

Cone Beam 3D Imaging  
**NewTom** VET   
what's next



Making Your Life Better.

**BU Medical Equipment**

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# NewTom 7G WIDE VET.VISION

CUTTING-EDGE CBCT



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## 7G WIDE.VISION

# NEWTOM PRESENTS THE MULTI-SCAN BODY CBCT FOR VETERINARY APPLICATIONS.

Imaging pioneer NewTom has incorporated specially designed ergonomics and software into the 7G to extend the advantages of Multi-Scan Body CBCT to the veterinary field. Increasing attention to animal health requires, in fact, devices capable of providing accurate diagnosis and efficient workflows. With NewTom 7G vets can also treat medium size animals, obtain 3D X-rays of extensive anatomical areas and examine tissues in the finest detail. All this makes NewTom 7G the perfect CBCT for the veterinary clinic of the future.



## NEW IMAGING HORIZONS.

NewTom 7G is the most advanced CBCT device on the market, equipped with 2D radiology and serial radiography features. Large gantry aperture.

With NewTom 7G, Cone Beam technology can be applied to all body areas, including the abdomen, chest and full length of limbs. Moreover, NewTom 7G is suitable for medium patient sizes thanks to a high-capacity motor-driven 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 size.

With a resolution of up to 90  $\mu\text{m}$ , highly complex body areas such as front and rear leg joints can be scanned to detect hairline fractures or osteochondral lesions.

The motor-driven patient table, with its large-sized, steady stretcher guarantees user-friendly and accurate alignment of FOVs, for even more reliable results. Excellent device accessibility and flexibility allow multiple acquisition protocols; these range from static Ray2D scanning to the investigation of joint dynamics with the CineX protocol and in-depth 3D volumetric diagnoses with ultra-high definition for bone tissue examination.



### ULTRA-DETAILED MULTI-DIAGNOSTICS

Localised analysis over the whole patient body. Ray2D and 3D imaging up to 90  $\mu\text{m}$ , also with radiocontrast agent. Artifact reduction and dynamic 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

Optimised scanning flow with certified NNT software equipped with a number of RIS/PACS processing, sharing and connectivity functions, through the conversion of both 2D and 3D images to DICOM format.



### OPTIMISED DOSES AND TIMING

Motor-powered table and 10" touch-screens at the front and rear. Easy patient positioning. X-ray doses are always proportioned to patient's size and to the type of examination.

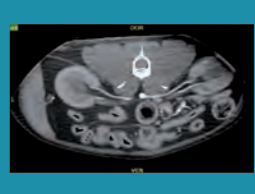
<b>DENTAL PANORAMIC IMAGING</b> <small>(Odontostomatology)</small>	
<b>3D FULL SKULL</b> <small>(Orthodontics)</small>	
<b>NASAL CAVITIES</b> <small>(Oral and maxillofacial surgery)</small>	
<b>FULL DENTAL ARCHES</b> <small>(Endodontics)</small>	
<b>3D LIMB SIMULATION</b> <small>(Orthopedics/Osteo-synthesis)</small>	
<b>REAR LEGS</b> <small>(Lumbosacral diseases)</small>	
<b>FRONT LEGS</b> <small>(Osteochondral lesions)</small>	
<b>SPINE</b> <small>(Traumatology)</small>	

# 7G.

## UNMATCHED POWER.

Enhance your surgery's diagnostic capabilities.  
From in-depth detail to the big picture.

NewTom 7G uses the most advanced CBCT technology to achieve revolutionary applications with a single device and allows extremely high definition images to be created. 3D diagnostics with multiple FOVs, and sequential 2D for viewing even the smallest body and soft tissue structures, hairline fractures in complex joint structures, myelography, scans with or without contrast agents, or for follow-up purposes after surgical procedures, with minimisation of artifacts caused by osteo-articular prostheses or other osteo-synthetic devices.

<b>UPPER AIRWAYS</b> <small>(3D simulation)</small>	
<b>LUNG SCANS</b> <small>(Respiratory disorders)</small>	
<b>NASOPHARYNGEAL DISORDERS</b> <small>(Paranasal sinuses)</small>	
<b>CHEST</b> <small>(Pulmonary representation)</small>	
<b>ABDOMINAL IMAGING</b> <small>(Angiography)</small>	
<b>INTERNAL ORGANS</b> <small>(Abdominal diseases)</small>	
<b>PORTOSYSTEMIC SHUNT</b> <small>(Abdominal angiography)</small>	
<b>SPINE</b> <small>(Myelography)</small>	







### 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.

Acquisition protocols for full viewing of the limb to be examined.

Minimised metal artifacts in surgical follow-ups after osteo-synthesis.

### STATIC AND DYNAMIC 2D

The Ray2 and CineX functions make the device potential even more extensive. Ray2D can be used to perform 2-dimensional assessments from multiple angles prior to 3D scanning.

The same applies to the CineX serial radiography function, which allows dynamic viewing of internal body structures.

### IMAGING RADIOLOGY

NewTom 7G can perform scanning according to different techniques, including scans with oral or intra-articular (e.g. arthrograms) or IV (angiography) administration of contrast agents. This improves the imaging of soft tissues, whenever more specific methods are not required. The Cine-Scout function allows on-machine scanning with serial radiography to be performed, also in preparation to the administration of contrast media.



# OUTSTANDINGLY PRACTICAL FOR RELIABLE RESULTS.

Automated work flow, possibility of customising protocols. Advanced image processing software functions.

NewTom 7G features automatism that streamline the workflow and limit the distortion which may result from manual procedures, thus ensuring the best results in the shortest possible time. The on-machine multi-consoles and/or touch-screen allow for assisted patient alignment with multiple scouts and Cine-Scout, as well as the selection of FOVs and radiological parameters. Furthermore, specialists can customise protocols to suit specific diagnostic needs.

The advanced functions of the NNT software allow several medical specialties to be covered, and the special reconstruction windows respond to the different needs of each sector. All examinations are fully compatible in the DICOM format: they can be shared via NNT Viewer or printed in 1:1 scale.

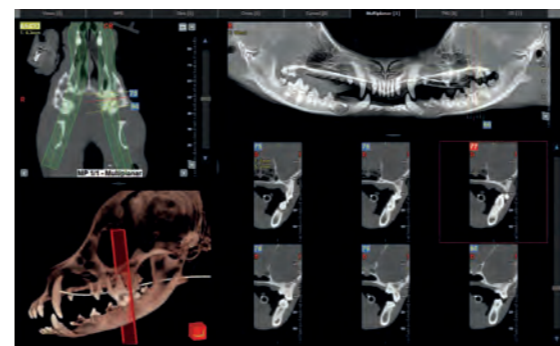


## NNT: CUSTOMISABLE AND INTUITIVE SOFTWARE WITH DEDICATED VET INTERFACE

Doctors can access specific protocols and views according to body areas and diagnostic requirements; they can also program personal settings for re-use at a later time.

## DENTAL PANORAMIC IMAGING

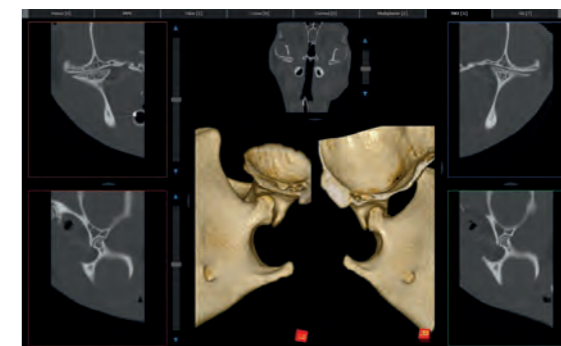
The dedicated interface for the study of dental arches generates cross sections and axial reconstructions, and produces images comparable to dental panoramic views with multiplanar reconstructions. It can also generate specific reconstructions for the coronal and sagittal planes. For all these images, thickness, brightness and contrast can be managed independently.



## BILATERAL VIEWING

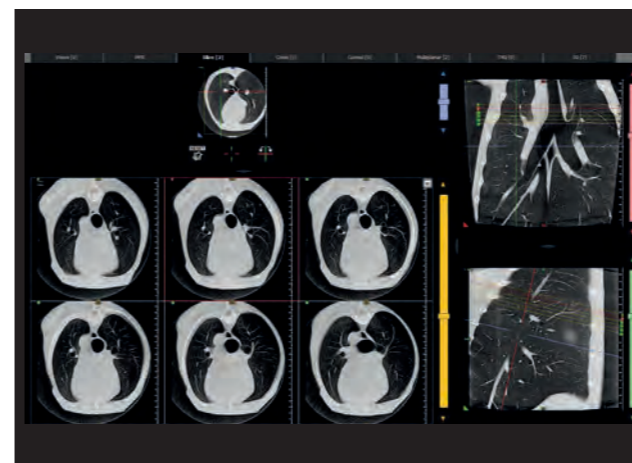
The NNT software has a dedicated window for bilateral imaging of bone structures, such as the temporomandibular joints and smaller joints.

The viewing window shows the axial image in the middle and dedicated reconstructions for the left and right sides; in the bottom central area, the 3D renderings are shown.



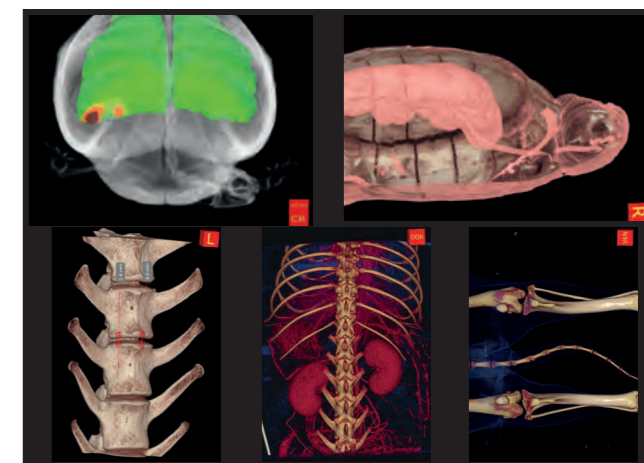
## MULTIPLANAR REPORTING

The SLICE window creates datasets on the axial, sagittal or coronal planes, and allows the orientation and size of the volume to be changed on each of its axes, as well as to set the thickness of individual cross-sections. The advanced NNT functions facilitate reporting, with specific processing and sharing options for different medical specialties. Multiplanar analysis with personalised orientation allows body areas to be assessed from different angles.



## 3D ANALYSIS

The simple 3D display interface makes communication with pet owners much easier, allowing the patient's condition to be made clear even to viewers who are not familiar with imaging reading. Separate or superimposed imaging of soft tissues and bone tissues can be chosen. 3D measurement, airway simulation and slicing tools are also available to obtain cross-sections of the volume of interest.

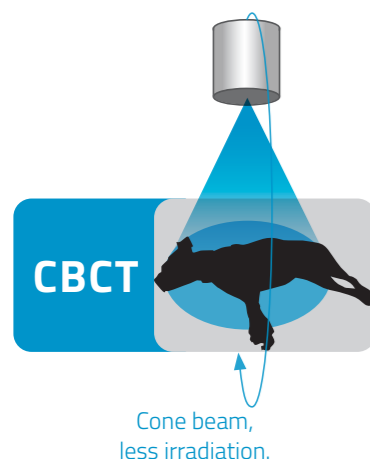
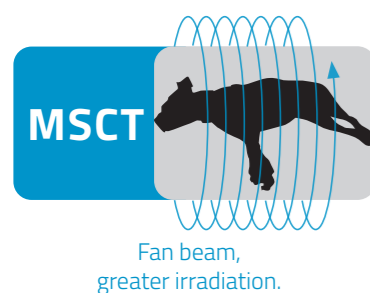


# HI-TECH HIGH-END PERFORMANCE.

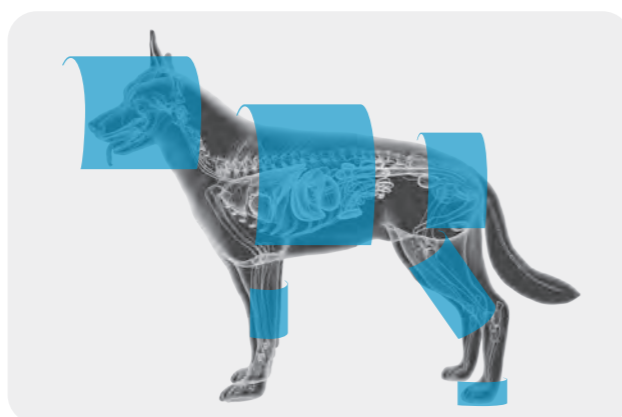
Highly advanced biomedical imaging with a new high-potential image chain.

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 that emissions can always be adapted to specific needs. The large, latest-generation 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.



## CBCT MULTI-SCAN BODY



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



## SERVO-CONTROLLED INTEGRAL PATIENT TABLE

The fully motor-driven patient table (Patent Pending) with 215 kg load bearing capacity features an extensive travel to a lowest height of 56.5 cm ensuring easy access at all times. Extremely precise three-dimensional table movement ensures perfect patient positioning with respect to each FOV.

The integration between motor-driven table and gantry facilitates the remote positioning of the pet patient and makes it possible to capture different sectors, subsequently merged by the powerful NNT software. All this without the operator having to leave their workstation.



## LARGE GANTRY

The large gantry opening expands the range of diagnostic options and makes patient positioning easier for the operator. The control interface, available on the machine via the 10" touch-screen monitors and in a virtual version on the acquisition console, allows users to choose an orientation for the pet on the table.

Thanks to the opening on both sides, a breathing control device can be added without limiting the operator's working space. Furthermore, the advanced (Patented) kinematic system allows full rotations to be quickly completed - resulting in much shorter examination times.



## IDEAL POSITIONING

The patient must be positioned on the stretcher according to the anatomical area to be scanned or to diagnostic requirements.

The user-friendly interface, available both in the acquisition station and in the 10" touch-screens, allows both the anatomical region and the pet introduction position into the gantry to be selected. The NNT software will adopt anatomical references in the images according to the position set by the operator (dorsal, ventral, lateral, cranial-caudal or caudal-cranial).

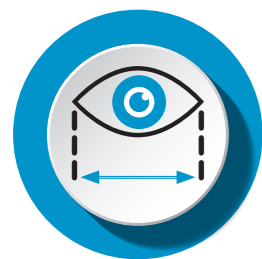


# TOTAL CONTROL.

## Automatic or manual exposure protocols for more accurate diagnoses.

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. In any case, doctors can create their own customised pre-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 which, via patient table movements, groups together from 2 to 4 FOVs in sequence in a single exam. Multi-scanning is automatic and can be modulated according to clinical requirements.



\*optional



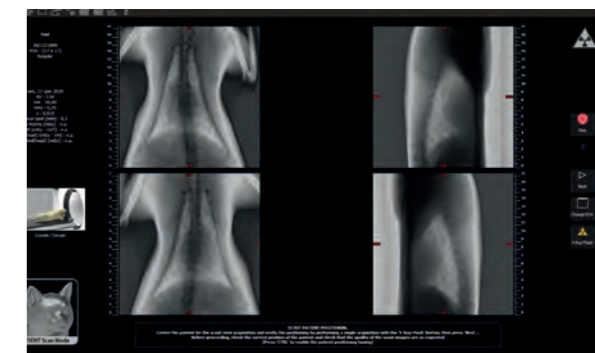
## MULTI-CONSOLLE TOUCH

The 10" control touch-screens used to guide alignment and enter scan settings 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. The equipment can include 2 to 4 consoles, with installation on both sides of the gantry, at the front or at the rear.



## GUIDED ALIGNMENT

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



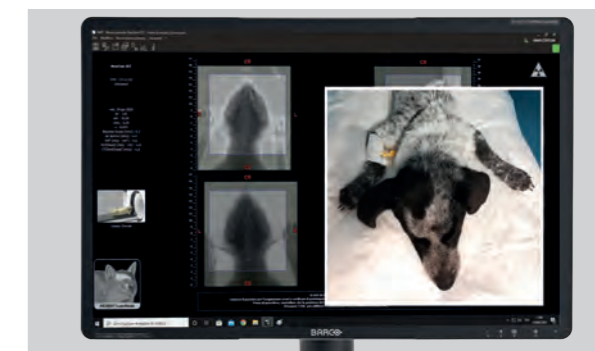
## CINE-SCOUT MODE

The 22" touch-screen can be used to monitor the scanning flow and display dynamic anatomical structures in real time. This procedure is particularly useful during contrast agent administration. In Cine-Scout mode it is then possible to set up a machine on-board sequential X-ray examination for dynamic analyses, by freely selecting the required projection for capturing. X-ray emission is activated via an external, cable-linked foot control.



## REMOTE MONITORING

The motor-driven table can be conveniently controlled remotely from a capturing station outside the X-ray room - with patient monitoring via a video camera and intercom system on-board the machine. This helps to reduce the exam time because leaving one's workstation is no longer required.



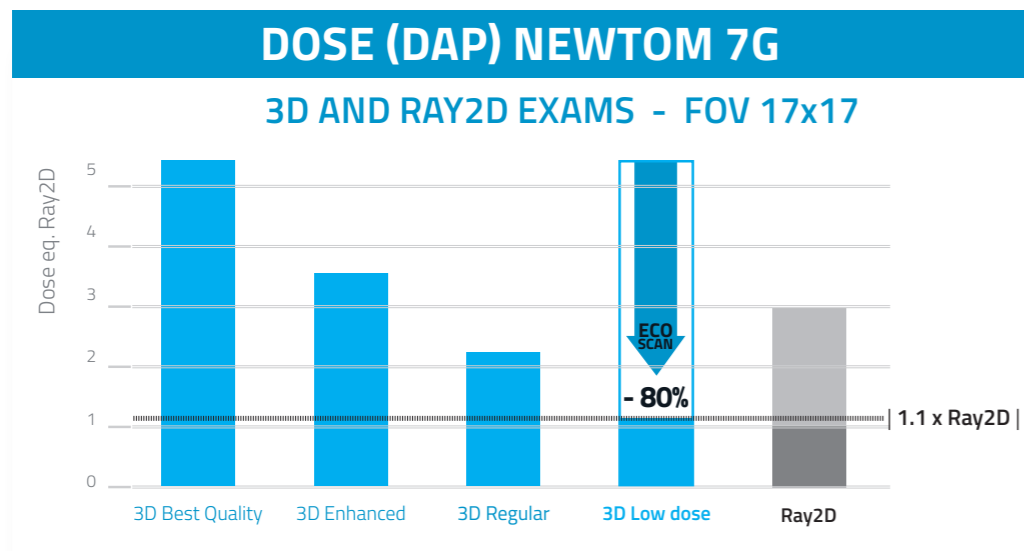
# ALL THE PLUSES OF VERSATILITY.

Quicker scanning, low X-ray doses calculated according to patient size and clinical requirements.

The acquisition time and X-ray dose can be reduced through adaptive FOVs, the Ultra Fast scan mode, or the ECO Low Dose scan mode.

The pulsed emission CBCT technology activates the X-ray source only when necessary and the SafeBeam™ technology automatically adapts emissions to the patient's size. These features make it possible - in cases where it is necessary to examine an anatomical site from different perspectives - to obtain a regular volumetric tomographic image using a dose equivalent to two traditional X-ray imaging doses.

In addition, the doctor can manually modulate emissions to reduce the dose or generate new exposure protocols. Lastly, a 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 can use four 3D protocols that allow the X-ray dose to be adjusted to actual diagnostic needs. With the Low Dose protocol, the X-ray dose can be reduced by up to 80%: approximately 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. for post-operative follow up and early diagnosing of orthopaedic conditions).



## ADAPTIVE EXPOSURE CONTROL

SafeBeam™ technology automatically adapts CBCT and CineX emission parameters to the framed anatomical area and adapts the emitted dose to each patient's small, medium or large size.

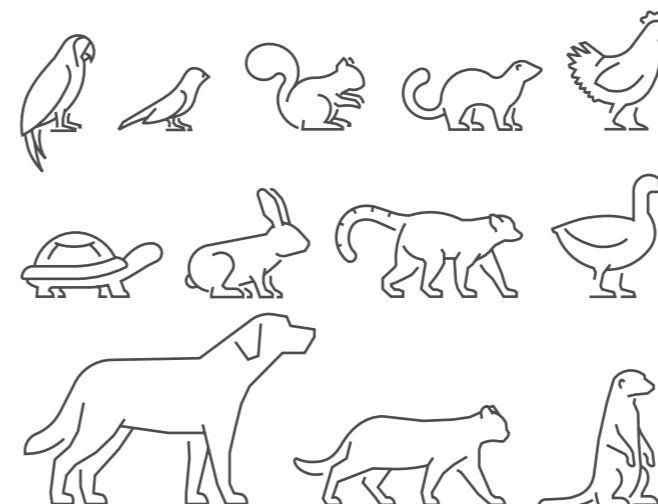


## 2D RADIOGRAPHY

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, doses, can be adapted to actual requirements.

## ADAPTIVE FOV

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 allows image quality optimisation through the choice of the most suitable FOV for the anatomical area to be examined.



## VACUUM CUSHION SET

To make positioning operations easier, a vacuum cushion kit is available. A versatile tool, which easily adapts to the patient's size and helps immobilization.





# 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 AND I.O.T.

By connecting the device to the Internet, it is possible to carry out remote technical assistance and monitor operation with Di.V.A. and Easy Check from an I.o.T. perspective. The device will send information on its own performance and any critical issues.

## 3D/2D VIEWER

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

## 1:1 PRINT

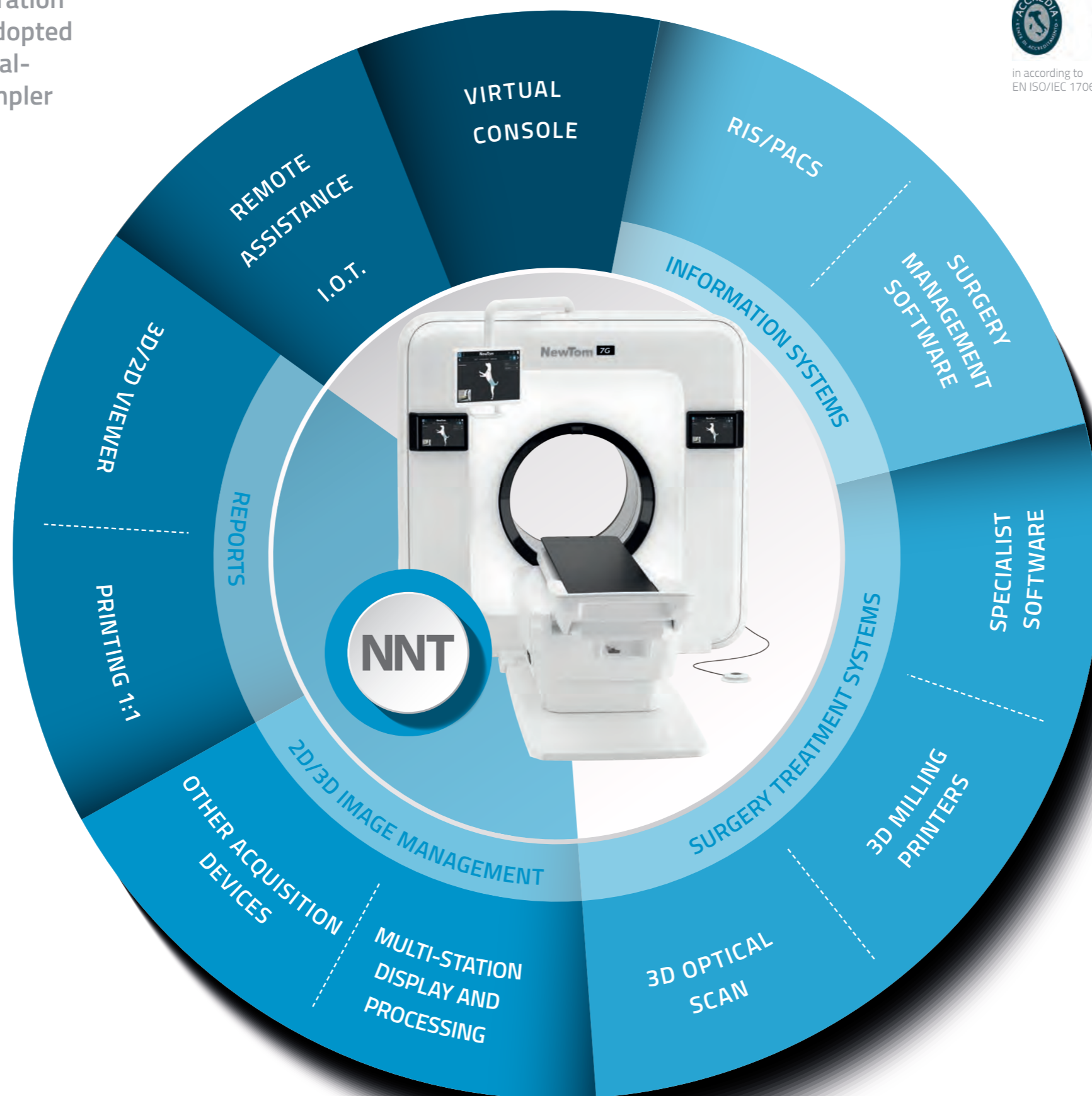
Complete and flexible report system for storing and sharing colour reports on photographic paper or grey scale reports on X-ray-equivalent transparencies.

## 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 password-protected data.



in according to  
EN ISO/IEC 17065:2012

## 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.

## Di.V.A. AND EASY CHECK

To ensure maximised workflow smoothness, the Di.V.A. digital virtual assistant provides data and usage statistics to plan workloads and maintenance. The Easy Check tool also ensures continuous remote technical monitoring, facilitating maintenance scheduling and providing early resolution of any issues.

## RIS/PACS

IHE compliant system that allows communication with RIS/PACSystems 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 veterinary clinic management software applications via 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.

# INDUSTRY 4.0.

