Newlon what's next

NewTom 7G WIDE.VISION

CUTTING-EDGE CBCT





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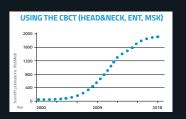
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7G WIDE.VISION

NEWTOM PRESENTS THE FIRST MULTI-SCAN BODY CBCT FOR EXTENSIVE CLINICAL APPLICATIONS.

Healthcare facilities have a duty to keep up with major demographic, social and technological changes. Higher life expectancy involves providing care for older, sometimes heavily-built patients and increasing care capacity without raising costs. At the same time, demand for trauma-related treatment and other specialised treatments is on the rise, especially in the field of sports medicine, which requires cutting-edge skills and instruments. The pivotal role of X-ray imaging in handling these trends has led to the development of the NewTom 7G, the innovative ConeBeamCT Multi-Scan Body system by NewTom. Suitable for radiologists and orthopaedic, otolaryngology and dentistry specialists, NewTom 7G lets you capture accurate information on bone tissues - microstructures included - to gain an in-depth understanding of the overall clinical picture. NewTom 7G, then, boosts the diagnostic capacity of the surgery and, at the same time, optimises analysis of treatment outcomes, all at low dosages and lower costs compared to conventional procedures. Automatisms made possible by exclusive NewTom technology optimise work flows and avoid the variability and uncertainty inherent in manual examination control, especially during patient positioning and actual exposure.



pioneer in this field and remains a use in the Dental-Maxillofacial field to the more recent Otorhinolaryngology (ENT) and Muscular-Skeletal (MSK)

NEW IMAGING HORIZONS.

Featuring a large gantry aperture, the NewTom 7G is the most advanced CBCT device on the market. From in-depth detail to the big picture.

For the very first time, Cone Beam technology can now be applied to all areas of the body, including the spine, shoulder and hip. Moreover, NewTom 7G is suitable for very heavy patients thanks to a high-capacity powered patient table (max 215 kg). At the same time NewTom 7G has all the functions and automatisms needed to adapt FOVs and X-ray doses to the patient's build (especially those of paediatric age).

With a resolution of up to 90 μ m, small complex structures such as the inner ear can be analysed with the utmost precision.

With the patient lying down, the motor-powered table limits the risk of artifacts caused by uncontrolled movement. It also ensures simple, accurate alignment of the FOVs, making results more certain and weighting the X-ray exposure.

Excellent device accessibility and flexibility allows multiple acquisition protocols; these range from static Ray2D examination to the investigation of joint dynamics with the CineX protocol and in-depth 3D volumetric diagnosis with ultra-high definition of bone tissue.



ULTRA-DETAILED MULTI-DIAGNOSTICS

Localised analysis over the entire body. Ray2D and 3D imaging up to 90 µm, also with radiocontrast agent. Artifact reduction and movement analysis using CineX and Cine-Scout.



TECHNOLOGICAL EXCELLENCE

High power generator (120 kV – 20kW).
High-sensitivity
3D panel and innovative algorithms for volumetric reconstruction. 77 cm gantry aperture.



ERGONOMICS AND PRACTICALITY

Fully motor-powered table and 10" touch-screens, front and rear. Optimised examination flow thanks to certified NNT software with processing, sharing and RIS/PACS connectivity functions.



MAXIMISING PATIENT CARE

Patients lie comfortably on the table and X-ray doses are always proportioned to the patient's build and the examination type.



WIDE.VISION

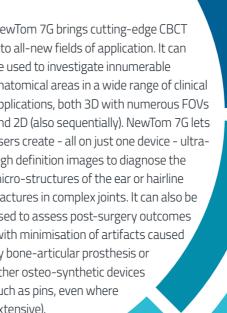




7G. **UNMATCHED** POWER.

Applications for precision medicine.

NewTom 7G brings cutting-edge CBCT into all-new fields of application. It can be used to investigate innumerable anatomical areas in a wide range of clinical applications, both 3D with numerous FOVs and 2D (also sequentially). NewTom 7G lets users create - all on just one device - ultrahigh definition images to diagnose the micro-structures of the ear or hairline fractures in complex joints. It can also be used to assess post-surgery outcomes (with minimisation of artifacts caused by bone-articular prosthesis or other osteo-synthetic devices such as pins, even where extensive).





(Otorhinolaryngology) (ENT)

DACRYOGRAPHY







(Otorhinolaryngology)



HIP (Orthopaedics) (MSK)



KNEE (Orthopaedics) (MSK)



HEEL/FOOT/ ANKLE (Orthopaedics)

(MSK)



ARTHROGRAMS (Orthopaedics) (MSK)

EXTENDED 3D

Adaptive FOVs - from a minimum of 4x4 cm to a maximum diameter of 29 cm and lengths of up to 62 cm - allow the area of interest or a portion of it to be examined (taking the patient's build into account).



The Ray2D, Cine-Scout and CineX functions make device potential even more extensive. Ray2D allows for 2-dimensional assessment from multiple angles prior to 3D investigation. The CineX serial radiography function, instead, lets users examine anatomical structures in motion and is particularly useful for studying joint mobility. The Cine-Scout function allows dynamic, real-time examination directly on the machine for assessment of moving joints.

BROADER DIAGNOSTIC RANGE

NewTom 7G can perform numerous types of investigation, including those with intra-articular contrast agents (e.g. arthrograms with Cine-Scout positioning).

OPTIMAL PRACTICALITY, CERTAIN RESULTS.

Automated work flow plus the possibility of customising protocols. Advanced image processing software functions. NewTom 7G features automatisms that streamline work and limit the distortion inherent in manual procedures, thus ensuring the best results in the shortest time.

The on-machine multi-consoles and/or touch-screen allow for assisted patient alignment with multiple scouts and Cine-Scout, plus the selection of FOVs and radiological parameters. Furthermore, radiologists can customise protocols to suit specific diagnostic needs.

Reports feature the advantage of advanced NNT software functions that allow users to process and share specifications for different medical specialisations. Multiplanar analysis with personalised orientation allows body areas to be assessed from different angles. All examinations are fully compatible via the DICOM format: they can be shared via NNT Viewer or printed in 1:1 scale.

NNT: USER-FRIENDLY CUSTOMISED SOFTWARE Doctors can access specific protocols and views by anatomical area and diagnostic query; they can also establish personal settings for re-use at a later time.

ORTHOPAEDICS

Osteo-articular study with multiplanar view. In addition to shoulder, hip, spine, small bones and joints, NewTom7G is highly useful for assessing extremities. If necessary, use a contrast agent; NewTom 7G also lets you investigate joints in motion. Advanced NNT software functions provide access to comprehensive reports.

A TT-TG analysis function is available

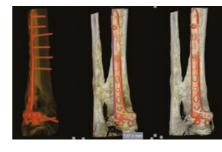
A TT-TG analysis function is available for femur-patella pathology and trauma analysis.

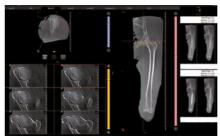
OTORHINOLARYNGOLOGY

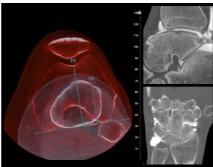
Ear and airways volume analysis. Dynamic examination of the inner ear along nonorthogonal planes to diagnose diseases of the ossicular chain, stapes platina, semicircular canals, cochlea and adjacent structures. The lying down position aids airway investigation for sleep apnoea treatment while NNT software features a special instrument for complete volumetric assessment of the case.

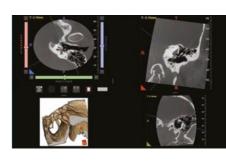
DENTISTRY, IMPLANT AND ORTHOGNATHIC SURGERY

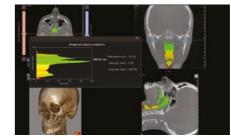
Dental-Maxillofacial and bilateral TMJ analysis. Dual view and symmetric analysis of the temporomandibular joints. The Sharp 2D function produces an image dataset consisting of Latero-Lateral and Antero-Posterior Panoramic and Teleradiography images; cephalometric studies and orthodontic rehabilitation work can be performed. Maxillofacial surgery planning with implant simulation and post-op follow-up.

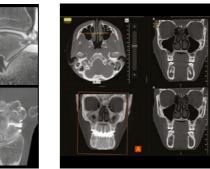




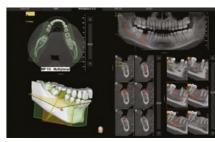












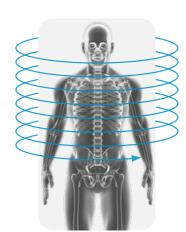


HI-TECH HIGH-END PERFORMANCE.

Highly advanced biomedical imaging with new highpotential image chain. NewTom CBCT generates ultra-high definition volumetric images with native isotropic voxel resolution, non-overlapping sections and fewer artifacts. Unlike the spiral fan beam scan typical of other MSCTs, a single cone beam scan increases image quality, contains the X-ray exposure area and reduces costs.

The high-power X-ray generator with rotating anode and small focal spot (0.3 mm) maximises performance and ensures emissions can always be adapted to specific needs. The large, latestgeneration HD flat panel detector, with high signal/ noise ratio, yields improved soft tissue display. Innovative volumetric reconstruction algorithms and advanced filters minimise reconstruction times and optimise imaging.

MSCT



Fan beam. greater irradiation

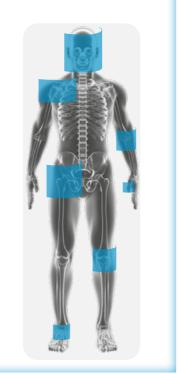
CBCT

MULTI-SCAN BODY





Allows investigation of the whole body, but exposure is limited to the specific area of interest.



SERVO-CONTROLLED PATIENT **TABLE**

The fully motorized patient table (Patent Pending) provides considerable excursion, the minimum height of 56.5 cm ensuring easy access at all times. Extremely precise three-dimensional table movement ensures perfect patient positioning patient with respect to each FOV. Maximum total load capacity is 215 kg.







LARGE GANTRY

The large gantry opening increases the scope for diagnosis and makes positioning easier. Openings on both sides prevent patients from experiencing claustrophobia, while access from the rear also allows use by wheelchair patients. Furthermore, the advanced (Patented) kinematic system allows for complete, fast rotation. The backlit gantry area provides soft lighting, making the time in the X-ray room more pleasant.



EXCELLENT POSITIONING

The prone or supine position is ideal for successful examination outcomes as it reduces the artifacts caused by patient movement; it is particularly suitable for elderly persons with reduced mobility and indispensable in the case of sedated or trauma patients.



7G WIDE.VISION

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TOTAL CONTROL.

Automatic or manual exposure protocols for more accurate diagnosis.

NewTom 7G has 15 FOVs, extendable to 30 with eXtra Functions. Each one is associated with 4 protocols: Low Dose, Regular, Enhanced and Best Quality. Nevertheless, doctors can create their own customised settings according to their specific needs.

The consoles are positioned on the side of the machine and are always accessible during patient handling.

The Multi-Scout Vision view with 4-image acquisition provides precise info on the patient to allow selection of the most suitable FOV or framing adjustment via the keypad.





eXtra Functions

The eXtra FOV function lets users extend the field of view longitudinally to analyse anatomical structures such as the spine and limbs, up to 17x62 cm and 29x56 cm. This is an automated protocol that, via patient table movement, groups together from 2 to 4 FOVs in sequence in a single exam. Multi-scan is automatic and can be modulated according to clinical requirements.



CINE-SCOUT MODE

The 22" touch-screen can be used to control the examination flow and display anatomical structures in motion in real time. In Cine-Scout mode, then, it's possible to set up a sequential X-ray examination for dynamic analysis. X-ray emission is activated via an external, cable-linked foot control.

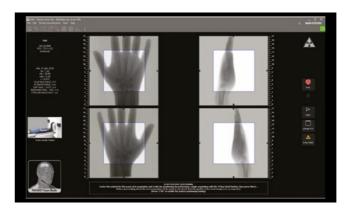


REMOTE MONITORING

Throughout the various stages of the examination, patients are monitored via the on-board video camera and an intercom establishes a reassuring line of direct communication that can also be used to give patients instructions when necessary.

GUIDED ALIGNMENT

Laser guides simplify patient positioning, ensuring the area of interest is aligned perfectly. Multi-Scout Vision lets users observe the maximum field of view for each application from 4 perspectives before selecting the most suitable, more restricted FOV – properly aligned on the region of interest only – to further limit the X-ray dose.



MULTI-CONSOLE TOUCH SCREENS

The 10" control touch-screens used to guide alignment and set up the examination are located on board the machine, making them easily accessible. A simple, user-friendly interface allows the examination type to be selected in just a few steps. It's possible to choose a set-up that has from 2 to 4 consoles, with installation on both sides of the gantry, front or rear.

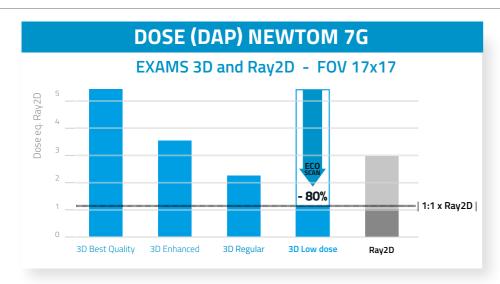


PATIENT PROTECTION AND CARE.

Low X-ray doses, always proportionate to patient build and clinical requirements. In the case of surgical follow-ups or paediatric tests, adaptive FOVs, Ultra Rapid scan mode or the ECO Low Dose scan can be used to reduce the X-ray dose.

Pulsed emission CBCT technology activates the X-ray source only when necessary, thus limiting exposure. Moreover, SafeBeam™ technology automatically adapts emissions to the patient's anatomical characteristics, eliminating any risk of overexposure. These features make it possible - in cases where it's necessary to assess the anatomical site from different perspectives - to obtain a regular volumetric tomographic image with a dose equivalent to two traditional X-rays.

Furthermore, radiologists can modulate emissions manually to reduce the dose further. Lastly, preliminary low dose Ray2D assessment can be performed. If necessary, this can be followed by a high resolution 3D examination, limited to the area of interest, for in-depth diagnostics.



ADAPTIVE LOW DOSE CBCT

NewTom 7G is equipped with four 3D protocols that let you adapt the X-ray dose to actual diagnostic needs. With the Low Dose protocol, the X-ray dose can be reduced by up to 80%: the equivalent of a Ray2D radiograph with the same field of view.



3D LOW DOSE

The NewTom 7G CBCT Low Dose protocol reduces scan times to as little as 7.2 s, with a beam emission time of just 1.4 s. This ultra-fast ECO scan mode is ideal for reducing the X-ray dose (e.g. post-operative checks and paediatric applications).



ADAPTIVE EXPOSURE CONTROL

SafeBeam™ technology automatically adapts CBCT and CineX emission parameters to the framed anatomical area and adapts dose to patient build (both adult and child).



2D RADIOGRAPHY

The Ray2D function lets users perform 2D X-ray examinations with a 30x30 detector on various areas from multiple projection angles, selectable at 5° intervals. Exposure parameters (kV e mAs), and therefore the dose, can be adapted to effective requirements.

ADAPTIVE FOVS

The NewTom (Beam Limited Patented) collimation system can be used to obtain modular FOVs and precision-select the area to be exposed for CBCT examinations. This permits a lower X-ray dose, especially in paediatric applications.



TILT-ADJUSTABLE HEAD SUPPORT

The carbon fibre headrest (Patent Pending) for Head & Neck examinations can be angled at up to 45°: this allows head positioning to frame the ear perfectly, avoiding any irradiation of the lens to further reduce the effective dose and protect radio-sensitive organs. Lastly, patient comfort is ensured by a soft cushion.



COMPLETE CONNECTIVITY.

Maximum connectivity and integration thanks to the modern systems adopted by NewTom. Work flow and clinical-diagnostic work become ever-simpler and higher-performing.

VIRTUAL CONSOLE

The required X-ray settings can be conveniently managed on the machine via a 10" multi-console and/or 22" touch-screen. They can also be managed remotely via a virtual control panel for PCs.

REMOTE ASSISTANCE

By configuring the device for use with the surgery's Internet connection, technical support can be provided remotely and device status monitored.

3D/2D VIEWER

Examinations can be shared with colleagues and patients by supplying the Viewer programme directly on CD, DVD or a USB storage device.

1:1 PRINT

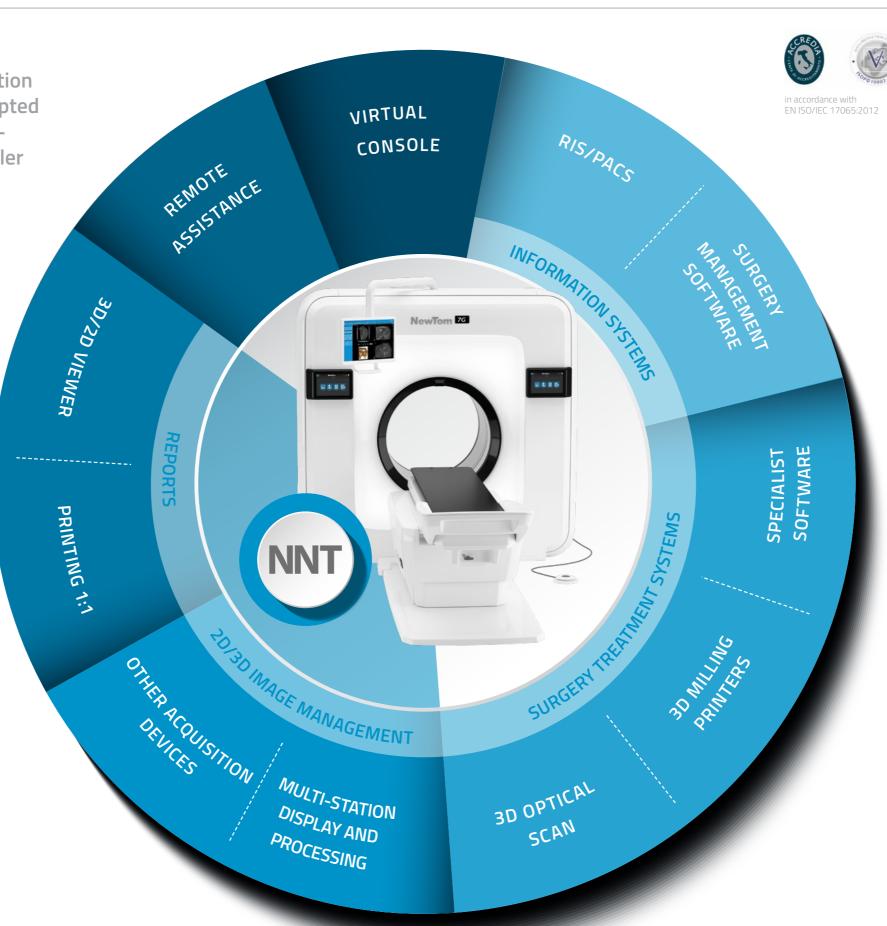
Complete and flexible report system for storing and sharing colour reports on photographic paper or grey scale reports on X-ray-equivalent transparencies.

OTHER ACQUISITION DEVICES

Compatibility with TWAIN and DICOM 3.0 standards ensures NNT software can manage images from other 2D/3D image acquisition devices, such as video cameras, sensors, PSP and CBCT scanners.

MULTI-STATION DISPLAY AND PROCESSING

Image storage on a shared database on a local network, accessible from any workstation and iPad (2D only). Management of multiple archives and access to passwordprotected data.



NNT: CERTIFIED SOFTWARE

NNT has been awarded ISDP®10003 certification, an international standard for assessing compliance with EU Regulation 2016/679 concerning the protection of individuals' personal data processing rights.

RIS/PACS

IHE compliant system that allows communication with RIS/PACSsystems and DICOM printers. Complete services available: Print, Worklist, Storage Commitment, MPPS and Query/Retrieve.

SURGERY MANAGEMENT SOFTWARE

An open system designed for fast, efficient interfacing with the main surgery management software solutions via various standard (VDDS, TWAIN) and/or proprietary (NNTBridge) modes.

SPECIALIST SOFTWARE

Volumetric and 2-dimensional images, like videos processed with the CineX function - which are compatible with DICOM 3.0 (IHE) standard - can easily be shared via the NNT Viewer or printed in 1:1 scale.

3D PRINTERS AND MILLING MACHINES

Software modules are available to segment the reconstructed volume and export the surfaces needed to create 3D models (which can underpin planning and treatment) to STL format.

3D OPTICAL SCAN

Prosthetically guided planning thanks to integration (via the dedicated software module) of STL format data from optical, intraoral or laboratory scanners with volumetric data.

Voxel Size resolution

Absorbed current

Notes

15 x 6 cm

2 A (stand by)

		X-RAY SOURCE			
Туре	High frequency generator (constant potential DC), rotating-anode X-ray tube 20 kW (Rated Power)				
Focal spot	0.3 mm - 0.6 mm (IEC 60336)				
Total Filtration	21 mm Al eq. @ 70kV (of which inherent Filtration 1 mm Al eq). @ 70kV)				
Anode Voltage	70 - 120 kV (selectable in 10 kV steps)				
Anode Current	Focal spot 0.3 mm → 5 - 54 mA (selectable in 1 mA steps) Focal spot 0.6 mm → 55 - 120 mA*(selectable in 1 mA steps) *The max kV available for use may vary according to m				
Maximum continuous anode input power	120W (120kV; 5mA; 8ms; 17x17; REGULAR)				
		DETECTOR			
Technology	Amorphous silicon flat panel (CsI)				
Pixel Size	154 µm				
Dynamic range	16 bit (65,536 grey levels)				
	3D	IMAGE ACQUISITION			
Anatomical regions under diagnostic investigation Adult - Child	Head neck: dental-maxillofacial complex, teeth, upper and lower jaws, temporo-mandibular joint (TMJ), ear, nose and throat (ENT), cervical spine. Body: sections of the spine, upper limbs including the shoulder, lower limbs including the hip.				
Scan technology	Cone Beam TC - Partial or complete rotation (360°)				
Exposure control	 Manual mode: parameter selection (± 10 kV, ± 1, mA) Automatic SafeBeam™ mode adapts exposure factors on the basis of patient build and the anatomical area 				
Scan protocols - for each FOV	Low Dose (ECO)	Regular	Enhanced	Best Quality	
Scan times	7.2 s - 10 s	14.4 s	14.4 s - 18 s	19.2 s - 26 s	
Emission times	1.4 s - 4.6 s	2.8 s - 6.1 s	2.8 s - 6.1 s	3.8 s - 8.8 s	
CBCT EXAMS	BODY VERSION		BODY PLUS VERSION		
ADAPTIVE FOV (φ) x (H)	INCLUDE		ADD	eXtra Functions	
eXtra extended FOVs	17 x 32 cm	13 x 12 cm	29 x 30* cm	29 x 56* cm	
	17 x 22* cm	13 x 8 cm	29 x 17 cm	29 x 43* cm	
	17 x 17 cm	13 x 6 cm	29 x 12 cm	21 x 56* cm	
	17 x 12 cm	10 x 10 cm	24 x 30* cm	21 x 43* cm	
	13 x 32* cm	8 x 8 cm	24 x 17 cm	17 x 62* cm	
	13 x 17 cm	8 x 6 cm	21 x 30* cm	17 x 47* cm	

Reconstruction time	Less than 1 minute	Less than 1 minute				
2D IMAGE ACQUISITION						
FUNCTIONS	Ray2D	CineX	Cine-Scout			
Туре	Single Shot X-ray for static analysis	Multi-Shot X-ray, variable duration for dynamic analysis				
Info	Equivalent to a Scout View	Remote execution with repositioning scout image	Examination start and display on board machine via foot control and monitor			
Source-Detector distance		Fixed 980 mm				
Projection angle	Variable ±5° (position can be selected by user)					
Transparency size (FOV on patient)		30 cm x 30 cm (17 cm x 17 cm)				
Scan time	0.015 - 0.6 s	1-36 s @ 25fps	1-36 s @ 12fps			
Emission time	0.015 - 0.6 s	0.25 - 9 s	0.18 - 6.48 s			
Automatic exposure control	Manual parameter selection (± 10 kV, ± 1 mA, ±Δt ExposureTime)	Automatic SafeBeam™	Manual parameter selection (± 10 kV, ± 1 mA, ±Δt ExposureTime)			
Maximum X-ray load	72 mAs	777 mAs				
Image format	DICOM or JPEG	DICOM / AVI	DICOM / AVI			
POWER SUPPLY						
Voltage Frequency	230 V ~ (± 10%) 50/60 Hz (± 1%)					
Maximum power absorption	16 A					

Power supply values other than those indicated require the use of an adapter/converter (not supplied)

6 x 6 cm

4 x 4 cm

Variable according to used scan protocol (from 90 μm to 500 μm)

21 x 17 cm

13 x 62* cm 13 x 47* cm

	- FREQUENCY -				
	ERGONOMICS				
Large gantry	Aperture 77 cm (30")				
On-machine console	2 or 4 10" full touch screens that can be positioned right or left, front or rear				
Examination selection	Protocols can be personalised via the on-machine console or from a PC workstation				
Patient table	220 cm long, 45 cm wide (with soft folding mattress)				
Patient table load capacity	215 kg (200 kg patient + 15 kg accessories)				
Patient positioning	Examinations can be performed with the patient lying down or seated at the rear with position selection from console (Prone or Supine; Decubitus Right or Left; with Head or Feet facing forwards)				
Patient Alignment	Servo-assisted + 3 Laser guides (Class 1 - IEC 60825-1) - 3D: 4x Scout View; XF Pack: 4x Scout view - CineX: 1 ScoutView				
Patient positioning	Soft head cushion and stability bands plus other dedicated radio-transparent supports Head rest can be adjusted from 0 to 45°, with carbon fibre support and cushion				
Adjustments	3-axis, 2-speed powered patient table: control on board machine. Longitudinal excursion: 0 cm - 148 cm Vertical: 57.5 cm - 88 cm Lateral: -10.8cm - +10.8 cm				
Other functions	Patient monitoring system with video cameras and intercom to observe and communicate from the remote workstation				
User interface software	Multi-Language: Italian, English, French, German, Spanish, Portuguese, Greek, Polish, Finnish, Swedish, Dutch, Czech, Bulgarian, Hungarian, Turkish, Lithuanian, Ukrainian, Russian, Chinese.				
	CONNECTIVITY				
Connections	LAN / Ethernet				
Software	NewTom NNT (compliant with ISDP®10003:2018 in accordance with EN ISO/IEC17065:2012 - certificate number 2019003109-1) and iPad NNT viewer app (free), STL (RealGUIDE)				
Supported protocols	DICOM 3.0, TWAIN, VDDS, CLOUD sharing (RealGUIDE)				
DICOM nodes	IHE compliant (Print; Storage Commitment; SR document; WorkList MPPS; Query Retrieve)				
INSTALLATION REQUIREMENTS					
COMPOSITION	SCANNING UNITS	PATIENT TABLE			
Maximum dimensions (L x D x H) complete with optional components	2050 mm x 1070 mm x 2083 mm - (80,7" x 42" x 82")	2200 mm x 888 mm x 895 mm - (86,6" x 34,9" x 35,2")			
Package dimensions (L x D x H)	2200 mm x 1417 mm x 2207 mm - (87" x 56" x 87")	2450 mm x 1130 mm x 1100 mm - (96,5" x 44,5" x 43,5")			
Weight with packaging	1020 kg (2249 lb)	590 kg (1300 lb)			
Accessories	Cine-Scout Pack (monitor and foot control for on-machine emissions confirmation)				
Minimum space requirement (L x D)	Footprint: 3938 mm x 2050 mm (155" x 80.7 ") Room: 5000 mm x 4000 mm (lateral access to device required for assistance)				
Total weight of installed device complete with optional components	1050 kg (2315 lb) exerted on the footprint area stated above				

Specifications subject to change without prior notice.

