

NeuViz Prime CT Configuration



NeuViz Prime - Spectral Imaging

World First Blitz Spectral CT

NeuViz Prime is a revolutionary product of Neusoft CT family. Gantry rotating faster than ever before, lower doses and spectral imaging option are all offered relied on leading-edge hardware and software reformations.

Based on Windows 7 Operation System

NeuViz Prime console is configured with Windows 7 operation system, offering safer working environment and more humanized operation interface.

Patient ID	Patient Name	Study Type	Sex	Date of Birth	Study ID	Study Description	Requester	Requester's Hospital	Referring Doctor	Referring Doctor's Hospital
C23-02494	HWUSA	2012-03-10 08:24	Male	1958-09-07	C23-02494	Abdominal CTA	0 kg	0 cm	1447748	
20120505-1	HWUSA	2012-05-07 14:51	Male	1958-10-10	S-201205050501	CARDIAC AND CCS	0 kg	0 cm		
C246797	HWUSA	2012-03-11 11:03	Male	1945-01-01	S-201203110348	ABDOMEN WITH AND WITHOUT CONTRAST	0 kg	0 cm		
20120505-5	HWUSA	2012-03-11 09:17	Female	1955-01-01	S-201203110348	ABDOMEN WITH AND WITHOUT CONTRAST	0 kg	0 cm		
20120505-9	HWUSA	2012-03-10 15:44	Female	1958-01-01	S-201203100941	Cardiac CTA	0 kg	0 cm		
20120505-3	HWUSA	2012-03-10 14:51	Male	1955-01-01	S-201203100941	Coronary with stent	0 kg	0 cm		
20120505-1	HWUSA	2012-03-14 14:12	Male	1956-01-01	S-201203140749	Coronary flow IV	0 kg	0 cm		
20120505-6	HWUSA	2012-03-01 14:58	Male	1944-01-01	S-201203010728	Coronary CTA with soft plaque	0 kg	0 cm		
20120505-8	HWUSA	2012-03-01 15:07	Female	1944-01-01	S-201203010728	Coronary CTA	0 kg	0 cm		
20120505-2	HWUSA	2012-03-12 15:14	Male	1955-01-01	S-201203120342	Coronary CTA with calcium plaque and soft	0 kg	0 cm		
201211085	CANUSA	2012-11-18 11:32	Male	1973-08-01	S-201211180400	Chest and Abdomen with and without contrast	0 kg	0 cm		
Anonymous02	HWUSA	2012-03-21 09:55	Male	1947-01-01	S-201203210321	Cardiac CTA	0 kg	0 cm		
947215 PE	CHINA	2012-07-28 09:57	Male	1942-01-01	PE CTA	0 kg	0 cm			
20120505	HWUSA	2012-03-10 14:51	Male	1955-01-01			0 kg	0 cm	1447748	1447748

Image Number	Scan Type	Image Number	Image Type	Image Number	Image Type	Image Number	Image Type	Image Number	Image Type	Image Number	Image Type
1	Sumner	1	DCOM	N/A	1	CT					
2	Reform	54	DCOM	Long	2	CT					
3	Reform	54	DCOM	Long	2	CT					
4	Sumner	2	DCOM	N/A	3	CT					
5	57	DCOM	N/A								
6	Acad	1	DCOM	120	3	CT					
7	Acad	12	DCOM	120	4	CT					
8	Reform	278	DCOM	Comp	7	CT					
10002	1	DCOM	N/A								
10003	1	DCOM	N/A								
10004	1	DCOM	N/A								
10005	1	DCOM	N/A								
10006	1	DCOM	N/A								
10007	1	DCOM	N/A								

New Operation Interface and Convenient Work flow.

A top-level workflow bar directs users to important tasks, providing a structured workflow that also allows users to easily switch among functions without losing current work. This provides high efficiency and necessary flexibility for viewing and performing applications, filming and reporting.

New Advanced Technology

Ultra-high speed, unlimited tube heat capacity, ultra-low dose design, brand-new Iterative algorithm and more advanced post-processing applications provide patients with more value-added clinical service.



NeuViz Prime
Acceleration NEVER ends...

Hardware Configuration

Gantry System

Aperture: 72 cm

Scan FOV: Large: 500mm±2mm
Medium: 330 mm±2mm
Small: 250 mm±2mm

Tilt: $\pm 30^\circ$

Rotation Time: 0.259s*, 0.32s, 0.374s, 0.4s, 0.5s, 0.6s, 0.8s, 1.0s, 1.5s, 2.0s

Partial Rotation Time (240°): 0.17s*, 0.21s, 0.24s, 0.26s, 0.32s, 0.39s, 0.52s, 0.65s, 0.97s, 1.29s

Temporal Resolution: 25ms

Focus to iso-center Distance: 570mm

Focus to detector Distance: 1040mm

Information Display System: All those information will display including patient information, ECG signal, and current system status, even the entertaining graphics.
Operation Panel: 4 sets in both front and back sides of gantry.

Laser Light: 5 laser light localizers

The accuracy of the external/internal laser light localizer is $\pm 2\text{mm}$.



Data Acquisition System

Max. number of Slices: 128 Slices/Rotation

Number of Detector Rows: 64 Rows

Number of Detector Elements: 672X64

Total Channels per Slice: 1344

Detector Width: 40mm

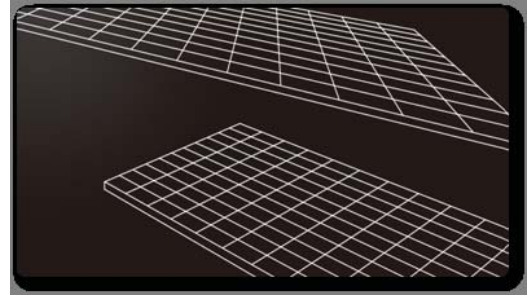
Number of Projections: 4640

Detector type: Solid-state GOS ceramic

Ultra low afterglow;

Special design to minimize electronic noise;

High geometric efficiency



X-ray Tube & Generator

Tube Anode Heat Storage Capacity: Unlimited MHU

Cooling Rate: 1696kHU/min

Cooling System: oil

Focal Spot Size: 0.4x0.7(Extra small) 0.6x0.7(Small) 1.1x1.2 (Large)

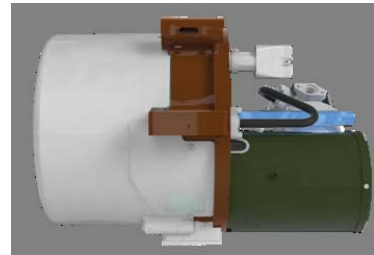
Ultra-high patient throughput

Max. Generator Power: 100kW

Generator Type: High Frequency

Tube Current Range: 10mA~833mA

Tube Voltage: 60kV, 70kV, 80kV, 100kV, 120kV, 140kV



Patient Table

Max. table Load: 205kg/452 lbs (300kg/661lbs for option)

Table Feed Speed: .0375mm/s-464mm/s

Vertical Table/Travel Range: 430mm-970mm

Vertical Travel Speed: 9 mm/s-15mm/s

Horizontal Movement Range: 0-1770mm

Table pad material: Carbon Fiber

Position Accuracy: $\pm 0.25\text{mm}$



Host Computer System

The host computer workplace provides an intelligent and reliable workflow for data acquisition, image reconstruction, and routine post processing at the CT scanner.

Operation System: Windows 7

Host Computer:

CPU: 4-core, 3.5GHz

RAM: ≥16G

Data Hard Disk: ≥1TB (1,920,000 512 x 512 Images or 520,000 1,024 x 1,024 Images)

Recon Computer:

CPU: 2 x(8-core, 3.2GHz)

RAM: ≥128G

Data Hard Disk: ≥6T

Recon Card: 3*(LeadTek GTX 1060)

Dual Monitor:

Flat Screen Monitor 19" (48cm)

1,280 x 1,024 Resolution

1,024 x 1,024 Image Display Matrix

0.29mm pixel size

Additional Storage: CD-R Drive: 700 MB CD Media (1,100 Images); DVD DICOM Drive: 4.7 GB DVD Media (8,400 Images)

DICOM Viewer: Included on each CD or DVD; Automatically started on the viewer's PC

AVW Workplace System

AVW workplace provides an unique advantage of an efficient multi-modality diagnostic workflow at a single workplace. It manages the clinical diagnostic workflow anywhere within the clinical environment.

High-Performance Computer: Windows 7

Standard Monitor: Flat Screen Monitor 19"

Dual Monitor*: AVW supports dual monitors

CPU: 6-core HT 3.5GHz

RAM: ≥16GB

Data Hard Disk: ≥1TB (1,920,000 512 x 512 Images or 520,000 1,024 x 1,024 Images)

Additional Storage: CD-R Drive: 700 MB CD Media (1,100 Images); DVD DICOM Drive: 4.7 GB DVD Media (8,400 Images)

DICOM Viewer: Included on each CD or DVD; Automatically started on the viewer's PC



System Performance

Scanning

Survey

Max. Length: 1650mm

Scan width: 500mm

Views: A.P., P.A., Lateral, Dual

Real-Time Topogram: Yes

Sequence Acquisition

Sequence Acquisition Mode:

128x0.625, 64x0.625, 32x0.625, 16x0.625, 8x0.625, 8x0.3125, 2x0.625

Reconstructed Slice Thickness: 0.3125, 0.625, 1.25, 2.5, 5, 10mm

Max. Length: 1750mm

Multi-slice Spiral Acquisition

Spiral Acquisition Mode: 128x0.625, 64x0.625, 32x0.625, 16x0.625, 16x0.3125, 8x0.625

Reconstructed Slice Thickness: 0.4, 0.625, 0.8, 1, 1.25, 1.5, 2, 3, 4, 5, 10mm

Spiral Scan Time: Max. 100 s

Scan Length: 1650mm (slice width: 128 x 0.625mm) ; 1700mm (slice width: 64 x 0.625mm)

Pitch: 0.13-1.5

Image Reconstruction

Real-Time Display: Real-time image display during spiral acquisition.

Recon Field: 5–50 cm

Recon Time: Up to 40 images/s with full cone beam reconstruction

Recon Matrix: 512x512, 768x768, 1024x1024

Display Matrix: 512x512, 768x768, 1024x1024

HU Scale: -32,768 to +32,767



Image Transfer/Networking

Interfaces for transferring medical images and information use the DICOM standard. It facilitates communications among devices from different manufacturers.

Verification: Provider/User

Storage: Provider/User

Storage Commitment: User

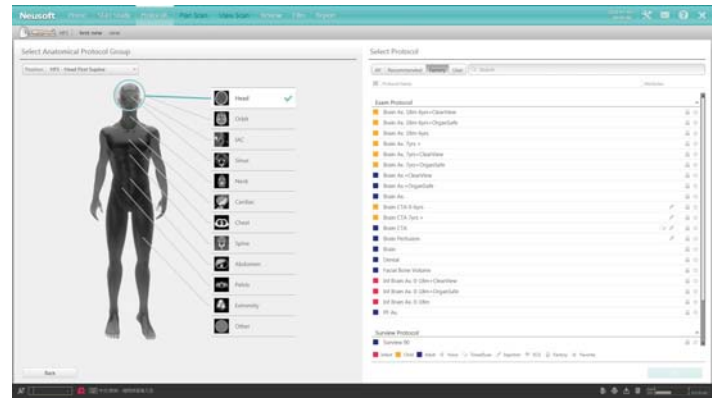
Query/Retrieve: Provider/User

DICOM Print: User

Modality Worklist: User

MPPS: User

DICOM structured Dose Report: Provider



Up to 10,000 protocols can be edited, modified and stored. Doctors can modify and create the protocols freely!

Image Quality

Low-contrast Resolution

Low-contrast resolution is the ability to see a small object (mm)

with a certain contrast difference (HU)

On a particular phantom

at a certain mAs value (mAs)

with a particular patient dose (mGy)

Low contrast resolution: 4.0mm@0.3%
3.0mm@0.5%
2.0mm@1%

Image noise: $\leq 0.35\%$

Technique: Phantom Catphan 600

280mA, 120kV, 1s, 10mm (Large SFOV)

Uniformity of CT value: Less than $\pm 4\text{HU}$

Accuracy of CT value: Air: $-1000\text{HU} \pm 10\text{HU}$

Water: $0\text{HU} \pm 4\text{HU}$

High-contrast Resolution

X-Y Plane

0%MTF 17lp/cm, 0.29mm

10%MTF 11lp/cm, 0.45mm

50%MTF 7.5lp/cm, 0.67mm

Z Plane

0%MTF 15lp/cm, 0.33mm

X-Y Plane(iHD)

0%MTF 30lp/cm, 0.17mm

10%MTF 25lp/cm, 0.20mm

50%MTF 15lp/cm, 0.33mm

Z Plane(iHD)

0%MTF 24lp/cm, 0.21mm

The central dose of the head is not more than 40mGy.

The central dose of the body is not more than 20mGy.

iHD

The iHD function can improve the spatial resolution of the system, the high reconstruction can be achieved 30lp/cm@0%MTF through iHD.

Software Configuration

O-Dose: Low Dose Design

Auto kV: Automatic kV setting to optimize CNR, to minimize radiation dose based on different organs and contrast scan.

60kV scanning: Maintains contrast concentration while reducing radiation doses.

New detector material: Modular design offering low dose necessary to deliver exquisite image quality.

Organ safe: Reduces dose to radiosensitive organs such as eyes, thyroid and breasts.

Dose check: Dose alarm keeps patients from being over radiated.

ECG-DOM: Reduces tube current during non-imaging phases of cardiac cycle to minimize patient dose.

Auto SFOV: It automatically changes SFOV based on targeted organ and patient size to have lower doses.
Pediatric protocol: Designed specifically for pediatric anatomy

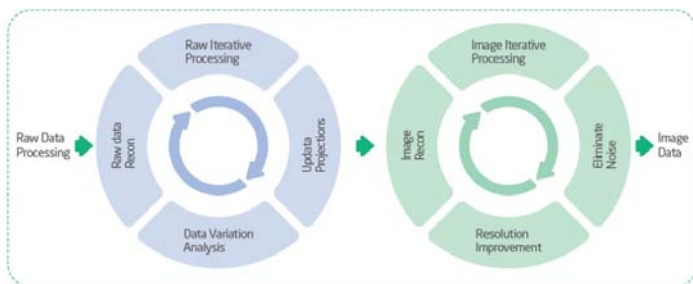
Pediatric protocol: Designed specifically for pediatric anatomy.

3D dose modulation: Tube current modulated based on the anatomy in the scan field.

240 degree exposure: Doses to patient and attending physician are reduced.

ClearView

ClearView iterative reconstruction provides nine different recon levels, respectively corresponding to different levels of image noise.



AutoVoice

A standard set of commands for patient communication before, during and after scanning.

AutoFilm

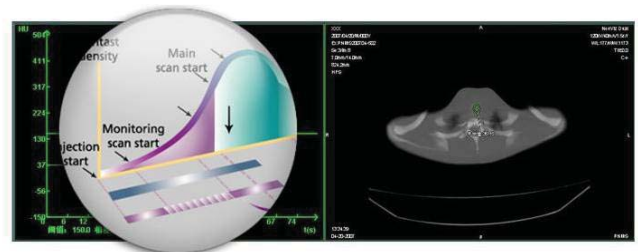
Pre-stored protocols can be set to include auto-filming. The operator can film immediately after each image, at the end of a series, or film after the end of a study and review images prior to print. The operator can also manually film.

SAS

Spiral Auto Start integrates the injector with the scanner, allowing the technologist to monitor the contrast injection to check for extravasation and to initiate and stop the scan (with the pre-determined delay) while in the scan room.

Bolus Tracking

An automated injection planning technique that permits users to monitor actual contrast enhancement and initiate scanning at a predetermined enhancement level. Combining with SAS, it is for full automation and efficacy.



Filming

Film Edit

Print Preview

Images Management

Basic gray and color DICOM Print Function

Normal Printing

Send Images to Report

Send Images to other Data Sources

Show surview lines

Allow users to set and store camera parameters

Report

- Create, Edit, Confirm, Save, Manage, Export report
- Manage case template
- Template management: create, delete and edit
- Support structured reports

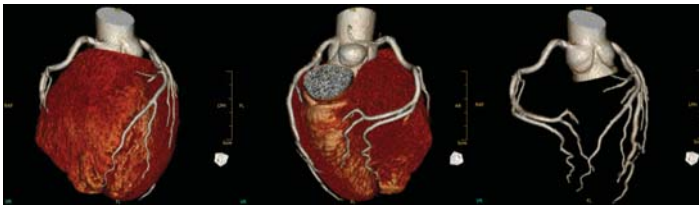
Cardiac Scan

- Prospective ECG scan
- Retrospective ECG scan and multi-phase reconstruction
- Retrospective ECG scan mA modulation
- ECG wave edit

Cardiac Viewer

Can view cardiac images and provide measurement tools;

- Providing MPR and 3D view
- Can switch data between different phases
- Comparing different phases data
- 4D playing
- Displaying three cardiac MPR images
- Providing Oblique MPR display
- Defining CPR



AVW Ready for Reading*

The specified image data can be preprocessed before the user review them. For example, following processing will be done before the user review the image data: bone removal, couch removal, vessel extraction etc.

Networking

Supports 100/1000Mbps

Image Review

- Support displaying Image, operation, measurement and other functions.
- Display, zoom, pan Image, adjust window width and window level.
- Preset window width and window level.
- Measure ROI.
- Show image information.
- Display location lines and survview image.
- Compare series.
- Batch function.
- Support Image storage, including SecondaryCapture, BMP, PNG, JPG, TIFF, Derived Image and PS

Artifact Reduction

- Beam hardening compensation
- Metal artifact reduction
- Motion artifact reduction
- Volume artifact reduction
- Adaptive streak Artifact reduction
- Lung intensification
- Advanced noise reduction

CINE Display

Display of Image Sequences

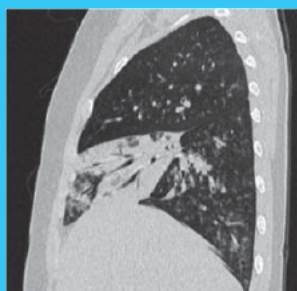
Automatic or Interactive with Mouse Control Max.

Image Rate: 30 frames/s

eCare*

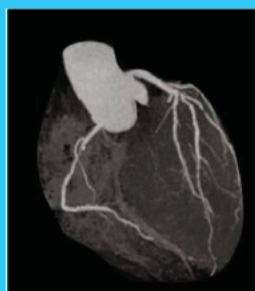
Reconstructed information are cloudly stored and shared between server and mobile terminals. Remote images browsing and diagnosis are realized by mobile devices.

Clinical Applications



MPR/CMPR

Real-time reformation of axial images into any userdefined plane - coronal,sagittal or general oblique – or curved plane. Interactive and friendly user interface is provided.



MIP/MinIP/AveIP

Maximum,Average or Minimum Intensity Projection. Projection images can be interactively generated in any arbitrary viewing angle,and can be windowed,zoomed and panned.



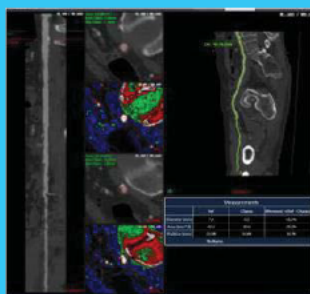
VR/3-D/SSD

3D visualization software provides unique simultaneous visualization of vasculature, soft tissue and bone. Permit viewing through and beyond surrounding structures.



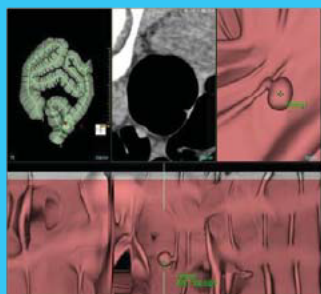
VE

Fly-through images within and around hollow organs. Clinical applications include virtual colonoscopy, bronchoscopy,and angiography.



Vessel Analysis

One click bone removal; Vessel centerline extraction; Various review modes may be used: Volume Rendering ,MIP,MPR, CPR; Measurements are provided for vessel assessment, including maximum and minimum cross section diameters, lumen areas.



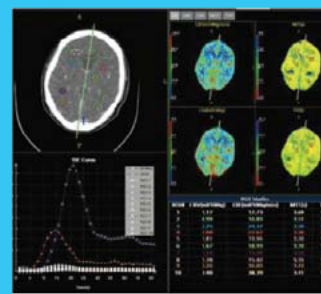
Virtual Colonoscopy

Virtual colonoscopy application is a clinical application for the viewing and evaluating of virtual colonoscopy CT images. The application is an interactive tool to help visualize colon anatomy, find polyps and assess their characteristics.



Dental Analysis

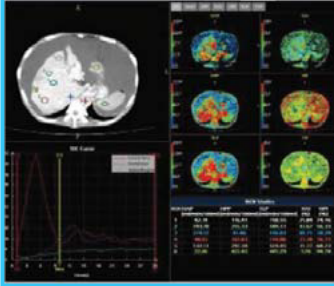
Dental Analysis is designed for assisting oral surgeons in planning implantation of prostheses. It has following features: Display panoramic views of dental; Display cross-sectional planes of dental; Filming the panoramic and cross sectional images in true size.



Brain Perfusion

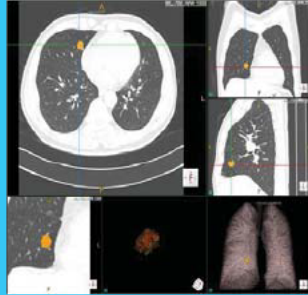
Brain Perfusion is a blood flow imaging application, It has following features: Preprocess image Calculate CBF, CBV, MTT, TTP Map; ROI and TDC display; Send result to Film & Report.

Clinical Applications



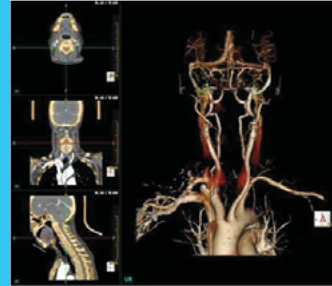
Body Perfusion

Application for the quantitative analysis of renal, hepatic, and pancreatic blood flow. A valuable tool in tissue characterization, risk stratification and monitoring treatment effects.



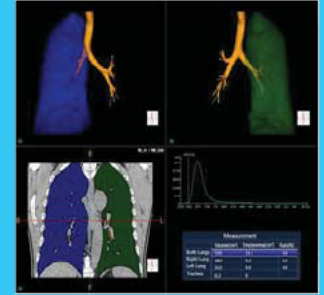
Lung Nodule Analysis

Application assists the radiologist with detection and quantification of pulmonary nodules and lesions. Single click segmentation. Nodule volume calculation. Follow up support.



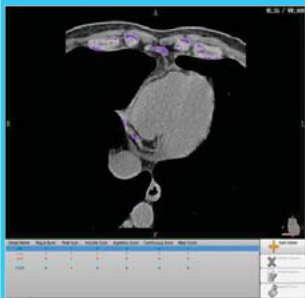
Nerve System DSA

Application is used to remove boney structures and reveals vascular structure in the skull. It has following features: Auto registration of contrast and without contrast series; Auto subtraction of bone structures; Rendering Modes: VR, MIP and MPR.



Lung Density

Provides quantitative (volumetric) lung emphysema measurements and a visual representation of the diffusion of the emphysema. It has following features: Automated left and right lung segmentation; Left and right lung emphysema measurements.



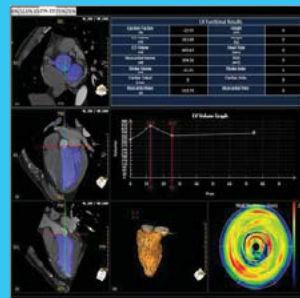
Coronary Calcium Scoring

Coronary Calcium Scoring application is used to estimate the amount of calcium in the coronary arteries.



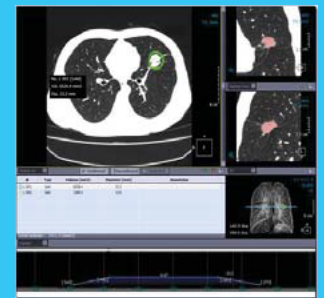
Coronary Artery Analysis

Analyzes coronary artery disease from CT Scan data: Automatic Cardiac cage removal; Automatic Cardiac Segmentation and Cardiac Artery tree extraction; Manual Segment of cardiac artery;



Cardiac Function Analysis

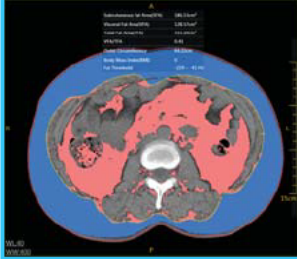
Allow you to analyze a variety of heart functions, including: Left ventricular volumes; Ejection fraction; Left ventricle wall motion and thickening; Using Simpson or Segmentation methods of calculation; 4D Rendering



Tumor Assessment*

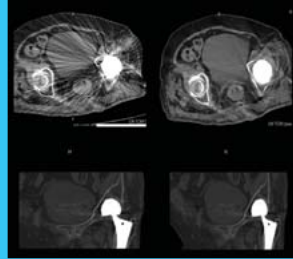
Application can provide tumor segmentation and measurements from CT Scan series: One click tumor segmentation; Tumor diameter and volume calculation; Follow up support; RECIST measurement support.

Clinical Applications



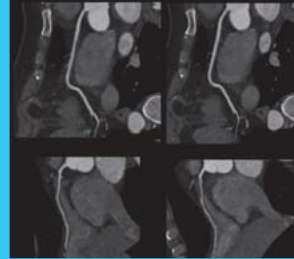
Fat Analysis*

Used to analyze fat of abdomen, including calculating the area of subcutaneous and abdomen fat and waist circumference, etc. Segmenting the subcutaneous and abdomen fat function, saving and reading processed result.



MAR+ (Metal Artifact Reduction)*

Changes the algorithms in the abnormal area with high pixel value by creating the human mode, which removes the highlighted artifacts and returns it to the real tissue structure.



Coronary Motion Clear*

During coronary CTA, coronary artery would be inconsistent or have blurring in the vessel edge because of the insufficient temporal resolution at a certain time point. CMC traces and synchronizes coronary motion path, improving temporal resolution and removing artifact.



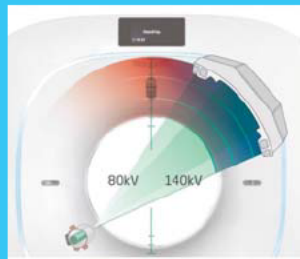
Arrhythmia Handling*

The ECG signal of premature beat can be automatically recognized. The exposure will not start until the next normal cardiac cycle, which avoids mistake of the acquisition in premature beat cycle.



Continuous CT*

Continuous CT (CCT) is a scanning mode that allows the physician to perform extended, lowdose scans while performing a biopsy. The resulting images display on a remote monitor in the scan room, providing near-real-time visual feedback during biopsy.



Dual Energy Scan and Recon

Dual energy post-processing is available on AVW workstation. Providing dual energy images visualization and measurement tools:

- automatic best CNR selection
- multi-material separation
- mono energy monochromatic image
- virtual non-contrast image, etc.

Dimensions & Weight

Gantry Dimensions: 2198mm(L) x 938mm(W) x 1910mm(H)
Gantry Weight: 1800kg
Gantry Package: 2370mm(L) x 1030mm(W) x 2250mm(H)

Couch Dimensions: 2540mm(L) x 643mm(W) x 1055mm(H)
Couch Weight: ≤ 360 kg
Couch Package: 2770mm(L) x 970mm(W) x 1230mm(H)
Console Table: 600mm(L) x 800mm(W) x 675mm(H)

Power Supply Requirement

Power Capacity: 125KVA;
Input Voltage: 380/400VAC
3-phase 5-line
3-phase 4-line (with isolate transformer)
Power supply from below options:
190/200/208/220/230/240/380/400/415/440/460/480
VAC
Voltage Variation: tolerance $\leq +10\%$
3-phase Unbalance: $\leq 5\%$
Frequency: 50Hz/60Hz ± 1 Hz
Grounding Resistance:
Independent Grounding Resistance $< 4\Omega$;
Common Grounding Resistance $< 1\Omega$

Environment Requirements

Temperature of Scan room : 18°C~24°C
Temperature of control room: 18°C~28°C
Humidity of Scan room : 30%~60%
Humidity of Control room: 20%~ 80%
Atmospheric Pressure: 70kPa~106kPa
Temperature of Transportation and Storage : -20°C
~+55°C;
Humidity of Transportation and Storage: 10%~90%
(no-condensing)
Running Noise: < 70 dB(A-weighted)

CT Site Planning

Min. Area of Scanning room: 5550mm \times 3650mm
Min. Area of Operating Room: 1700mm \times 3650mm

Recommended Room Size:
Operating Room: 3000mm \times 4600mm
Scanning Room: 6000mm \times 4600mm
Min. Height of Ceiling: 2010mm

Accessory

- Isolation Transformer
- QA Phantom
- Cervical Vertebra Cushion
- Arm-Head Cushion
- Knee Joint Cushion
- NMS Head Holder Assly
- Head Holder Cushion
- Belt 1/2/3
- Arm Support
- Coronal Head Holder
- Coronal Cushion
- Head Side Cushion- L/M/S
- Cradle Handle
- Couch Extension
- Couch Extension cushion
- UPS for console
- Tool Box
- Gantry Transportation Dolly
- Couch Transportation Dolly

*means option. Specifications are subject to change without notice.

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