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TRUMP in the field of Medical industry

---------- Medical imaging system

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Spiral CT scanner system

TRUMP-CT-001

Introduction:

This Spiral X-ray CT Scanner system is evolved from American Anologic Inc., which adopts advanced outer space energy technique and wireless RF transmission technique. Non-contact free sliding technology brings a profound revolution for Spiral X-ray CT which avoids many CT maintenance problems. Creatively using outer space energy technique lowers down the CT electricity consumption by 90%.When working it just needs 3kw and when standbying it just needs 1.2kw. Plugging-use, no need of high-power voltage and UPS are the characteristics of the product. High-sensitivity solid detector with short geometry design ensures a high quality image. Low X-ray dosage can protect patients and doctors which make the product to be a truly green CT.

Technical specifications:

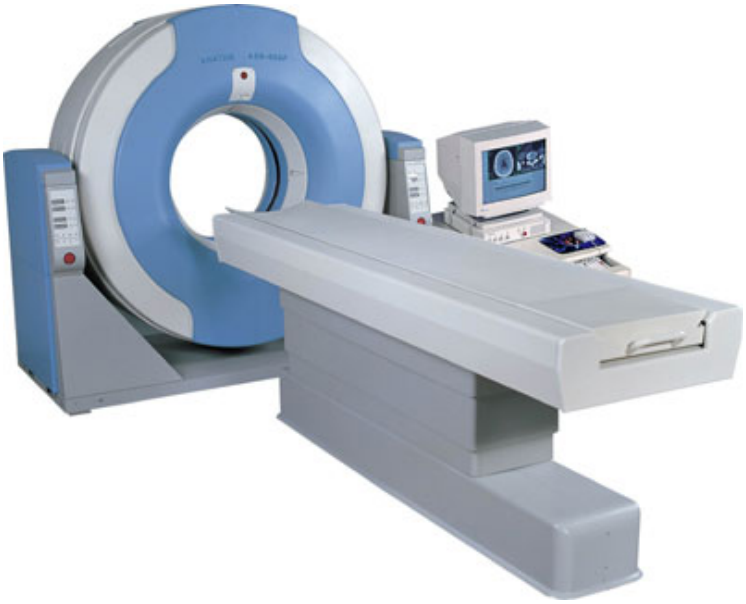
Basic Configuration
Gantry, Patient Table, Console, System software
Comprehensive Specifications
Scan Time 1.5, 2, 4, 6Sec (360° Rotating)
Slice Thickness 2，3，5, 7, 10mm
Image Reconstruction Time 1 Second
FOV 4.6 46cm
Image Display and Processing
Matrix 512X512
Format Display 1, 4 or 16 frames at the same time

Low-contrast resolution 3mm @0.3%, (120mAs, 120KV)
High-contrast resolution 10Lp/cm (~0%MTF)
Spiral Scan 360° 1.5 Second
Max. Continuous Acquisition Time: 50s, 70s
Patient Table Progressing Speed: 1mm/second-10mm/second

Gantry
Aperture Size 60cm

	Tilting Angle +30° /-25°
	Gantry Dimensions 197cmx86cmx184cm (L X W X H)
Patient Table	
	Vertical Movement 53-86cm
	Horizontal Movement 130cm, 152cm (with head support)
X-ray Tube:	Varian Rotating Anode X-ray Tube
	Focus Size: 1.7mmX0.7mm
	Anode Heat Capacity: 600KHU (equivalent to 1.8MHU of conventional CT)
	1MHU (equivalent to 3MHU of conventional CT)
Detector	Solid-state Detector
Computer System	IBM Pentium4
	(Main Frequency: 2.4GHz)
	Memory 256M
	Hard disk 40G
	Network Interface Ethernet
	System Interface DICOM3.0
	Display 19" color display
Weight	
	Gantry 460 Kg
	Patient Table 240 Kg
	Console 100 Kg
	Total 800 Kg
Environment Requirements	
	Site Area 19 square meters (Min)
	Environmental Temperature 15°C - 40°C
	Temperature Change 6°C/hour (Max.)
	Relative Humidity 30%-85%, non-condensing
	Voltage 88V 264V r.m.s, single phase
	Frequency 47 63 Hz , ,
	Max. Power Consumption Working <3KW, Standby 1.2KW

TRUMP-CT-002



Introduction:

This Spiral X-ray CT Scanner system is evolved from American Anologic Inc, which is the newest design based on TRUMP-CT-001, It is compact structure and strong adaptability to environment. Non-contact sliding technique brings CT a conceptual reform. Creative power supplying and RF data transmission make the CT revolve without friction, which means when the machine is running, it can avoid abrasion and fire-striking. Top-class Varian tube makes the CT much more durable. High-sensitivity solid detector with shorter geometry design ensures a high quality image. Low X-ray dosage can protect patients and doctors which makes it to be a truly green CT. Space station power saving technique creatively lowers down the CT electricity consumption by 90%. It sets up with only 3kw. If there is a sudden power-off during scanning, there is no damage to CT and 25 frame films could be completed continually.

Powerful Software Function

- Plain Scan
- Localization Scan
- Dynamic Scan
- Helical Scan
- MPR
- DICOM3.0 Interface
- Image Post Processing—Zooming, Measuring, etc
- Chinese /English User Interface
- 3D
- CTE
- Bone Density Measurement
- CTA

- Patient Record Printing

Technical specifications:

Basic Configuration
Gantry, Patient Table, Console, System software
Comprehensive Specifications
Scan Time 1.5, 2, 4 Sec
Slice Thickness 2，3，5, 7, 10mm
Image Reconstruction Time 1 Second
FOV 4.6 46cm
Image Display and Processing
Matrix 512X512
Format Display 1, 4 or 16 frames at the same time
Low-contrast resolution 3mm @0.3%, (120mAs, 120KV)
High-contrast resolution 10Lp/cm (~0%MTF)
Helical Scan 360° 1.5 Second
Continuous Exposing Time: 50, 70 Sec
Channel Number: 768
Patient Table Progressing Speed: 1mm/second-10mm/second
Gantry
Aperture Size 60cm
Tilting Angle +30° /-25°
Gantry Dimensions 197cmx86cmx184cm (L X W X H)
Patient Table
Vertical Movement 53-86cm
Horizontal Movement 130cm, 152cm (with head support)
X-ray Tube: Varian Rotating Anode X-ray Tube
Focus Size: 1.7mmX0.7mm
Anode Heat Capacity: 600KHU (equivalent to 1.8MHU of conventional CT)
1MHU (equivalent to 3MHU of conventional CT)
Detector Solid-state Detector
Computer System IBM Pentium4
(Main Frequency: 2.4GHz)
Memory 256M
Hard disk 40G
Network Interface Ethernet
System Interface DICOM3.0
Display 19" color display

Weight
Gantry 460 Kg

Patient Table 240 Kg
Console 100 Kg
Total 800 Kg

Environment Requirements

Site Area 19 square meters (Min)
Environmental Temperature 15°C - 40°C
Temperature Change 6°C/hour (Max.)
Relative Humidity 30%-85%, non-condensing
Voltage 220V, ±10%, Single Phase
Frequency 57-63 Hz, ,
Max. Power Consumption Working ≤3KW Standby = 1.2 KW

TRUMP-CT-003

Advantages

Fast speed

- Achieve volume scanning of interested positions with one breath hold
- No-interval data acquisition, reduces missed diagnosis
- Reduce breath/motion artifactsFast

Thin slice

•Improve detection rate of tiny pathological changes
•High resolution reconstruction
•Provide data for high resolution 2D/3D reconstruction

Strong spiral scanning ability

•80Second continuous scanning

Advanced hardware design

•X-ray tube: Large heat storage capacity：3.5MHU
Special designed for 1sec and sub-second spiral CT scanner
•28kW generator
•Super high speed GOS solid detector
•Slip ring and brush assembly
•UniversalPentium Ⅳworkstation
•Advanced gantry technology with SID optimization

Abundant image processing functions

•Powerful R&D ability
•Comprehensive reconstruction/compensation technologies
•Abundant image post-processing functions
•Exceptional image quality

System Configuration

Components	Description
Gantry	
	Low voltage Slip-ring rotating gantry 28 KW High Voltage Generator Varian 3.5MHU, Dual focus, oil-cooled, Metal Tube High sensitivity GOS Solid-state Detector
Patient table	
	Motorized table with height control and table longitudinal movement control Maximum patient loading of 200Kg
Operating Console	
	3.0GHz Pentium IV CPU 512MB memory 80GB Hard disk 19" high resolution LCD Monitor CD-R/W for image achive in DICOM 3.0 format

	DICOM print output
	Windows 2000 Operating System
Application Package	
	Multi-Planner Reconstruction (MPR), Curved Multi Planar Reconstruction (CMPR),Maximum Intensity Projection (MIP), Minimum Intensity Projection (minIP),
	CT Angiography (CTA), Virtual Endoscopy (VE), Segmentation, Surface Shaded
	Display (SSD), Volume Rendering (VR)
Accessories	
	One set of Patient Positioning pad
	One set of Water Phantom and positioning kit
	One set of maintenance tools
Documentation	
	Operating Manual
	Service Manual
	Technical Manual
	3D Operating manual

System Specification

1. scanning system

Scanning time: 1, 1.5, 2, 2.5, 3, 4 Second/360°
Slice Thickness: 1, 2, 3, 5, 10mm
Image Reconstruction Time: 1Sec/ Image
Reconstruction Matrix: 512×512
FOV: 50-500mm

2. image resolution

High Contrast Resolution: 13 lp/cm@0%MTF; 11 lp/cm@10%MTF
Low Contrast Resolution: 3.0 mm@0.5%
Noise: ≤0.35%

3. spiral scanning

Continuous Spiral Scanning Time: 80 seconds
Continuous Spiral Scanning Length: 1200mm
Pitch Range: 0.5:1 ～ 3:1

4. equipment configurations

Gantry Aperture: 70cm
Gantry Tilting Angle: ±25°

Slip Ring: Silver alloy slip ring brush set

5. patient table

Vertical Movement Range: 430-980mm
Horizontal Movement Range: 1600mm
Scanning Movement Range: 1300mm
Horizontal Movement Precision: 0.25mm
Maximum Permitted Load: 200kg

6. X-ray tube

Heat storage capacity: 3.5MHU metal tube
Maximum Anode Heat Dissipation Rate: 394 KHU/min
Tube focus: small focus 0.7×0.8 (mm)
large focus 1.2×1.4 (mm)

7. detector

Material: GOS
Channel Numbers: 688
X-ray Fan Beam: 47.76°

8. high voltage generator

Power Output: 28KW
Voltage Output: 80-140KV
Maximum Current Output: 200mA

9. computer system

CPU: Pentium IV 3.0GHz
Memory: ≥ 512 MB
Hard Disk: ≥ 80GB
Monitor: 19”LCD
Display Matrix: 1280×1024
Operation System: Windows 2000
Archive options: CD-RW
DICOM 3.0 compatible: Yes, DICOM Print/Store

10. image processing functions

Beam hardening compensation
Volume artifacts calibration
Motion artifacts calibration

Metal artifacts reduction
Adaptive steak artifacts reduction
Lung intensification
Advanced noise reduction

11. 3D image processing software

Multi-planar reconstruction (MPR);
Curve multi-planar reconstruction (CMPR);
Maximum Intensity Projection (MIP);
Minimum Intensity Projection (MinIP)
Surface Shaded Display (SSD);
Volume Rendering (VR);
Tissue segmentation;
CT-Angiography (CTA);
Virtual Endoscopy (VE)

Environment Requirements

Power requirements

Power output	50 KVA
Voltage	380V, 3-phase, four-wire power supply (400-480v optional)
Frequency	50Hz/60Hz(optional)
3-phase imbalance	≤5%
Ground resistance	≤4Ω

Environment Requirements

	Min. Area	Temperature	Relative Humidity	Air Pressure
Scan Room	20 m^2	18℃- 24℃	30%-60% (non-condensing)	70Kpa-106Kpa
Operation Room	4.8 m^2	18℃- 28℃	20%-80% (non-condensing)	

TRUMP-CT-004 (Dual)

- Sub-second full 360°scanning, sub-second reconstruction time and sub-millimeter slice thickness
- Optimal dosage control and low dosage scanning protocol for children
- Automatic process control ensures convenient scanning management
- DICOM 3.0 standard interface

TRUMP-CT-005 (Dual)

- Large 70 cm gantry aperture
- Tow Images per second acquisition
- Sub-second image reconstruction
- Large capacity 4.0 MHU X-ray tube
- Maximum 80 seconds continues scanning
- Comprehensive application package to meet all clinical requirement

TRUMP-CT-006

- Dual Pentium workstation for system control and image reconstruction
- 30 KW High frequency X-ray generator
- Interactive user interface
- Large capacity 1.5MHU X-ray tube
- Large Image Storage Capacity
- Image Archive with CDRW
- DICOM 3.0 Interface