target diagnosis and **reducing the patient's exposure to X-rays**:
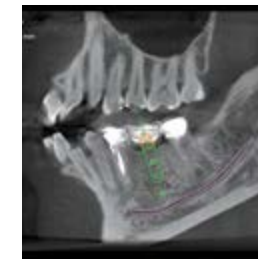

ø 110x80 mm

A **110x80 mm** field of view will offer a full view of the dentition, mandibular canal and lower sinuses.

ø 80x80 mm

A **60x60 mm** or **80x80 mm** field of view will be optimal for defining the positioning of one or more implants or for diagnosing periodontal problems.
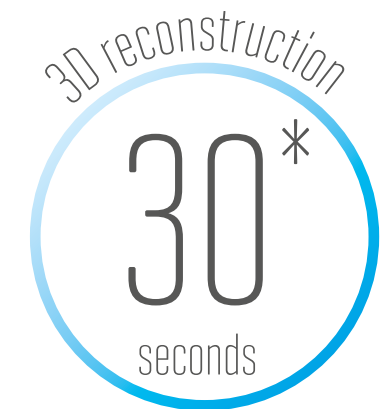

ø 60x60 mm

ø 40x40 mm

A **40x40 mm** field of view with resolution at 75 µm is ideal for diagnosis and endodontic treatment.

EXCEPTIONAL IMAGE QUALITY

360° ROTATION IN 30 SECONDS
DEPENDING ON THE SELECTED FIELD OF VIEW

3D reconstruction

30 *
seconds

REACH THE ULTRA
HIGH RESOLUTION 75 µm

The quality of the diagnosis and endodontic treatments improves significantly with resolution at **75 µm** on the X-MIND® trium.

In addition to obtaining a perfect view, the **adapted spatial resolution**, the pulsed mode scanning, the **high sensitivity** CMOS sensor, and the use of small fields of view allow for a significant reduction in X-rays.

X-MIND® trium has a scanning and reconstruction algorithm that produces **a high quality 3D image**. The representation of bone material in the maxillofacial skeleton is **accurate** and **uniform**, regardless of the viewing axis.

Volume

Coronal view

Axial view

Sagittal view
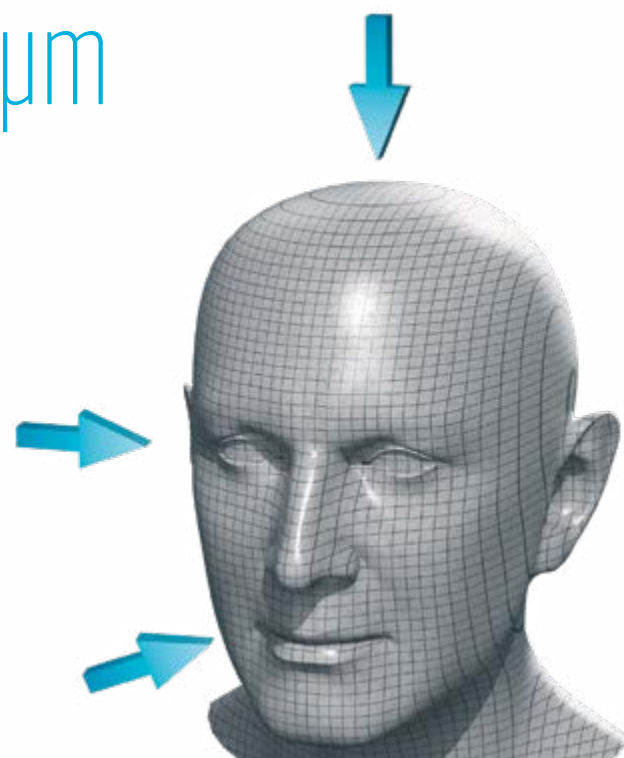
* For average value, recommended by the producer

ARTEFACT REDUCTION FILTERS

AN OPTIMAL FILTER
## FOR REDUCING
METAL ARTEFACTS

X-MIND® trium is equipped with a **dynamic artefact reduction filter** to eliminate streaks and dark bands caused by the presence of metal.

The image can be freely reconstructed with adjustable filter levels based on the target level of information and the need to cut out artefacts.
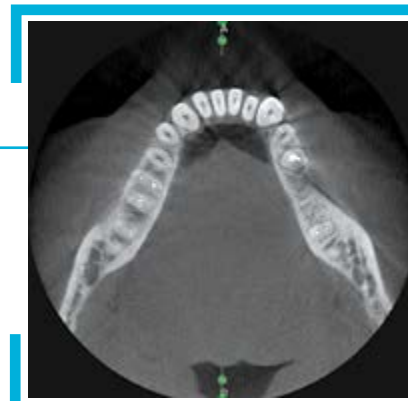
The goal is to best isolate the desired information during the examination.

WITHOUT FILTER
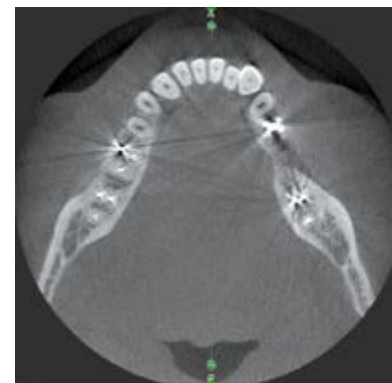
WITH FILTER

PANORAMIC & CEPHALOMETRIC MODES

PANORAMIC RADIOGRAPHY

Whether raw or filtered to optimise the details, panoramic X-MIND® trium images support a fast and easy diagnosis.

DENTAL PANORAMIC

PANORAMIC
WITH IMPROVED ORTHOGONALITY

X-ray beam perpendicular to the jaw for better orthogonality and to reduce the overlapping of crowns.

CHILD PANORAMIC

BITEWING

A quick bitewing image in one shot

TMJ SECTIONS

Both open and closed mouth images

MAXILLARY SINUS

Frontal views of the lower portion of the maxillary sinus and paranasal area
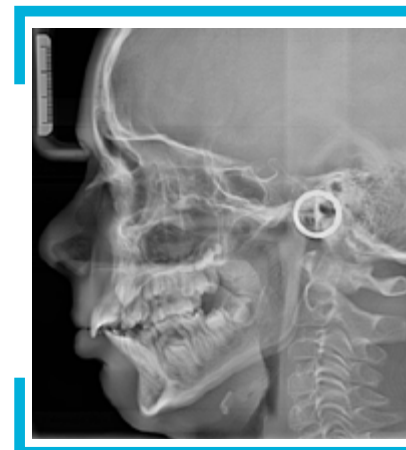
CEPHALOMETRIC RADIOGRAPHY

Due to its patented cinematic and collimation, patient positioning is easier on X-MIND® trium.

Install the cephalometric arm on the right or left, depending on the configuration of the office.

FULL SKULL LATERAL

POSTERIOR ANTERIOR

BETTER QUALITY OF LIFE

THE TRUE
DIAGNOSIS
of PAIN

The introduction of 3D medical scanners has provided significant benefits for the diagnosis of complex diseases. Cone Beam Computed Tomography (CBCT) machines, have made these exams more common, making it possible to **provide better diagnoses** within the dental office.

ACTEON® is fully involved in this technological revolution by providing effective extraoral solutions for diagnosis that are comprehensive in their use and fully meet the expectations of dental surgeons and their patients.

PATIENTS WHO ARE REASSURED AND SATISFIED

Beyond the simple replacement of missing teeth, increased life expectancy and aesthetic concerns have led to the development of implant procedures.
Patients now have the opportunity both to improve their quality of life through the **latest restorative techniques** and, with the help of CBCT, to obtain a **faster and more accurate diagnosis** with a **less exposure to X-rays**.

TIME SAVING AND INSTANT RESULTS FOR THE DENTAL SURGEON

Owning your own ACTEON® 3D extraoral imaging system in your office is a great asset for quick and accurate diagnoses, **saving time and improving your patient's satisfaction**.

The three-dimensional image on the screen lets you provide your patient with the necessary up to date information. In addition, this demonstration and its illustrated explanations will be crucial in **obtaining the patient's full involvement and agreement with the proposed treatment plan**. Finally, X-MIND® trium allows you to print **a full illustrated implant report in just a few seconds** to be provided to your patient and/or their referring dental surgeon.

3 SOLUTIONS IN 1

SELECT NOW, IMPROVE LATER

• X-MIND® trium has an extensive range of options. It is upgradable on site.
• X-MIND® trium will adapt to the ever increasing needs of your clinic by adding 3D imaging or digital cephalometric modalities when you decide it is necessary.

ACTEON SERVICE |& YOU|

"Clinical trainers" are available to show you the clinical aspects and patient benefits of ACTEON® products and train you on how to use them.

Free, ongoing and unlimited service can be reached Monday to Friday, CET from 09:00 to 18:00.

ACTEON® can also analyse and troubleshoot remotely, and specialist technicians can provide on-site service as quickly as possible.

	X-MIND® trium Pan	X-MIND® trium Pan 3D	X-MIND® trium Pan Ceph	X-MIND® trium Pan Ceph 3D
Pan	●	●	●	●
3D	○	●	○	●
Ceph	○	○	●	●
Additional available configurations	● CEPH READY ○ 3D READY	● CEPH READY	○ 3D READY	

● : available option

TECHNICAL SPECIFICATIONS

X MIND trium
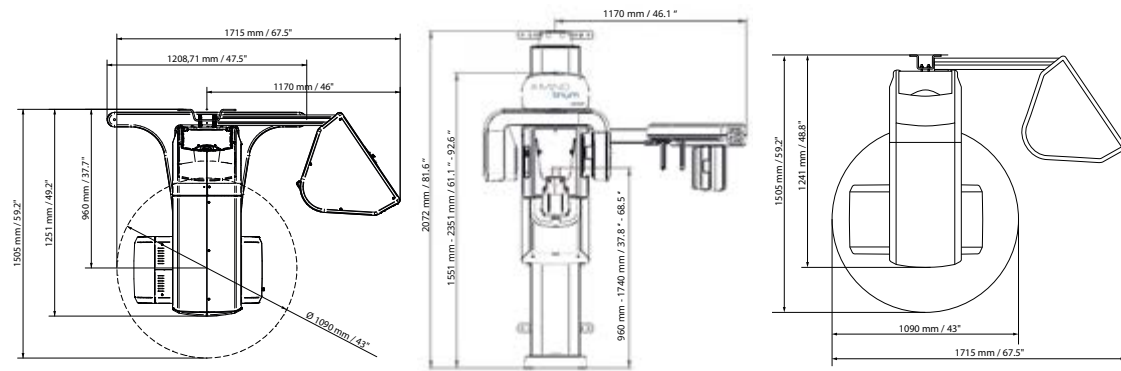
	PANORAMIC	CBCT	CEPHALOMETRIC
X-RAY SOURCE			
Tube type	High frequency DC generator		
Total filtration	2.8 mmAl / 85 kV	7.0 mmAl / 90 kV	2.8 mmAl / 85 kV
Operation mode	Continuous	Pulsed	Continuous
Tube voltage	60 - 85 kVp	90 kVp	60 - 85 kVp
Anodic current	4 - 10 mA	6 - 10 mA	4 - 10 mA
Focal point	0,5 mm	0.5 mm	0,5 mm
DETECTOR			
Type	CMOS	Flat Panel CMOS	CMOS
FOV and format	260 x 148 mm	ø40 x 40 mm, ø60 x 60 mm, ø80 x 80 mm, ø110 x 80 mm	240 x 180 mm
Pixel size/Voxel size	Pixel: 100 µm	Voxel : 75 µm	Pixel: 100 µm
ACQUISITION			
Technique	270° single scan	360° single scan	Single scan
Exposure time	3.3 s - 13.5 sec	4 - 12 s	18 sec
Scanning time	16.8 sec - 25 sec	12 - 30 sec	23 sec
Programs	Standard, child, improved orthogonality panoramic, bitewings, maxillary sinus, TMJ	Semi-arch, arch, full arch, sinus, ear	Frontal PA, Frontal AP, option: Carpus
Reconstruction time	3 sec	From 30s*	4 s
IMAGE FORMAT			
	JPEG, BMP, PNG, TIFF, DCM	DCM, STL	JPEG, BMP, PNG, TIFF, DCM
MECHANICAL DATA			
Weight	170 kg (PAN)	185 kg (PAN-CBCT)	215 kg (PAN-CEPH)
IEC			
Class and Type	Classe I, Type B		
DICOM 3.0 (OPTIONAL)			
Supported services	Worklist, Storage, Query/Retrieve, Print, Verify		
WORKSTATION MINIMUM REQUIREMENTS			
	WORKSTATION PAN/CEPH	WORKSTATION CBCT (Included with X-MIND trium)	WORKSTATION AIS CLIENT (WINDOWS/MAC)
Processor	Intel i5	Intel Xeon 2.9 GHz	Intel i5
Hard Disk	1TB 7200 rpm	256 GB (OS) + 1 TB (AIS database)	300 GB
RAM	8 GB	16 GB	8 GB
Graphics card	OPEN GL 2.1 compatible (suggested an NVIDIA GT/GTX)	Nvidia P620 (2 GB - Display) Nvidia P2000 (5 GB - 3D reconstruction)	Dedicated GPU with 16 Bits RAM at least
Screen resolution	1600 x 1024	1600 x 1024	1600 x 1024
Network card	INTEL CT 1000 pro	INTEL CT 1000 pro	1 Gb/s
Operating system	Windows 10 Professional 64 bits	Windows 10 IoT Enterprise 64 bits	Windows 10 Professional 64 bits /macOS X Sierra (10.12)

*The reconstruction time may vary according to the exam parameters.

NOTES

NOTES

www.acteongroup.com

This medical device is classified as class IIb according to the European Medical Device Directive in force.
It bears the CE marking. Notified Body: IMQ 0051. This medical device is intended for dental care and is reserved for health care professional; it is not reimbursed by health insurance agencies. This equipment has been designed and manufactured in keeping with a quality system certified EN ISO 13485. Carefully read the user manual available at www.acteongroup.com
Manufacturer: de Götzen (Italy) - Distributed by ACTEON® group.
X-MIND trium is a class 3R laser product per IEC 60825-1:2007. Avoid direct eye exposure to laser radiation. Viewing the laser output with magnifying optical instruments (for example, surgical microscope and binocular glasses) may pose an eye hazard and thus the user should not direct the beam into an area where such instruments are likely to be used.

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ACTEON