



NewTom
Cone Beam 3D Imaging

GiANO

3D



- Large FOV to include the entire mandible and maxilla for a complete diagnosis.
- Latest technology utilized to create perfect panoramic images with an accurate focal trough over the whole arch.
- New generation of the NNT Software for all types of image reconstructions and analyses.

First in Cone Beam, Accurate in Results



FIRST USER OF CONE BEAM IN DENTAL FIELD

QR s.r.l. is the name that stands behind NewTom Cone Beam 3D imaging units and the creator of Cone Beam technology for the dental field. The NewTom 9000 (also known as Maxiscan) was the first Cone Beam system in the world and was originally installed in 1996. This unit was the forefather of the NewTom product line and of all X-Ray units based on Cone Beam technology. QR's 20 plus years of experience and success in research, development, manufacturing and distribution of NewTom products affirm our commitment to excellence and quality. QR s.r.l. is based in Italy and all NewTom products are designed and manufactured by our group. Our products represent the Italian tradition of specialized manufacture and NewTom is known all over the world for its reliability, high standards and state-of-the-art technology. QR s.r.l. is a company consisting of a research and development department (hardware and software), production and technical assembling division, technical support staff, customer service, sales and marketing department and management offices. Our national and international sales network relies on strong and long-term partnerships with all our dealers and representatives spread all over the world. NewTom's team-oriented staff are committed to provide not only the best product available on the market, but also excellent before and after-sales support, as a happy customer is the best advertisement!

**The Global
Market Leader.**

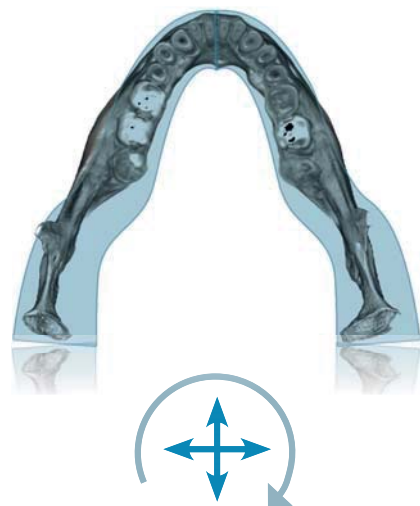
2D Digital Radiology

2D DIGITAL RADIOLOGY

Dental radiography was developed to visualize the entire upper and lower jaws including teeth, maxillary sinuses and the nasal cavity. This technology can help to study and evaluate bone and gum diseases, jaw fractures, tooth development, impacted teeth, TMJ disorders, sinus problems and other oral diseases. Principal advantages are that panoramic radiographs can cover a large area, give a bilateral view of anatomy and expose the patient to a minimum radiation dose thereby making the treatment more tolerable. One of the most valuable features is however that the unit can be installed in the dental office. As a result, the doctor increases the level of communication with patients along with improving his credibility and his patients education.



NewTom **GiANO**



NewTom GiANO: 1 rotary movement and 2 simultaneous translator movements.

ADVANCED KINEMATICS

The focal trough is a specific curved volume where the maxillofacial structures must be positioned to achieve the sharpest and clearest images. The structures that fall in front of, or behind the focal trough can be distorted, magnified or reduced in size. To obtain high quality images, the patient must be properly positioned and aligned within the focal trough. NewTom GiANO employs a specially synchronized kinematics made up of one rotary movement combined with two simultaneous translatory movements, which ensure constant magnification in all projections, thus leading to highly reliable diagnostic images. The simultaneous translatory movements keep the X-ray detector at a constant distance from the midline of the dental arch, throughout the entire scan, so that the image magnification is constant and uniform in the resulting radiograph.

REMOVABLE 2D SENSOR

NewTom increases the value of this system by adding removable sensor technology. This allows the operator to safely switch the 2D sensor from the main structure and use it on the Ceph arm. A removable 2D sensor is the perfect solution for those practices which require a high quality device at a competitive price.



UPGRADE TO CB3D AND CEPH

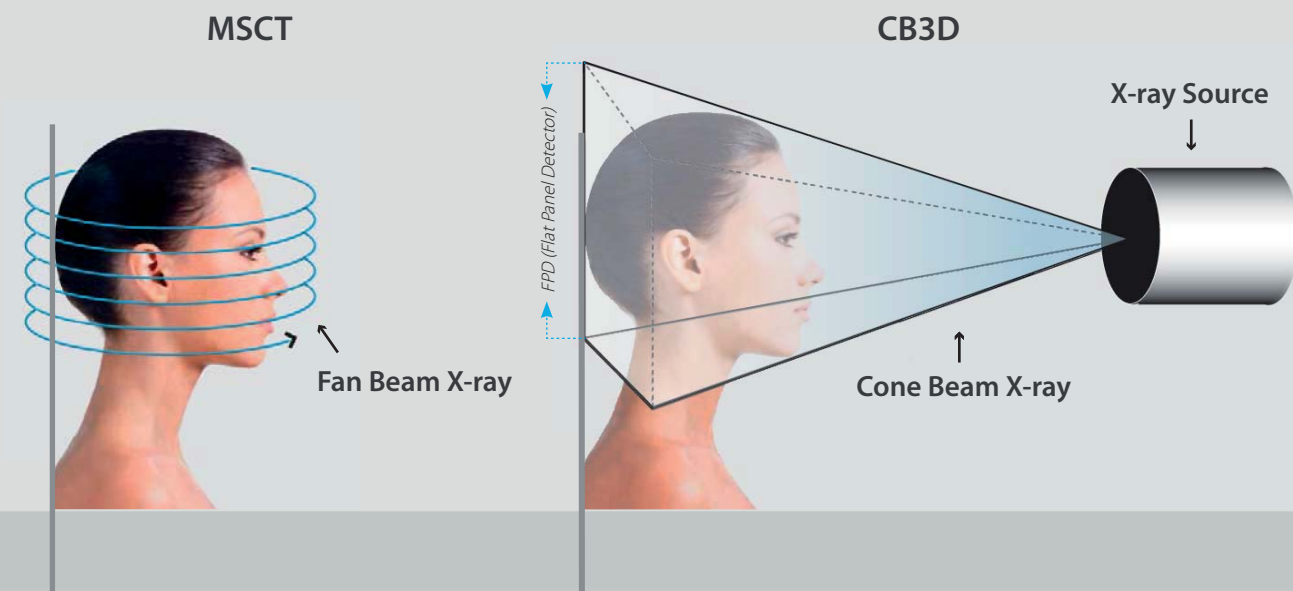
Through the development of a truly modular system, NewTom GiANO's performances can be upgraded to CB3D and Ceph with minimal effort, at any time.

NewTom **GiANO**

CONE BEAM 3D TECHNOLOGY vs. MSCT

MSCT uses a narrow fan beam that rotates around the patient acquiring thin axial slices with each revolution. In order to create a section of anatomy, many rotations must be done. During these repeated rotations, traditional CT emits a high radiation dose, but it leaves a gap of information between each rotation. Therefore software must stitch together the images and calculate what is missing. Cone Beam 3D imaging uses a cone-shaped beam to acquire the entire image in a scan using only one rotation.

The result is a more accurate image without missing information and a considerably lower radiation exposure. The American Academy of Oral and Maxillofacial Radiology (AAOMR) prescribes the use of Cone Beam 3D imaging when evaluating periodontal, implant, and oral/maxillofacial surgery patients. One NewTom scan obtains a complete dentomaxillofacial image in a single database of digital information. Various views of the information in 3D images can be created using NewTom NNT software.



NewTom GiANO

PRECISE 1:1 SCALE IMAGING

With precise 1:1 scale imaging, Cone Beam technology creates panoramic and cephalometric images with a high quality level.

CB3D imaging technology is the standard of care for implantologists, orthodontists, periodontists and oral/maxillofacial surgeons.

MULTIPLE FIELDS OF VIEW

The scanner's FOV determines how much of the patient's anatomy will be visualized. If using a flat panel detectors (FPD), the dimensions of their cylindrical FOV can be described as diameter by height (DxH). Nowadays, the need to scan different R.O.I. with different dimensions is regulated by international standards in order to reduce the effective dose to the patient following the "As Low As Reasonably Achievable" (ALARA) dose principles. The use of a **small FOV** (on user-defined region in endo, perio, implant surveys and for the localization of impacted teeth) in addition to reducing the dimension of the irradiated region, provides a dramatic increase in the accuracy and resolution of images for all pathologies where it is necessary to identify very small details at high definition. On the contrary, with **one single rotation**, a **bigger FOV** permits the operator to scan patients where the referring doctors need to see the major part of the anatomical regions of the patient (e.g. child's teeth check-up, sinus pathologies, both jaws, implant surveys or maxilla and sinuses). Even in these cases, NewTom GiANO has different dose protocols in order to further reduce the dose. The NewTom Team has discovered the perfect balance between **FOV, dose and accuracy**, using different dose protocol for each single FOV.



HIGH RESOLUTION SCAN

When using small FOV practitioners can irradiate just small portion of body, obtaining high quality images with small anatomical details. The ability to see all aspects of the mandibular canal and other small anatomical parts, such as tooth roots and periodontal ligaments, as well as any present lesions can be useful for a proper implant assessments. Only 3D High Resolution imaging produces both the quality and the quantity of details necessary to accurately view those small details.



SAFEBEAM™ TECHNOLOGY FOR AUTOMATIC DOSE EXPOSURE

Only NewTom Cone Beam systems employ SafeBeam™ technology, the safest technology available for patient and staff. Featured in all NewTom units, SafeBeam™ **automatically adjusts the radiation dosage according to the density of the volume in the gantry.** This technology uses intermittent bursts of radiation, which last only milliseconds, during image acquisition. Other systems deliver a constant stream of radiation and the same amount of radiation, whether scanning a 100 Kg adult or a small child. **SafeBeam™ technology automatically and continuously monitors system operations, thereby eliminating the possibility of unnecessary exposures.**

In conjunction with our patented SafeBeam™ technology, NewTom GiANO has a wider range of adjustments for the X-ray voltage and current (kV 60-90 and mA=1-10) when compared to other CB3D systems. **As a result, patient exposure is customized for each scan and image contrast remains consistent, regardless of patient size or bone density.**



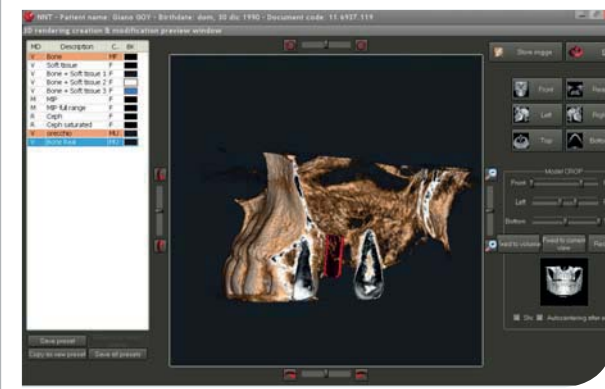
GREATER PATIENT COMFORT
AND TREATMENT ACCEPTANCE

All NewTom units add a sense of comfort for the patients, allowing them to relax during the scan and limiting the patient movements, in order to improve the image quality. NewTom scans provide the practitioner and the patient with unprecedented visualization of cranial anatomic information. **This leads to a better diagnosis and better treatment planning, increasing the patient treatment knowledge. The result is a more cooperative and informed consent process along with understanding the need for treatment and improving the doctor-patient relationship.**

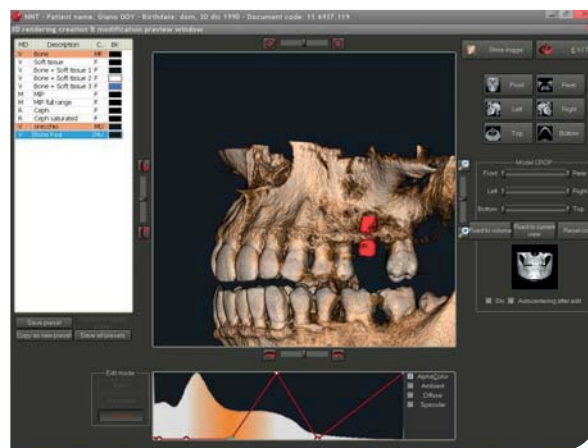
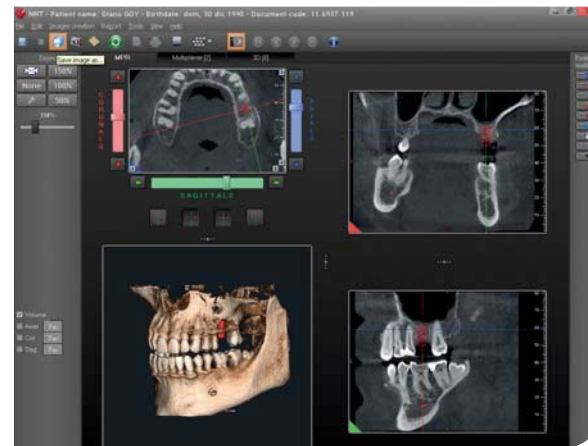
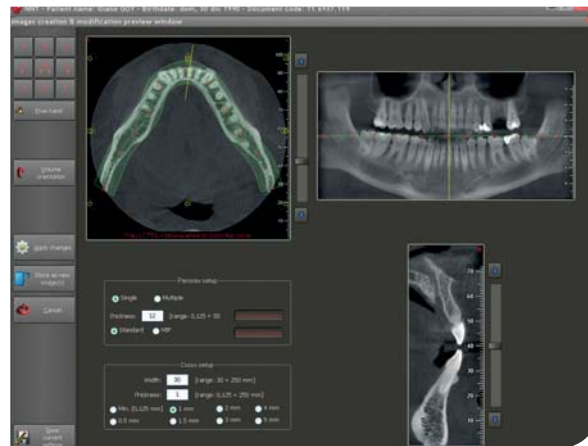


NEWTOM NNT ANALYSIS SOFTWARE

NewTom NNT analysis software is the perfect solution for 2D and 3D imaging. NNT allows the creation of different kinds of 2D and 3D images in a 16 bit grey-scale and it takes only few seconds to evaluate the data taken during the scan. The software is totally designed by NewTom engineers and, thanks to the various application modes specifically design for different fields of use, it fulfills all the requirements and needs of our clients. NNT, with a new integrated implant planning application, can easily identify and mark root inclination, position of impacted and supernumerary teeth, absorption, hyperplastic growth, tooth structure anomalies and the mandibular canal. The software delivers extremely high quality images which facilitate safer surgical planning. The images can be gathered and used in report templates which are defined by users and



can be delivered digitally (burnt to a CD or DVD), on paper, film or pdf. The software is available in different versions: the Expert version is used for taking scans, the Professional version permits data processing and the NNT Viewer gives other professionals the ability to view the images processed by NNT. The images can be exported in DICOM 3.0 format at any time, in order to allow easy sharing between imaging centers and referring doctors. The NNT DICOM Datasets are fully compatible with most third party software programs.



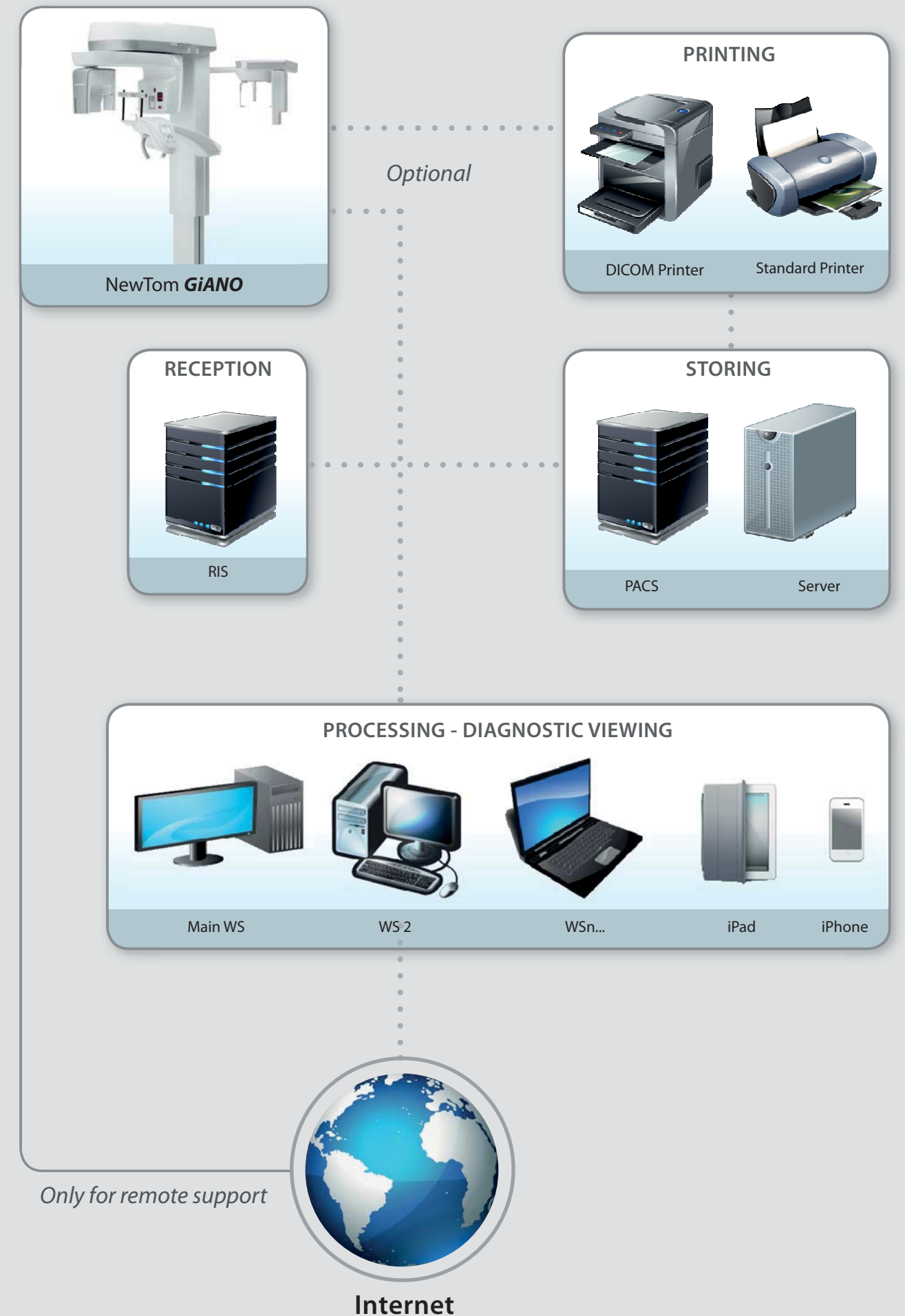
NNT Station
Cone Beam 3D Imaging



SUPERIOR THIRD-PARTY COMPATIBILITY

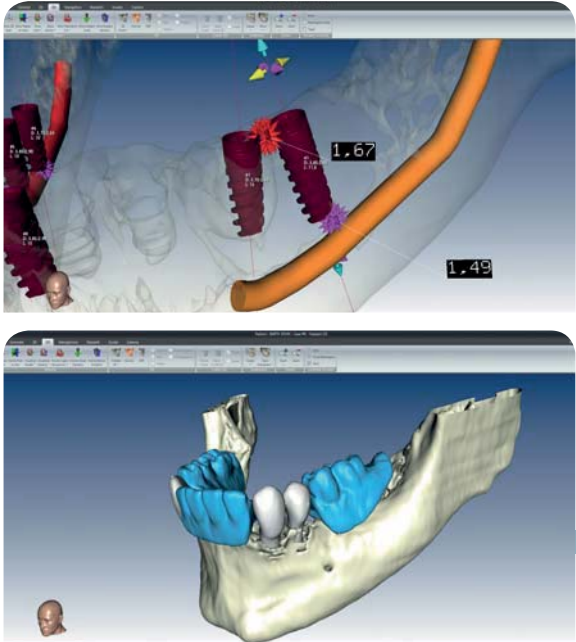
NewTom images are compatible with most major third-party software programs on the market as well as guided implant and maxillofacial surgery software. 3D imaging data is highly adaptable and can be imported and used in countless diagnostic and educational modes. Software segmentation adjusts the amount of soft tissue, underlines the hard tissue and accentuates the structure of the skull. Different intuitive software applications allow the creation of realistic models that can be positioned on images obtained from the scan. **This creates infinite options that help in diagnosis, treatment planning, pre-surgical analysis, and patient education.**

NETWORK SET-UP



NEWTOM IMPLANT PLANNING

NewTom Implant Planning is a software package which allows the creation of 3D implant simulation. The software can simulate the implant placement on 2D and 3D models, identify the mandibular canal along with drawing panoramic and cross sections of the bone model. It also shows the 3D bone model and calculates the bone density. The NewTom Implant Planning software is used to plan prosthesis implant surgery in a faster, safer and more efficient way. It also allows the ability to export in .stl format.

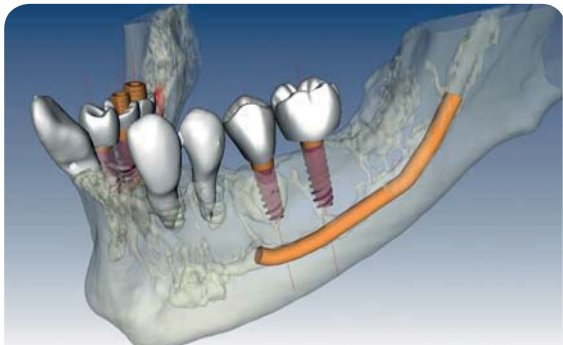
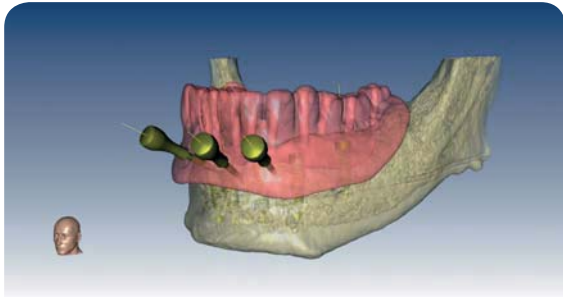


2D & 3D

The NIP software generates beautiful panoramic images, cross sections and 3D bone models by reading the information from the axial slices. This helps identify all the anatomic aspects of the patient, the mandibular canal, the bone structure and the exact implant positions, in order to facilitate the surgery.

Measures and information

The NewTom Implant Planning software can plan the prosthetic implant surgery by identifying both the implant and the mandibular canal position. The software accurately measures the proportion of the bone and density and makes the surgery more effective and faster.



Supported Formats

NewTom Implant Planning reads axial slices saved in DICOM 3.0 or in NNT format, which is the same format used by NewTom GiANO, NewTom 5G, NewTom VG and previously released systems (NewTom 3G and NewTom 9000).

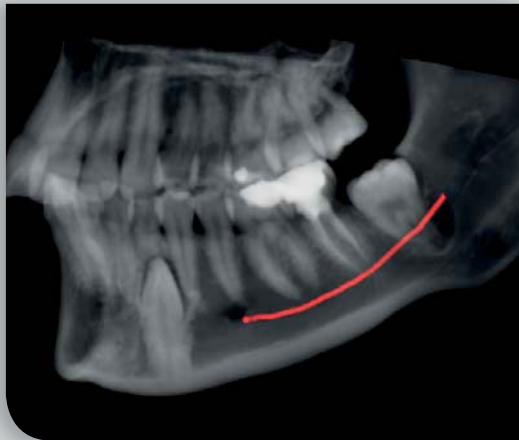
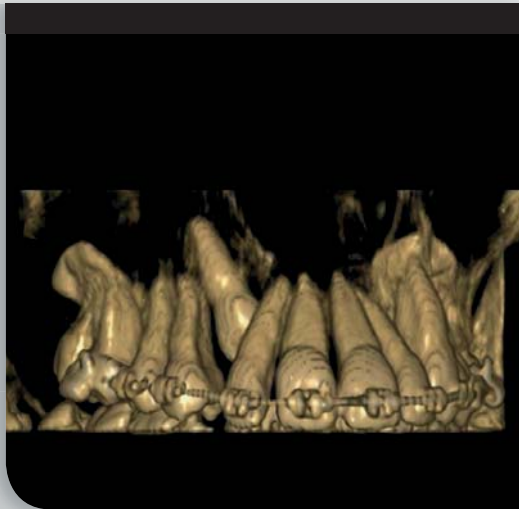
A useful communication & motivation tool

All the images generated by NewTom Implant Planning can be used to communicate with the patient, in compliance with the compulsory rules about the informed consent. The most interesting cases can be saved on a CD-ROM through the image exporting functions. Thanks to the user-friendly interface, learning is a quick matter.

Clinical Cases

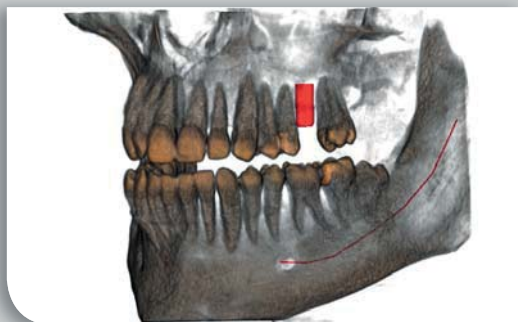
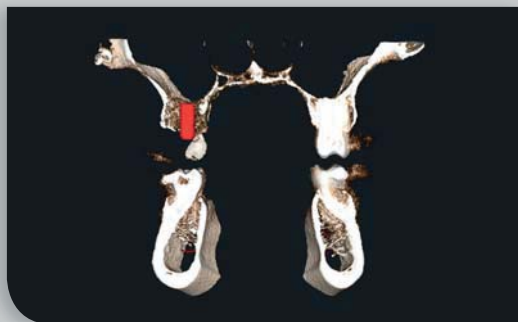
ORTHODONTICS

The combination between 2D and 3D images allows the clinician to have the best information at the lowest possible dose to the patient. In other words, when 3D images are not necessary the bi-dimensional images (panoramic or cephalometric images) can be used to show the general clinical status of the patient. Where those images look doubtful, the clinician can investigate further using a CB3D scan focused on the specific pathology using the appropriate FOV.



3D



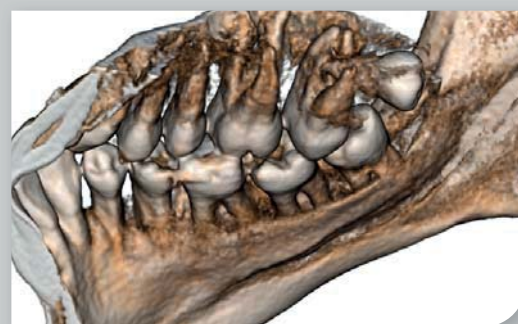


IMPLANTS

CB3D is one of the most effective tools available for analyzing implant sites. 3D images can accurately identify possible pathologies and structural abnormalities. Cross sectional and panoramic views facilitate various measurements such as: height and width of the implant sites, mandibular edentulous site, a potential implant site near the mental foramen, width of the buccal/lingual ridge and cortical bone density. 3D images highlight the cortical bone thickness, the cancellous bone density, the inferior alveolar nerve and mental foramen location. They also influence the choice of the appropriate implant to be used, its placement, its width and consideration of "die back" from dense cortical bone.

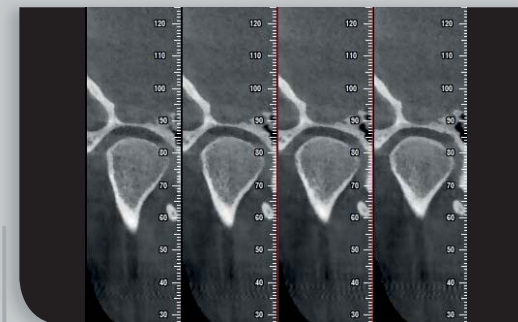
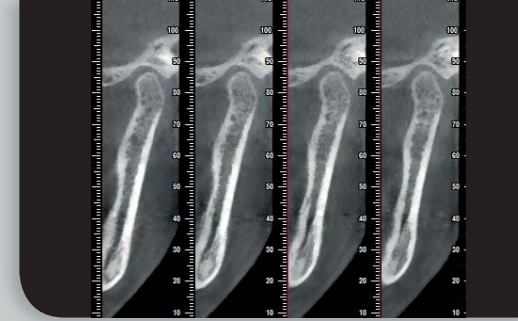
ACCURATE PLANNING, SUCCESSFUL TREATMENT

3D



ENDO-PERIO

These application fields need extremely high quality images in order to define the tooth structure, determine the exact pathology and accurately plan the perfect treatment. Only a proper investigation of the area of interest will make the dentist aware of the least invasive and correct action to take. Where the patient has had root canal therapy, but continued to complain about extreme sensitivities and endodontic retreatment did not abate the problem, **the CB3D scan can reveal that the maxillary second premolar has a palatal root.** It is common to expect two roots and two canals in maxillary first premolars, but it is less common to find two in maxillary second premolars. Once the dentist observes this, successful treatment can be planned.



TMJ

CB3D takes the examination of the Temporomandibular Joint to a new level. After a single scan, Sagittal and Coronal views can be sectioned to show joint space and pathologies. 3D image reconstruction can clearly provide detailed information of the TMJ and Cervical Spine anatomy. A wide panoramic view provides a quick screening tool, where differences in condylar and ramus height as well as other dental pathologies can be checked.

3D



ORAL AND MAXILLOFACIAL SURGERY

A 3D post-operative scan can show the exact individual anatomy and define the anatomical structures, bringing the patient to a better acceptance of the treatment. NewTom scans are also useful for maxillofacial post-surgery imaging, due to reduced image scatter and lower radiation. Regardless of the number of fixing screws present, high resolution 3D images (utilizing the MIP and Volume options), show that there are virtually no artifacts to obstruct the images.

NewTom *GiANO*



NewTom GiANO offers a wide variety of 2D examinations:

- 12 Panoramic examinations
- 14 TMJ examinations
- 3 Maxilla Sinuses examinations
- 10 Ceph examinations
- 1 Dynamic Orthogonal Tomogram (DOT)

With much less radiation than other devices, panoramic X-rays generates high quality images of teeth, bones and soft tissue of the sinus areas, nasal areas and mandibular nerve. As a result, specialists have all the information that they need to evaluate impacted teeth, fractures and bone irregularities for dentures, braces and implants.

2D

2D

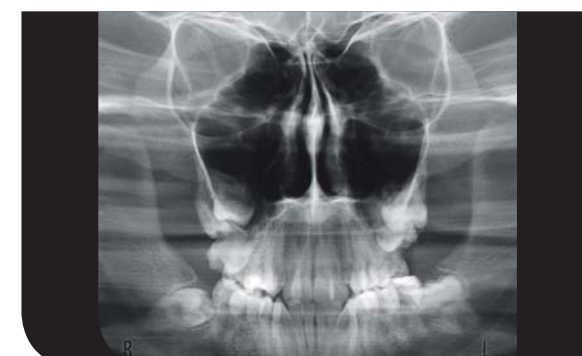
PANORAMIC



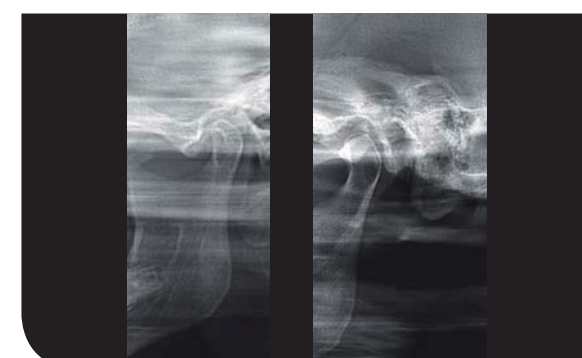
BITE WINGS



SINUSES



TMJ

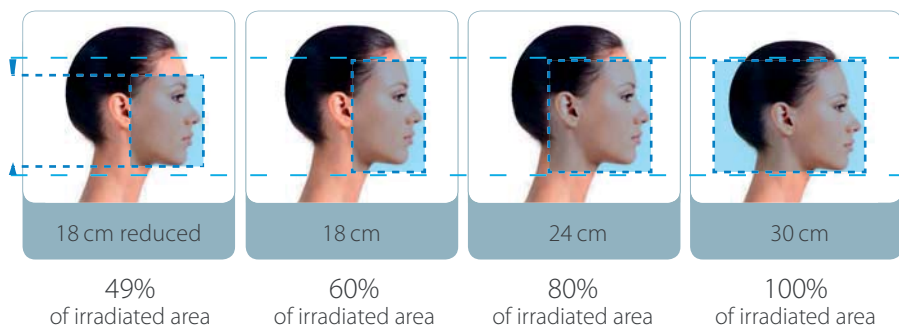
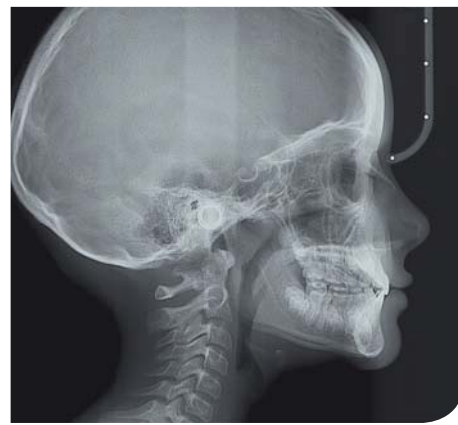




2D

CEPHALOMETRIC RADIOGRAPHS

Cephalometric radiographs are used for studying the relationship between the teeth, jawbone and soft tissue. The images obtained with a single shot are used to diagnose facial growth abnormalities, identify fractures and injuries to teeth and jawbone, provide information about malocclusions and measure the teeth. The quality of the images obtained by NewTom GiANO enables the specialist to plan a precise and safe orthodontic intervention.



CLEVER COLLIMATORS

The primary servo-controlled collimator allows to select the appropriate area for X-ray exposure, minimizing the dose. The secondary collimator is concealed within the rotating module, allowing more space for both operator and patient.

CARPAL RADIOGRAPHY

With the carpal support, the specialist can perform exams on children's hands and wrists to assess the bone growth in relation to the biological age of the child.

2D



NewTom GiANO



NewTom Benefits

- The largest FOV available (D11x H8 cm) combined with the highest CBCT technology create the clearest possible images.
- A dedicated digital sensor and specific algorithms provide a full range of information.
- A greater comfort for patients leads to a better acceptance of the treatment.
- The margin of error is reduced thanks to the precise 1:1 scale and a 16 bit grey scale.
- SafeBeam™ Technology adjusts the radiation dosage for patient safety.
- Multiple FOV and different scan modes are selectable from the software and adaptable to various fields of use.
- NNT software makes image sharing easier and quicker.
- Simple upgradability to 3D and Ceph gives added value.

GiANO

NewTom GiANO, manufactured by the company that was the first to use the Cone Beam technology in dental field, represents the perfect solution for dental specialists who want to increase the value of their practice. Thanks to NewTom high technology and a competitive price, GiANO can be considered the most competitive hybrid available today. The specialist has at his disposal a device which can perform a wide range of exams depending on his requirements: 2D, 3D, Ceph and carpal exams. NewTom GiANO with a 2D configuration can be enhanced to 3D or Ceph at any time. Thanks to the modular sensor, (which can easily be switched and used on the Ceph head), the short exam time and the low dose, GiANO can offer a more complete and immediate diagnosis.

NewTom GiANO takes an image at every degree of rotation, 360° rotation = 360 images, increasing the range of possibilities for image manipulation. A revolutionary flat panel X-ray detector produces the clearest, sharpest images possible. NewTom GiANO features an adjustable Field Of View, which allows the operator to irradiate just the right volume, depending on the required clinical application. The size of the collimated FOV can vary from the smallest 5x5 cm's to the largest 11x8cm's and they can be selected directly from the software or from the display, before the scan. NewTom GiANO, unlike other systems, activates the X-ray source only when required, by using a pulsed emission technology. For a typical CBCT scan, this equates to no more than 4 seconds of total exposure to the patient. The exam can be performed while the patient is standing or seated. The scanner is wheelchair accessible. To guarantee perfect patient positioning, cross-hair lasers are generated on the chinrest and on the Ceph support. The small and compact footprint makes NewTom GiANO the best choice for locations, where space is at a premium. NewTom GiANO does not need an air-conditioned room, its weight does not require a reinforced floor and it can function in rooms without complicated and expensive radiation protection structures.

All the operations executed by NewTom including the patient's examination and the associated calculations are computer guided. With its new design, the integrated touch screen panel, the handy USB port and the user-friendly menu, this device is what all practitioners are searching for.



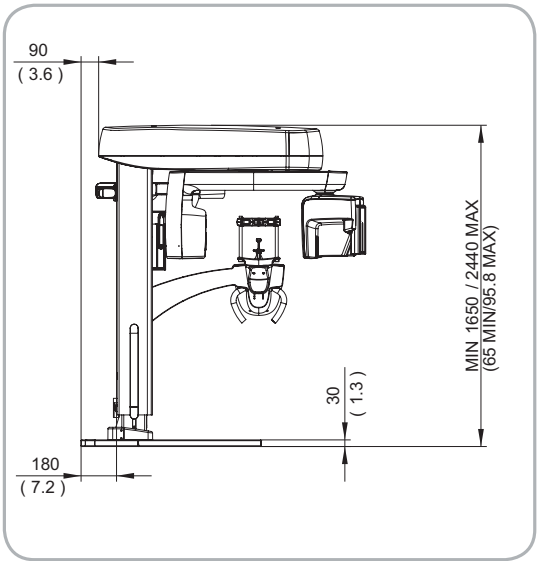
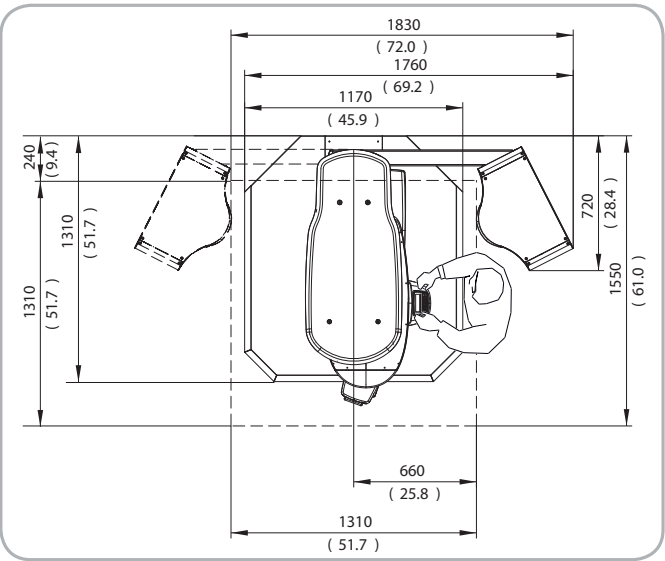
NewTom GiANO SPECIFICATIONS		3D				2D	
X-ray Source	High Frequency, Stationary Anode: 60-90 kV; 1-10 mA (pulsed mode) 0.5 mm focal spot					High Frequency, Stationary Anode: 60-90 kV; 1-10 mA 0.5 mm focal spot dimension, IEC 60336-1993	
Detector	Flat Panel Amorphous Silicon					CCD (Charge Coupled Device) Detector Resolution (lp/mm): 10,4 Image Resolution (lp/mm): more than 5 Detector height (mm) for Pan:146 Detector height (mm) for Ceph: 220	
Acquisition Technique	Single scan and Cone Beam acquisition SafeBeam™ Control reduces radiation based on patient size					Panoramic and Teleradiographic	
X-ray Emission Time	3.6s ÷9.0s					Panoramic, Adult: 9.1s Child Dentition: 7.0s Child Ceph, Lateral: 3.4s	
Scan Time	Min: 18s					Panoramic, Adult: 9.1s Child Dentition: 7.0s Child Ceph, Lateral: 3.4s	
Reconstruction Time	Minimum render time: 15s					Instantaneous	
Signal Grey Scale	Dynamic Range 16-bit					Dynamic Range 14-bit	
Effective Dose	ICRP 103 (µSv): CB3D 11x8, Std Res 33.5 CB3D 11x8, High Res 78.6					ICRP 103 (µSv): Panoramic 6.7 Dentition only 4.3 Ceph Lateral, Reduced 1.0	
Multiples CBCT Scan Modes	Voxel Size Options (µm): Minimum slice thickness 75 micron						
	FOV Sizes D x H	CM IN	11 x 8 4.33 x 3.15	11 x 5 4.33 x 1.97	8 x 8 3.15 x 3.15	8 x 5 3.15 x 1.97	5 x 5 1.97 x 1.97
Patient Positioning	Standing or seated. Wheelchair accessible.						
Weight and Dimensions	Height: min 1650 mm (65 in) - max 2440 mm (96 in) Width: 1340 mm (52.8 in), width with Ceph: 1830 mm (72 in) Depth: 1430 mm (56 in), depth with bracket for wall fixing 1520 mm (59.8 in) Total weight: 170 Kg (375 lbs), with teleradiographic arm 190 Kg (419 lbs)						
Software	NNT™ with free viewer and sharing application						
Power Required	15A @ 115V~,10A @ 240V~, 50/60Hz						

Specifications subject to change without prior notice.

- Improved Software Integration
 - Accelerated 3D Engine
- Full DICOM 3.0 Compliant
 - Small Footprint



Dimensions in millimeters (dimensions in inches)



QR srl is part of Cefla Dental Group – Cefla sc



NewTom GiANO Specifications

NewTom - Today's
Standard of Care



Distributed by:

QR srl

Via Silvestrini 20, 37135 Verona - Italy

Tel. +39 045 8202727 - 583500

Fax +39 045 8203040

info@newtom.it

www.newtom.it

Manufacturer:

CEFLA S.C. - CEFLA DENTAL GROUP

Via Bicocca 14/C

40026 Imola (BO)

Italy