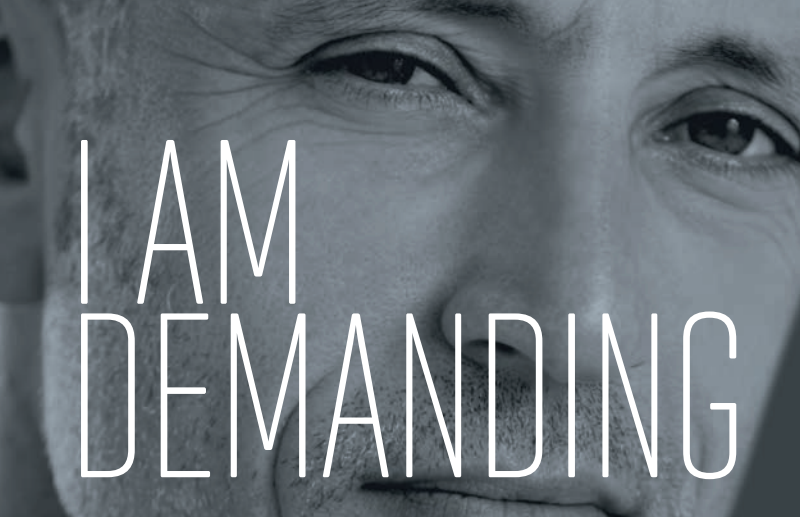I AM
DEMANDING

X MIND
trium

3D technology that facilitates implant planning with instant bone density assessment

ACTEON

I AM DEMANDING

The evolution of dental technology is such that we can now perform procedures which were unimaginable 10 years ago.

For example, in the field of implantology, the success rate for implant placements has progressed notably due to pre-implant procedures.

Although the implant is the key element in this revolution, it is essential to also have high quality bone support. **X-MIND Trium®** identifies this support and makes it possible to immediately measure volume and assess bone density. As dental gaps are sometimes old and associated with bone loss, a graft is often necessary to reconstruct the support which will receive the implant.

The use of **PIEZOTOME® CUBE** is particularly safe and atraumatic. Its fine, precise cuts offer fast healing with a dramatic drop in post-operative pain.

These **ACTEON®** innovations result from the research of 5 design offices which collaborate daily with international dental surgeons to offer patients faster, more natural results while minimizing post-operative sequelae.

PIEZOTOME CUBE

Claudio GIANI
R&D Imaging Director

*The design of the **X-MIND® Trium** has taken into account all the possible factors influencing image quality and image consistency, including (but not limited to): stability, geometry, X-ray beam generation and processing, and SW and HW based filter kernels.*

With our experience in medical imaging we have reached outstanding results to provide advanced clinical outcomes and indicators for the dental practice of the future.

INNOVATIONS IN IMAGING

X-MIND® Trium is expertise in medical imaging

Inspired by advancements in volumetric tomography in medical imaging, **ACTEON®** designed extremely precise image processing algorithms to **improve diagnostic accuracy** for its first CBCT, **WHITEFOX**.
Based on the **Hounsfield unit scale**, the only reference for X-ray scanners, **bone density can be predictably and reproducibly measured**[1], to make easier decisions while planning accurate and reliable treatment.
More specific to current dentistry, **X-MIND® Trium** uses the **WHITEFOX** performance as a base standard to offer a solution tailored to both specialists and general practitioners.

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 Computed Tomography system on the market.

LESS INVASIVE

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

The **X-MIND® Trium** allows successful osseointegration with:
• assessment of bone density and volume
• easier clinical decision-making
• more reliable treatment planning
• focus adapted to the region of interest
• a controlled dose of radiation

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*

INSTANTLY ASSESS BONE DENSITY AND VOLUME

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.

The **ACTEON® Imaging Suite** 3D 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 **ACTEON® Imaging Suite** 3D software can help you **clearly explain your therapeutic recommendation to your patient**.

This explanation is particularly helpful if surgery and/or bone grafting is necessary.

A RELIABLE ASSESSMENT OF BONE QUALITY WILL HELP YOU IMPROVE YOUR SUCCESS RATE
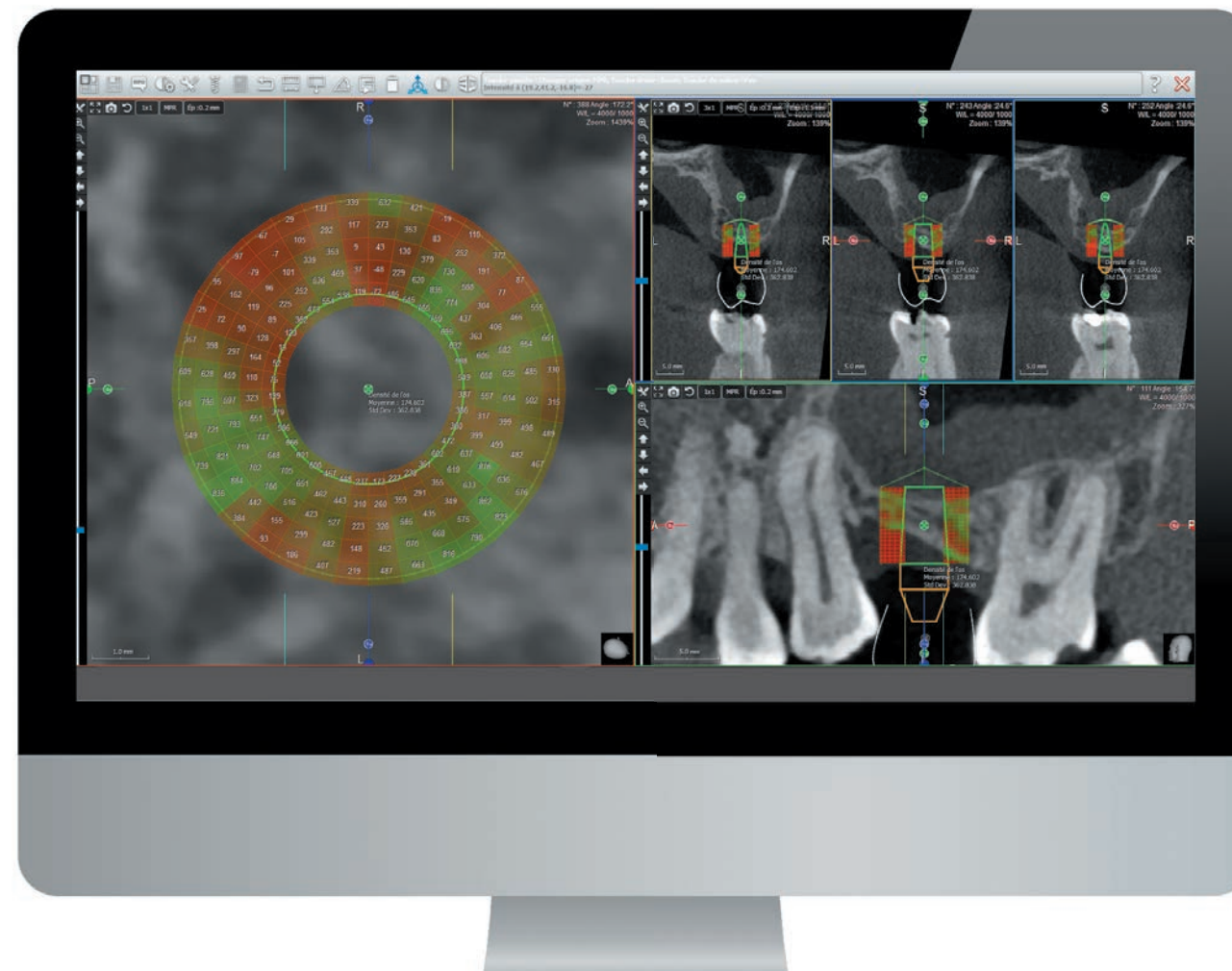
Indicator colors
Bone density information is clearly represented by the colors red and green.
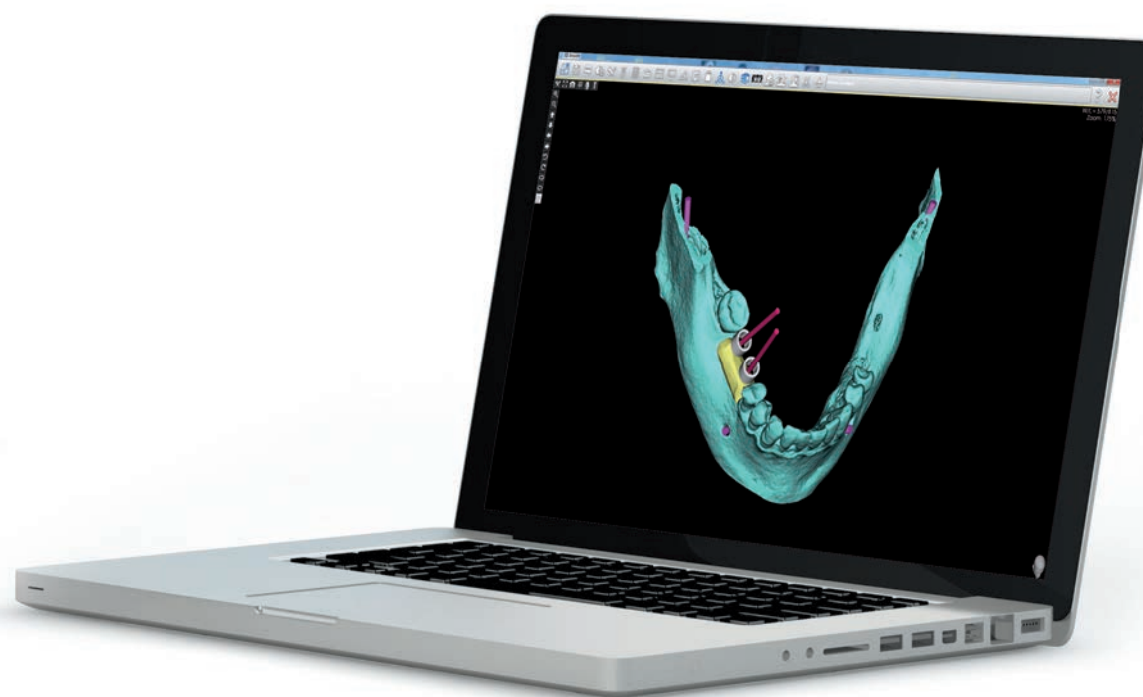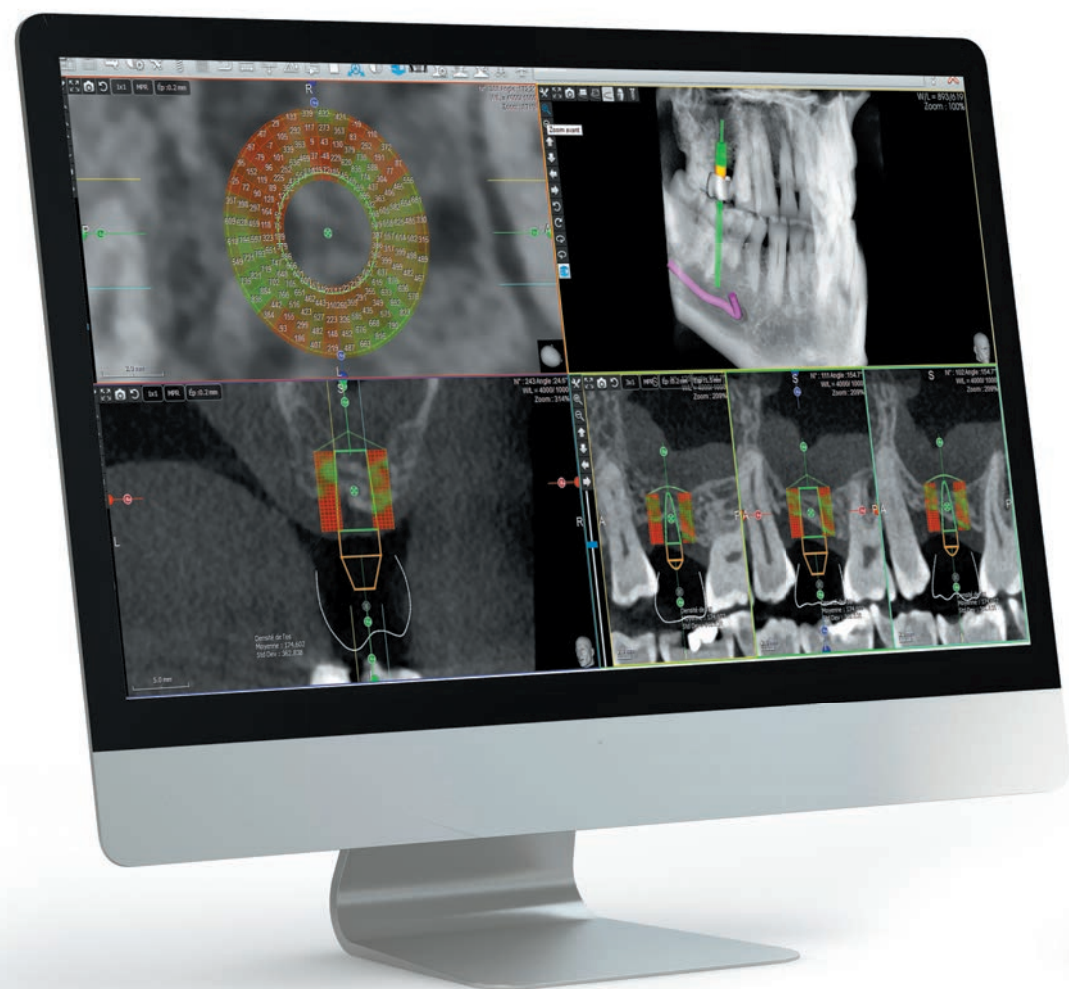
- High density
- Low density

3D mapping
This completes the color indicators.

SIMPLIFIED IMPLANT PLANNING

CARRY OUT IMPLANT PLANNING USING JUST ONE PIECE OF SOFTWARE

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

2. 3D modelling can then be used to **choose the size and shape of the implants** in proportion to the patient's morphology, based on a **substantial and scalable implant library**. Better still, you start by putting the crown in place, which serves as a guide for better positioning of the implant.

3. **ACTEON® Imaging Suite** gives useful information to **assess volume and bone density** for implant placement, which can effectively be used to guide the diagnosis and surgical treatment.

4. **ACTEON® Imaging Suite exports imaging data** generated by **X-MIND® Trium** scans in STL format. This data can be imported into a **surgical guide design software**.

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

Combined with **ACTEON® Imaging Suite** software, **X-MIND® Trium** is an essential tool for planning 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. Results are quick and accurate, thereby streamlining your workflow.

DETAILED IMAGING FOR ENDODONTICS

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

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

Indispensable for endodontics, the metallic artifact reduction filter allows differentiation of non-organic and organic tissue with high levels of precision.

5 REASONS TO USE DETAILED IMAGING

• Provide additional examination to 2D imaging in high-risk situations

• Highlight the list of potential risks prior to surgery

• Obtain very precise information about anatomical relationships

• Provide the most accurate data to make better decisions and improve surgical outcomes

• 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:
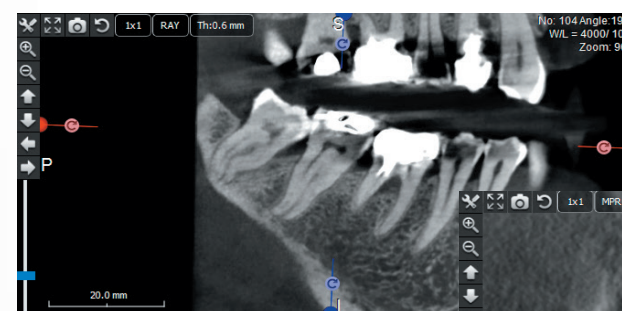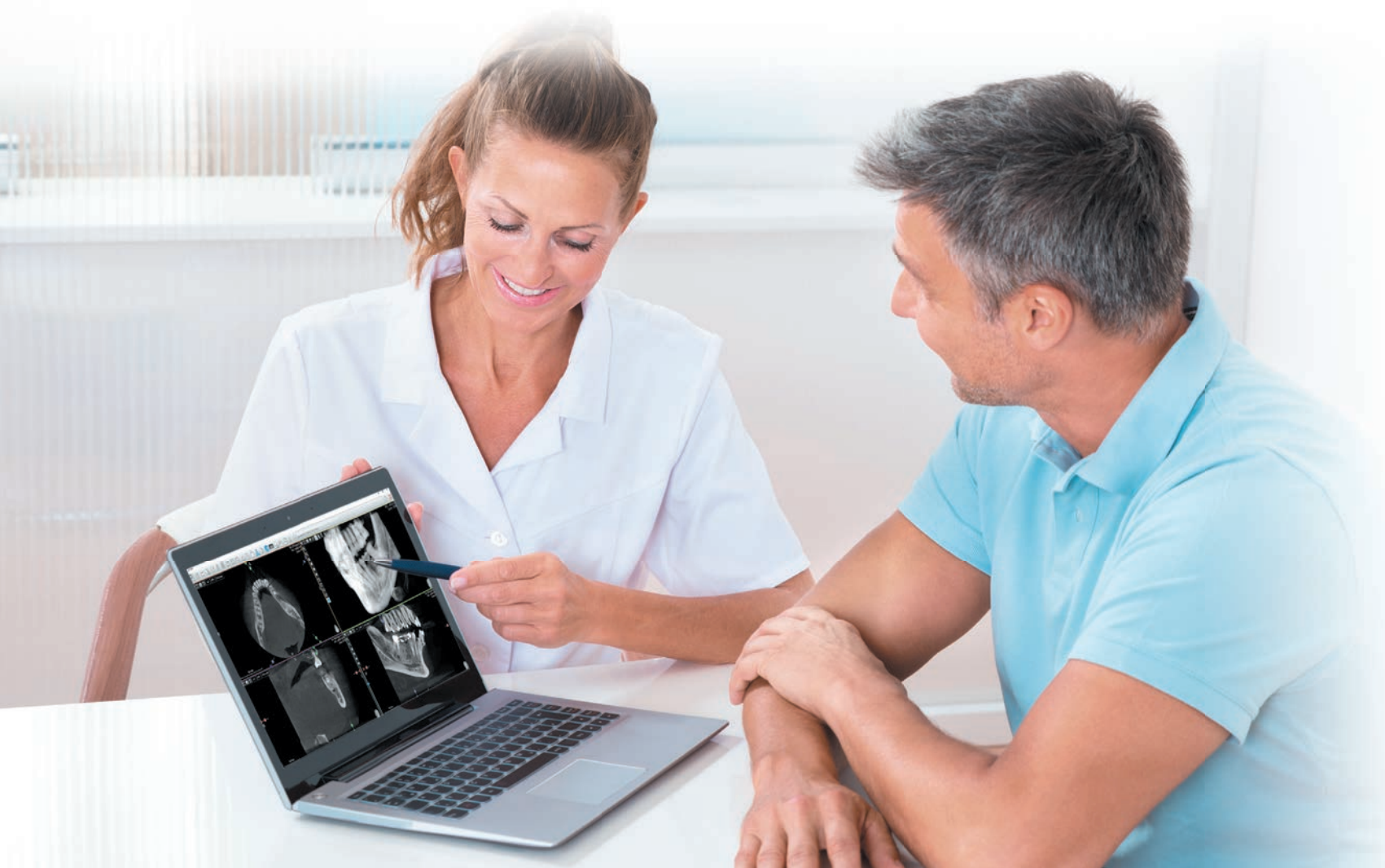
The determination of the anatomy of dental roots
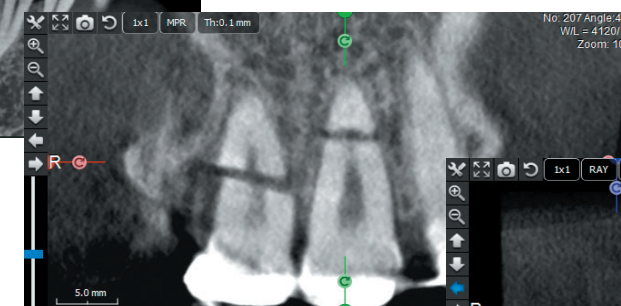
The diagnosis of apical lesions and fractures

The apex/sinus relationship

# MORE CLINICAL BENEFITS THAN YOU CAN IMAGINE

HUGE VARIATION 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:

- Helping to diagnose temporomandibular joint disorders
- Exploring the maxillary sinuses
- 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

Diagnosing temporomandibular joint disorders
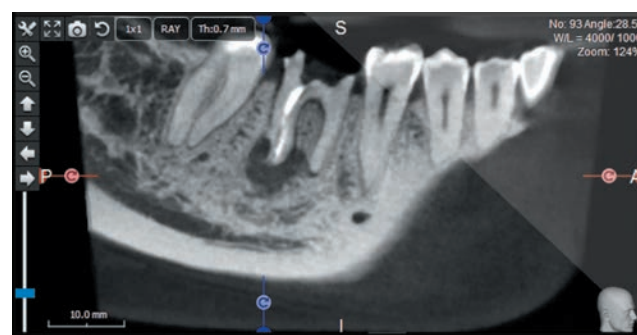
Diagnosing infectious diseases

Exploring the maxillary sinuses

Determining the anatomical situation and depth of periodontal pockets

Conducting an endodontic diagnosis

Determining the protocol for extracting impacted 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 while **reducing the patient's exposure to X-rays**:
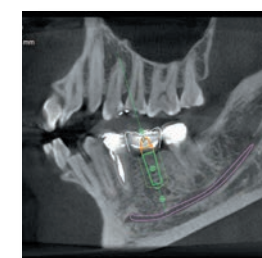
ø 110x80 mm*

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

ø 80x80 mm

ø 60x60 mm

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

ø 40x40 mm

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

*Specific restrictions apply for a 110x80mm FOV in Ontario, Canada. Contact ACTEON North America for more information.

EXCEPTIONAL IMAGE QUALITY

360° ROTATION FROM 18 TO 29 SECONDS DEPENDING ON THE SELECTED FIELD OF VIEW

X-MIND® Trium offers a broad selection of FOV, letting you focus on the region of interest for the target diagnosis while reducing the patient's exposure to X-rays.

3D RECONSTRUCTION
29
SECONDS
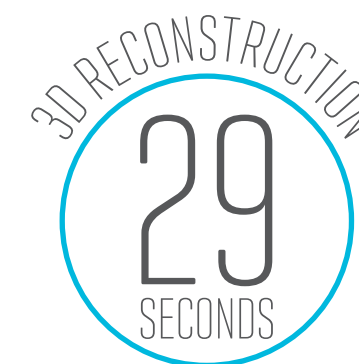
A HIGHER RESOLUTION 75 µm

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 through **adapted spatial resolution**, pulsed mode scanning, **high sensitivity** CMOS sensor, and the use of small fields of view allow for a notable reduction in X-ray radiation.

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 **perfectly uniform**, regardless of the viewing axis.
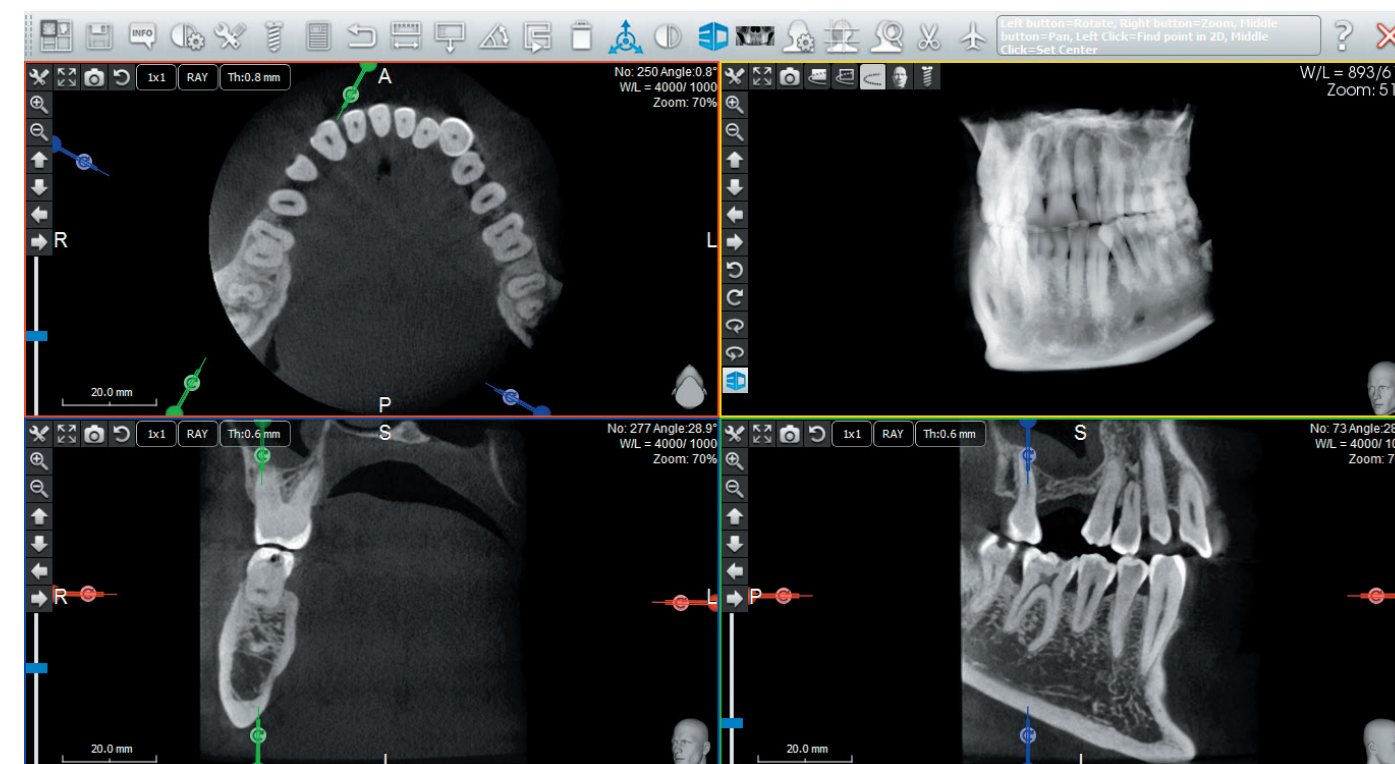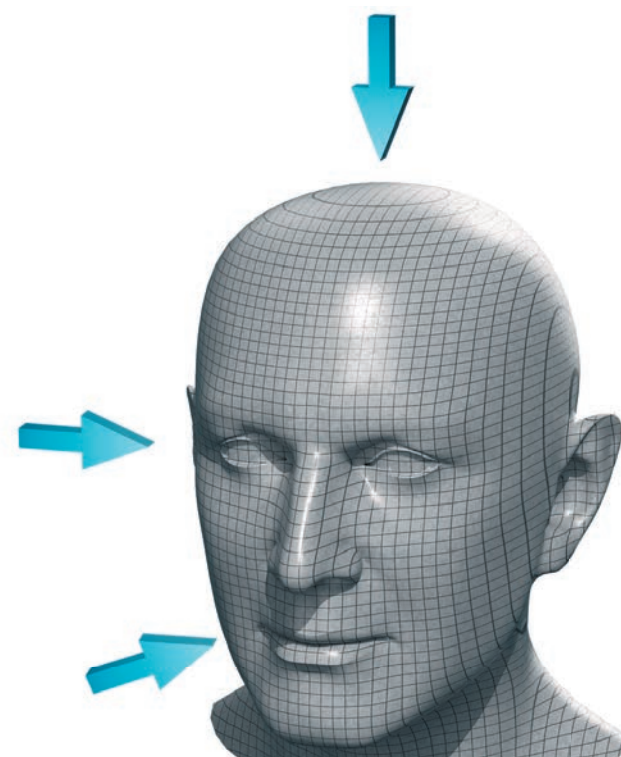
ARTIFACT REDUCTION FILTERS

## AN OPTIMAL FILTER FOR REDUCING METAL ARTIFACTS

X-MIND® Trium is equipped with a dynamic artifact 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 artifacts.
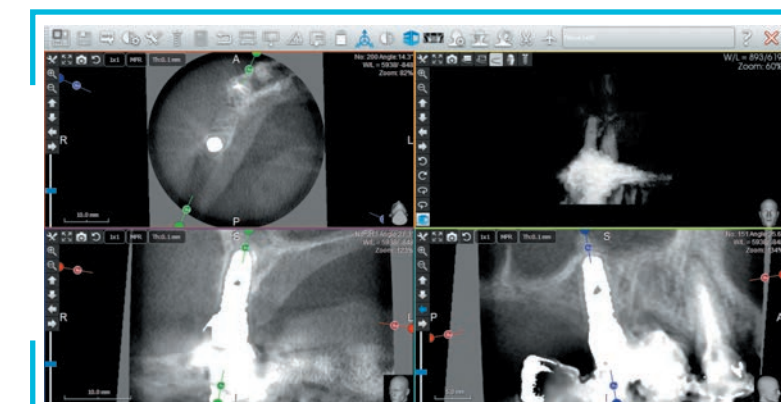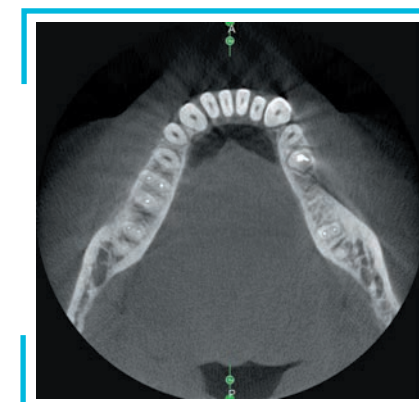
The goal is to best isolate the desired information during the examination.

WITHOUT FILTER
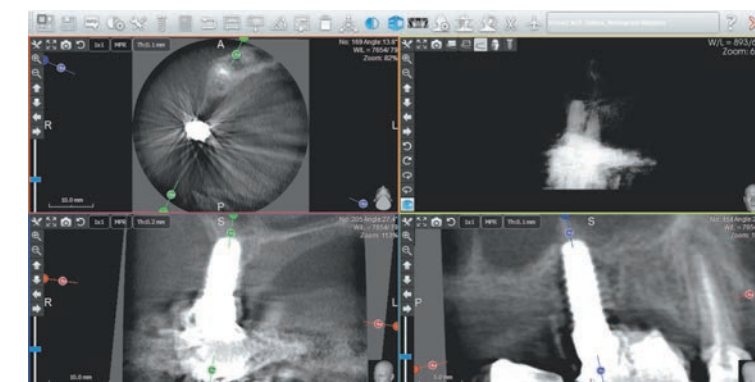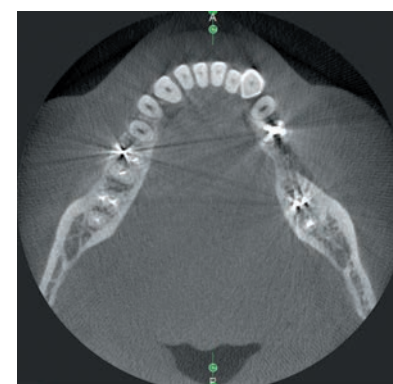
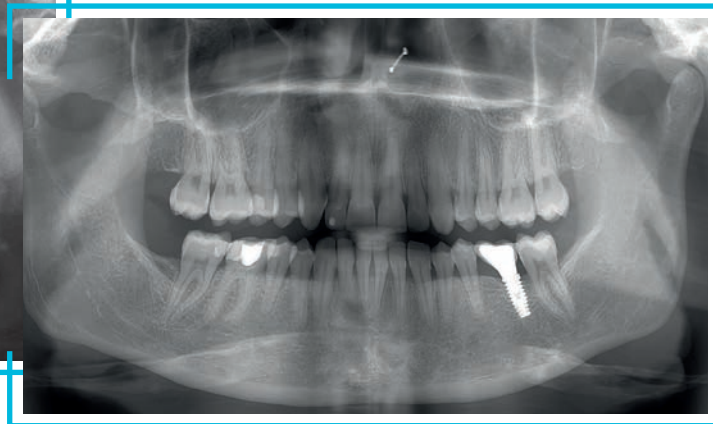## WITH FILTER

PANORAMIC & CEPHALOMETRIC MODES

PANORAMIC RADIOGRAPHY

Whether raw or filtered to optimize detail, panoramic **X-MIND® Trium** images support a fast and easy diagnosis.
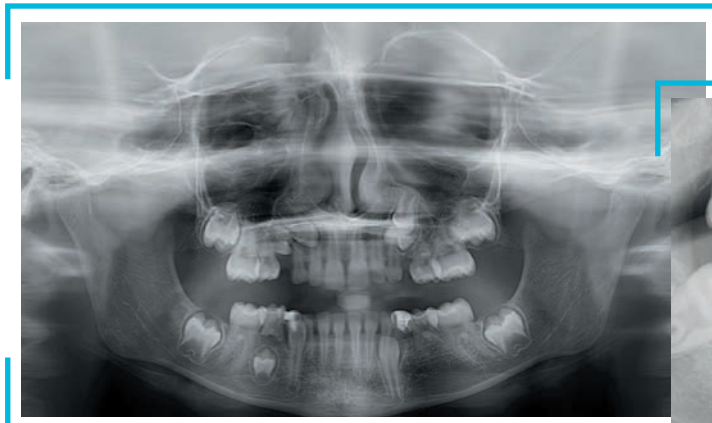
DENTAL PANORAMIC

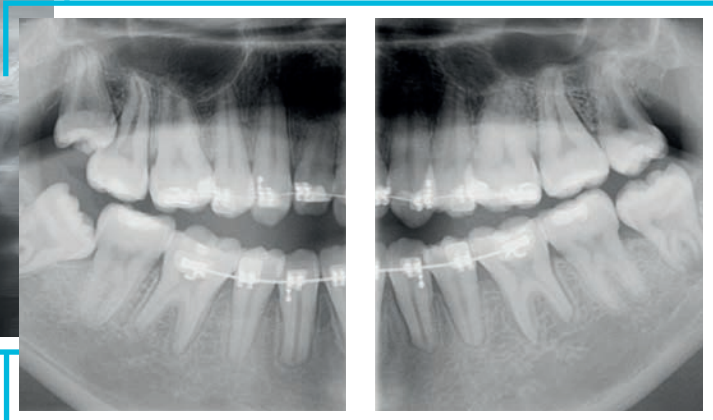### PANORAMIC WITH IMPROVED ORTHOGONALITY

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
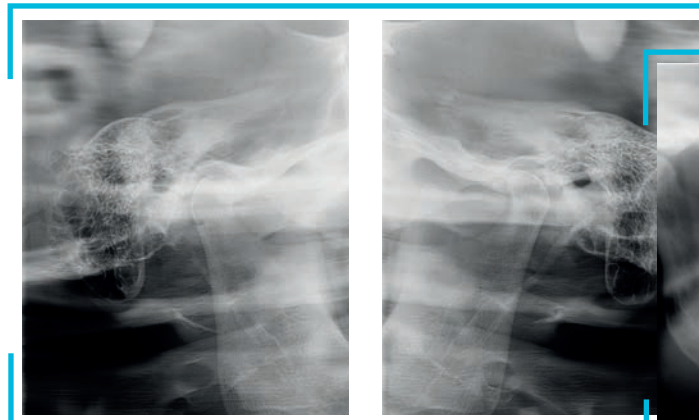
Both open and closed mouth images

MAXILLARY SINUS

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

CEPHALOMETRIC RADIOGRAPHY

Due to its patented and cinematic 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

CARPUS

COMPREHENSIVE SOFTWARE
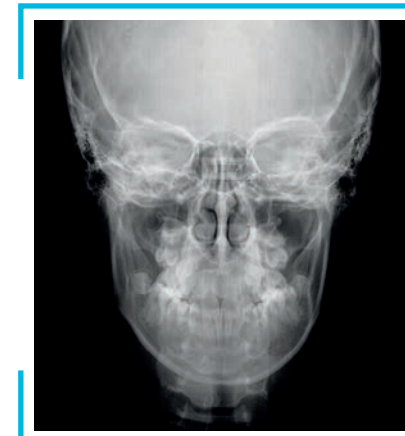
AIS

The **ACTEON® Imaging Suite** software includes 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 WITH A SIMPLE, QUICK & INTUITIVE INTERFACE

DICOM COMPATIBLE

EXPORTS TO STL FORMAT
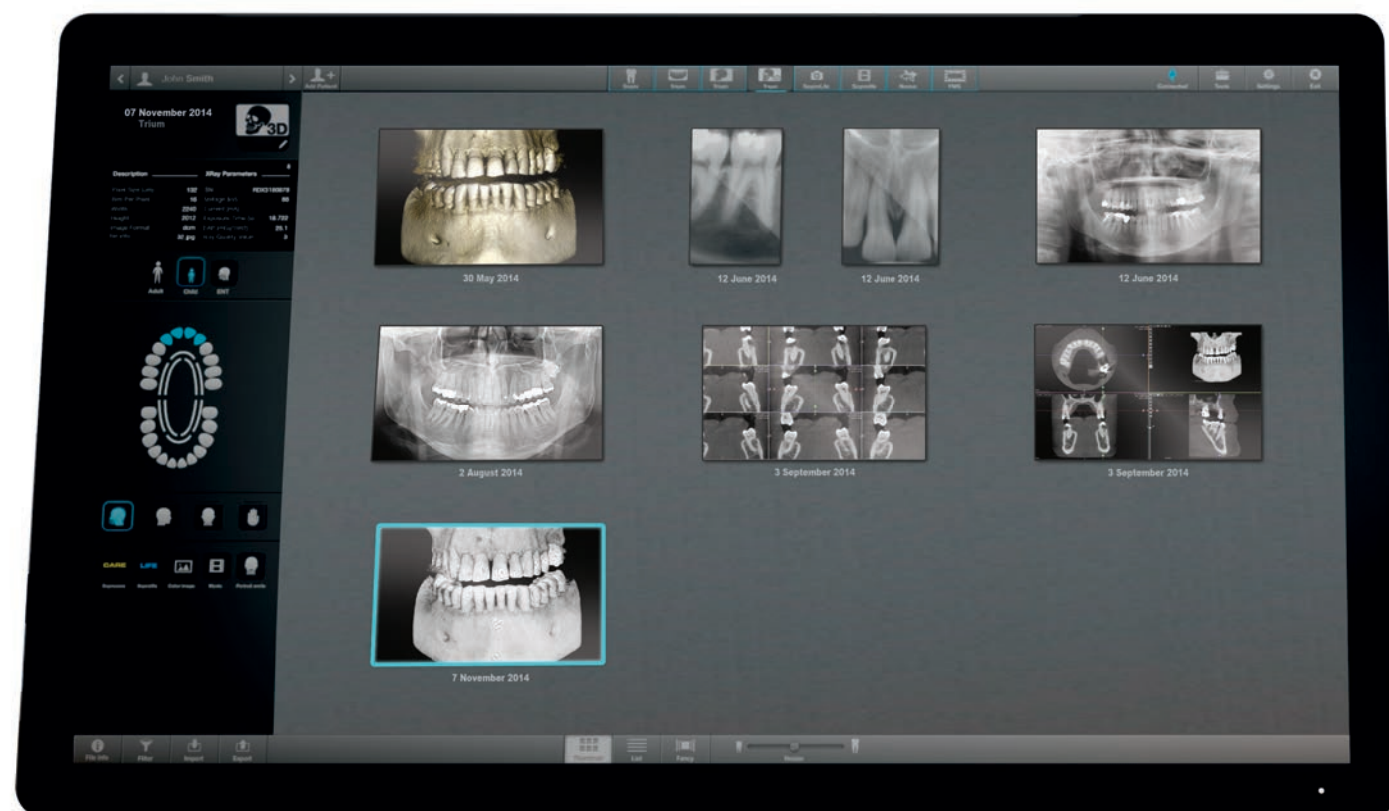
ADVANCED FUNCTIONALITY FOR INTUITIVE NAVIGATION

- IMPLANT PLANNING
- CROWN PLACEMENT
- MANDIBULAR NERVE TRACING
- EASY NAVIGATION IN DIFFERENT SECTIONS
- MOUSE CONTROL
- BONE DENSITY ASSESSMENT
- 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 ARTIFACT REDUCTION FILTER
- PANORAMIC AND CEPHALOMETRIC IMAGE DETAIL OPTIMIZATION FILTER
- VIRTUAL ENDOSCOPE
- INTEGRATES WITH VARIOUS PATIENT MANAGEMENT SOFTWARE
- DICOM COMPATIBLE

Mac
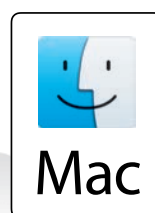
BETTER QUALITY OF LIFE

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, **providing 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 ARE REASSURED & 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 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 **less exposure to X-rays**.

TIME SAVING WITH INSTANT RESULTS

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

The three-dimensional image on the screen provides 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 provide to your patient and/or their referring dental surgeon.
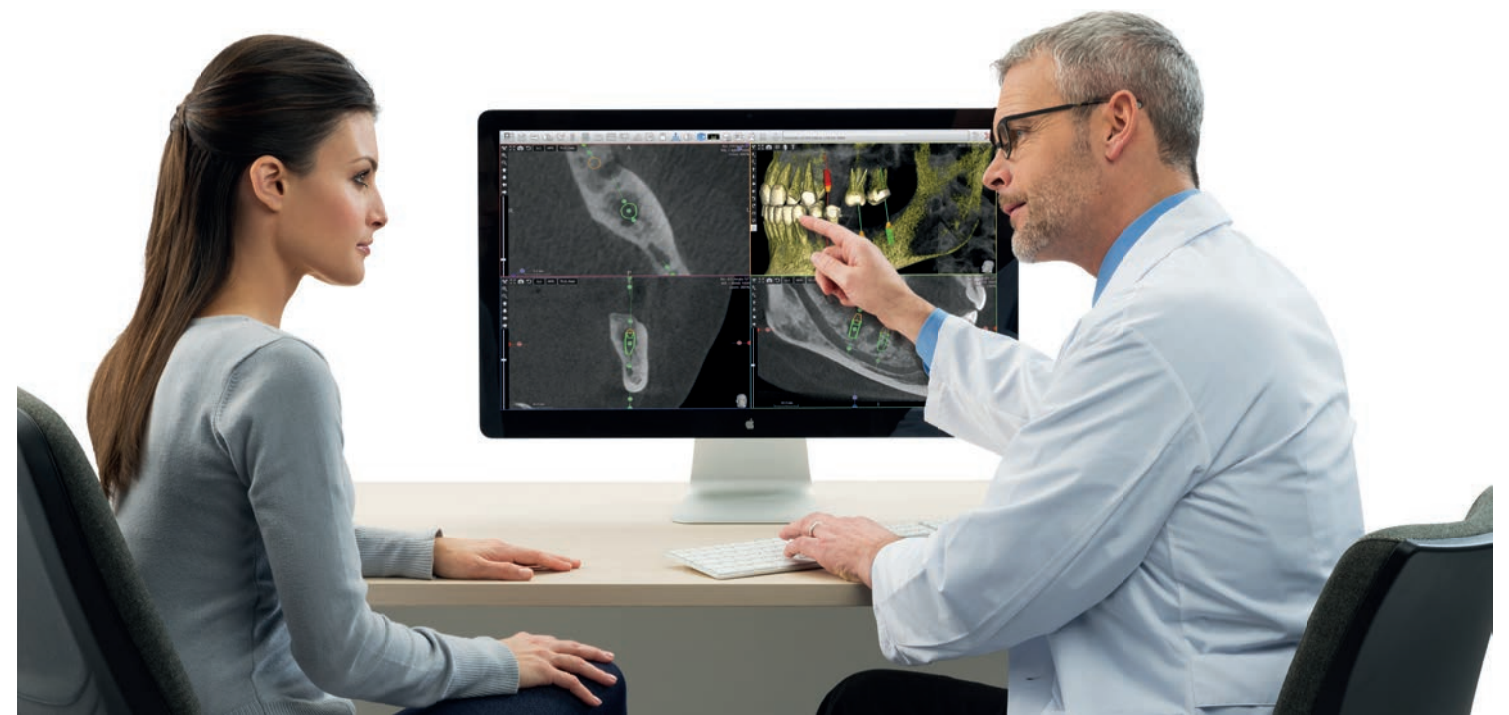
3 SOLUTIONS IN 1

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 INDUSTRY LEADING WARRANTY

Free, ongoing and unlimited service can be reached Monday through Friday during normal business hours.

Your X-MIND® Trium comes with a 10-Year Warranty on parts for the unit and a 5-Year Warranty on sensors and workstation.

Contact your ACTEON® sales representative for more information.

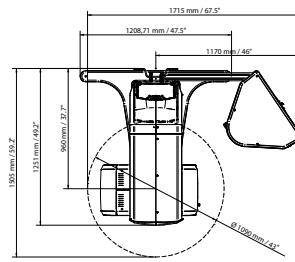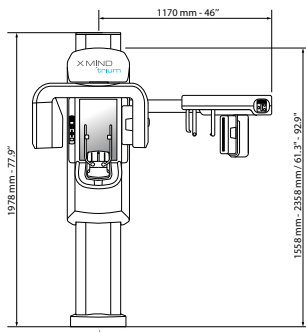|	X-MIND® Trium Pan	X-MIND® Trium Pan 3D	X-MIND® Trium Pan Ceph	X-MIND® Trium Pan Ceph 3D
Pan	●	●	●	●
3D	○	●	○	●
Ceph	○	○	●	●

X MIND trium

TECHNICAL SPECIFICATIONS

	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	4 - 12 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	180° single scan	360° single scan	Single scan
Exposure time	3.3 - 16.8 sec	4 - 12 sec	18 sec
Scanning time	16.8 - 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	29 sec	4 sec
IMAGE FORMAT			
	JPEG, BMP, PNG, TIFF, DCM	DCM, STL	JPEG, BMP, PNG, TIFF, DCM
MECHANICAL DATA			
Max footprint dimensions	L 150 x W 110 cm		L 150 x W 172 cm
Height	Max : 235 cm		
Weight	170 kg (PAN)	185 kg (PAN-CBCT)	215 kg (PAN-CEPH)
IEC			
Class and Type	Class I, Type B		
	IMAC® OR MACBOOK® PRO	**WINDOWS® WORKSTATION** (included with CBCT)	
CPU	Intel i5	Intel Xeon 2 GHz	
Hard Disk	500 Go	1 TB	
Graphic Processor	NVIDIA or ATI 1 Go	NVIDIA® (CUDA environment GPU family)	
RAM Memory	8 GB	8 GB	
Network card	1 Gb/s	Dedicated GB NIC for X-MIND Trium connection	
Operating System	OS X Mavericks or later	Windows 7 professionnel 64 bits	
TABLET			
Version	iPad Pro 9.7", 32 Go, WIFI		
DICOM 3.0 (OPTIONAL)			
Supported services	Worklist, Storage, Query/Retrieve, Print, Verify		