

CBCT HiRes3D

Professional
Dental X-ray Tomographic System

 **北京朗视仪器有限公司**
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About LargeV

LargeV Instrument Corp. Ltd (LargeV for short) is a provider for medical imaging equipment and the relating services. As China's pioneer in Dental Cone Beam CT, LargeV developed and manufactured equipment and bundled software are with high quality, low-lose radiation, high-reliability, easy-maintenance and excellent end-user experience. The core team of LargeV is from Tsinghua University, they have rich experiences in CT imaging, dose control and radiation protection. Combined with laws, regulations as well as requirements on medical equipment, clinical feedback and professional knowledge, LargeV self-owned intellectual properties equipment have earned high recognition from customers.

Introduction on HiRes3D

- ◆ With world-leading specifications, Hires3D meets a variety of clinical requirements.
- ◆ All related intellectual property rights are owned by LargeV.

Features of HiRes3D

◆ Large Field-of-view 3D Imaging

Acquires high accurate 3D image of the whole maxillofacial region after one single scan.
Fusion mode covers the entire maxillofacial region.

◆ Super-fast Speed

High-definition 3D image reconstruction of the whole maxillofacial region can be finished in 15 seconds, the fastest in the world.
High-resolution 3D image can be seen instantly after scan.

◆ Super-high Resolution

The image resolution is as high as 2.6lp/mm, the best in the world.
Such a high resolution makes the equipment able to clearly display microscopic structures of dental anatomies in 3D.

◆ Unique Metal Artifact Removal

Image quality is not affected by implants, metal materials or other high-density materials.

◆ Powerful Data Sharing Function

No matter whether you have installed the PACS system or not, HiRes3D can effectively guarantee the data storage and sharing.

◆ Patient positioning system

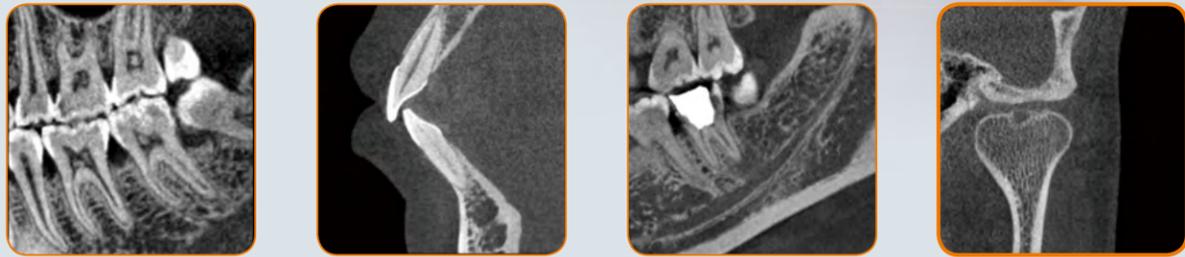
It minimizes patient movement and prevents artifacts.



Better Quality in Shorter Time

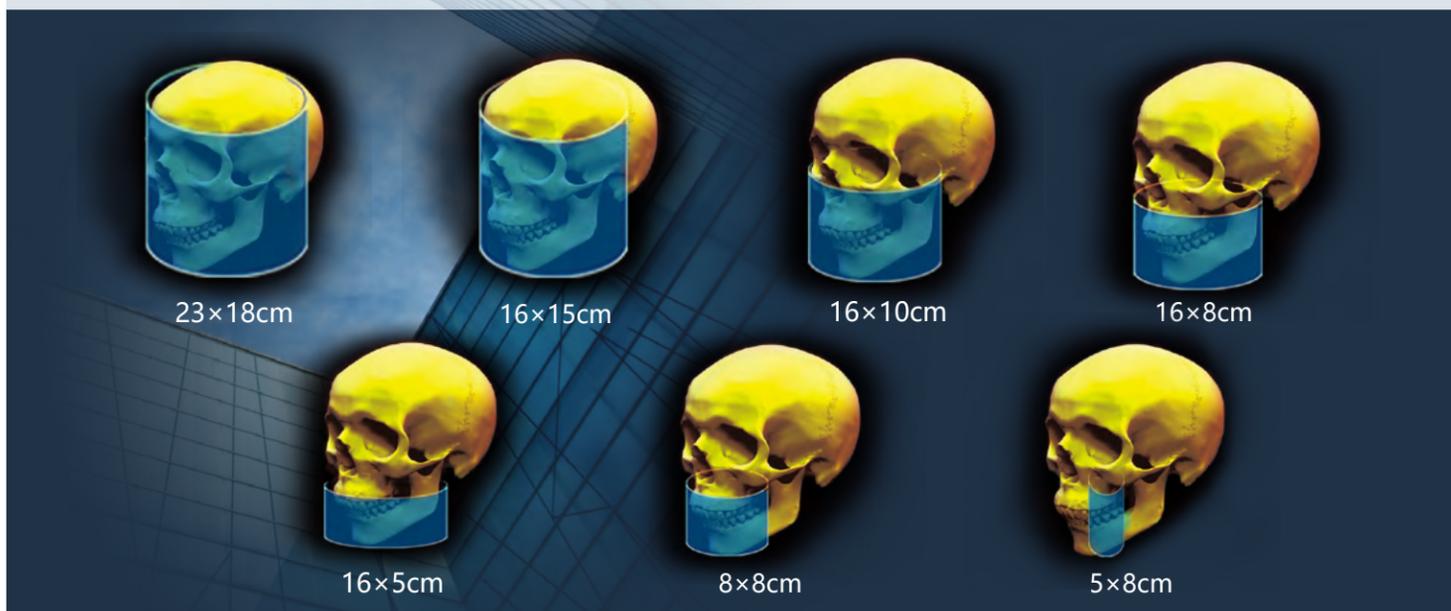
HiRes3D is able to get high-accurate 3D image of anatomical structures of the entire maxillofacial region within 15 seconds after one single scan.

HiRes3D has a resolution as high as 2.6lp/mm, which is able to clearly display the microscopic structures, effectively meeting the requirements of various dental applications, such as dental implant, impacted teeth positioning, oral surgery evaluation, and dental disease diagnosis, etc.



Flexible FOV

All kinds of dental clinical requirements would be solved accordingly by the flexible FOV. The large FOV of HiRes3D can cover the whole maxillofacial region.



Metal Artifact Removal



Before Correction

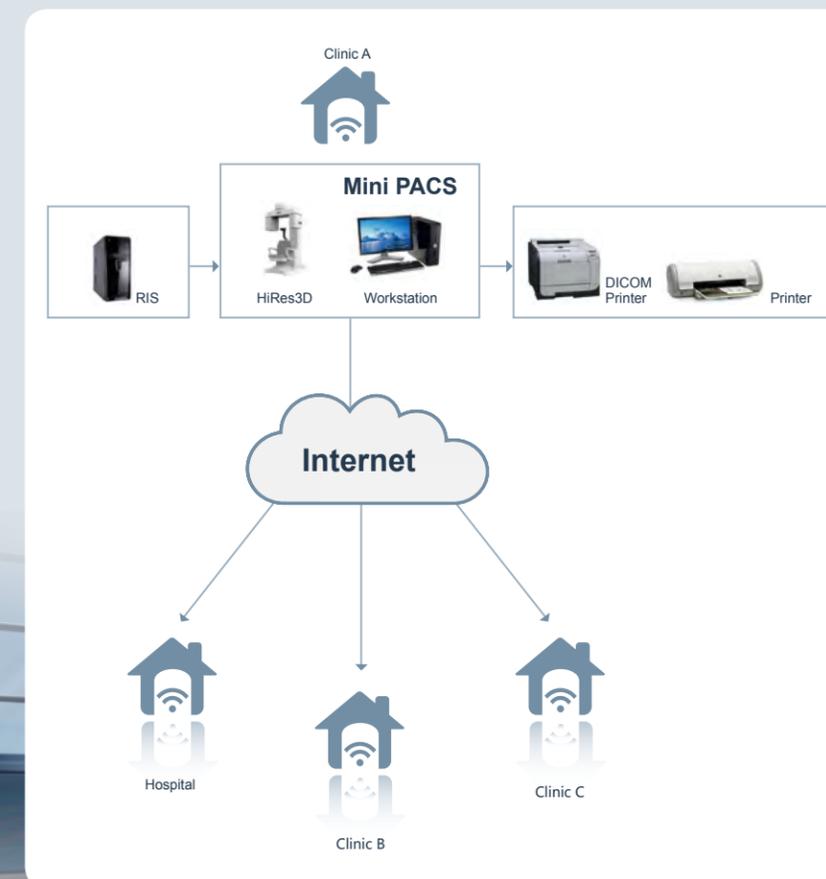


After Correction

The unique metal artifact removal function of HiRes3D can reduce the influence of the metal or other high density materials, and significantly improve the image quality.

Data Sharing with Build-in Mini PACS

HiRes3D's built-in MINI PACS module can ensure effective storage, use and share of images in different sites.

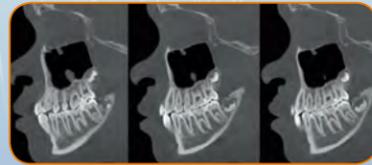
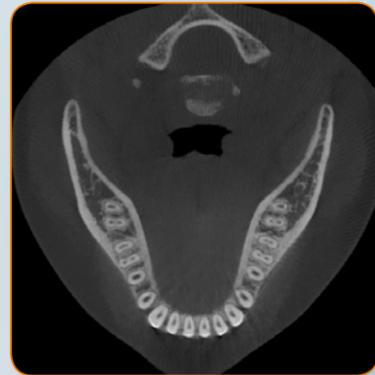


SmartV – Powerful Dental Application Software

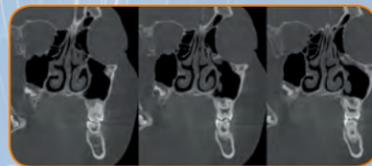
Multiple Planar Reconstruction

Axial, coronal and sagittal slices can be observed simultaneously.

Besides, the slice in any direction is available.



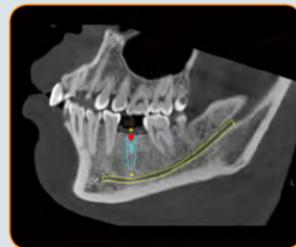
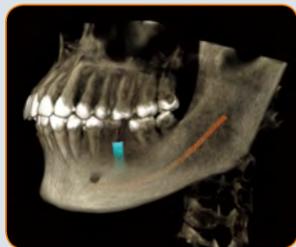
Slices in Near-end, Middle and Far-end



Side Buccolingual Slices

Implant Simulation

With the assistance by the 3D image of maxillofacial region generated by Hires3D, the implants' position, length and diameter can be determined.



Cephalometric PA & LAT

SmartV is able to reconstruct cephalometric image, which is helpful for orthodontic treatment.



Panoramic Image

The panoramic image can be reconstructed from the 3D image data in 1:1 scale. Thus, it can overcome the inherent problems of the traditional panoramic images, such as overlap and distortion.



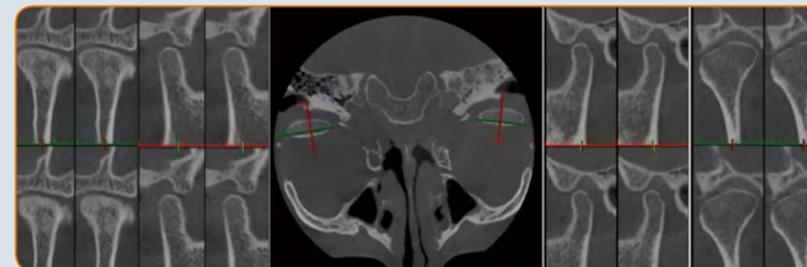
Panoramic Image of HiRes3D



Traditional Panoramic Image

Temporomandibular Joint (TMJ) Image

SmartV can display the left and right TMJ on one screen, providing more information for the diagnosis and treatment of TMJ disorders.

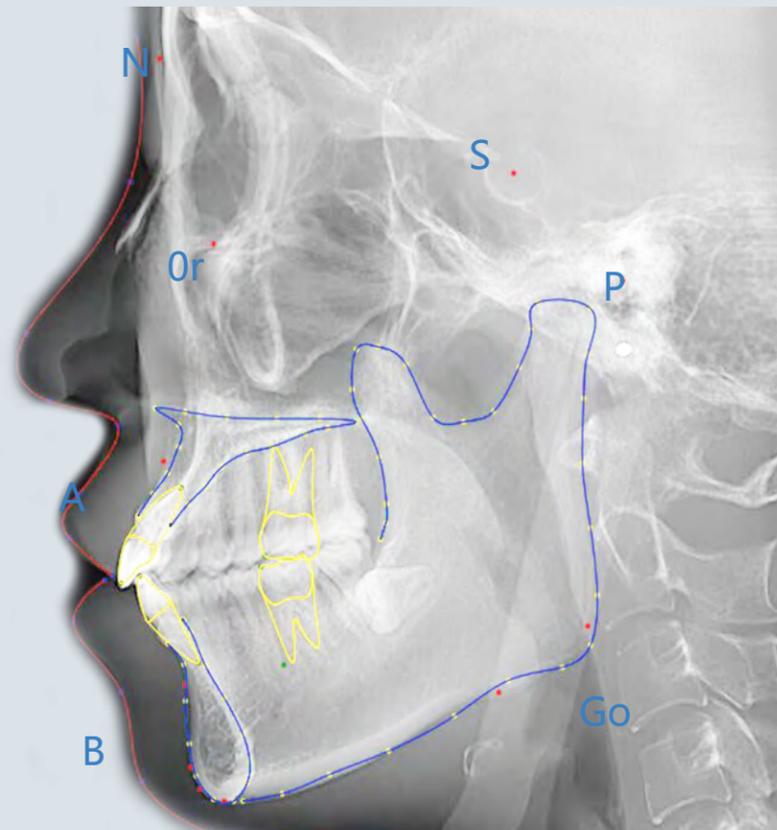


Professional Cephalometric Measurement Software



SmartCeph

- Perfect match for Hires3D
- Assist to complete cephalometric measurement.
- Various measurement methods are easy for option.
- Support Excel export
- Compatible with Windows System and the 3rd part management software



Multiple Cephalometric Measurement Support

SmartCeph provides Downs, Tweed, Wits, Wylie, Ricketts and common measurement methods.

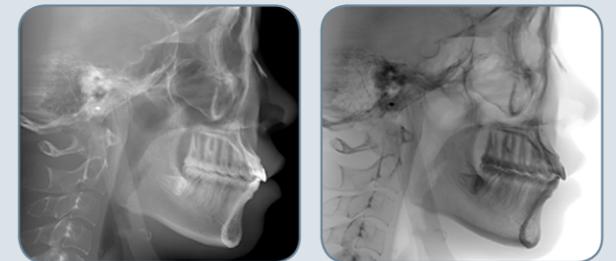
Case Management

SmartCeph supports the case management function for patients with different treatment stages, and orthodontic picture input.(lateral position, front position, face photos, etc.)



Image Management

SmartCeph supports image brightness, contrast adjustment, and image inversion function.



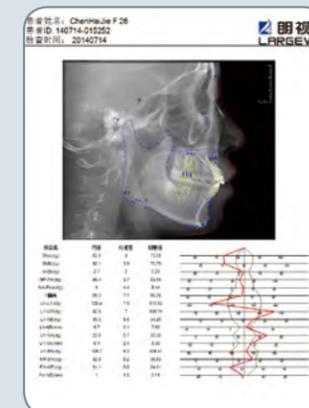
User-friendly Guide

SmartCeph provides easy-operating interface that ensures the actual size measurements.



Case Report

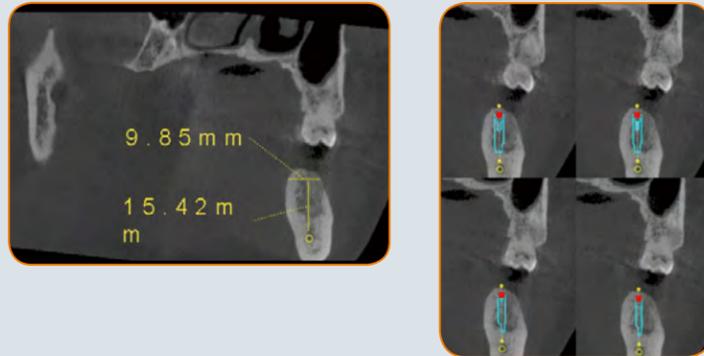
SmartCeph can display the line chart, measurement results, print, save and export report as well.



Clinical Case Studies

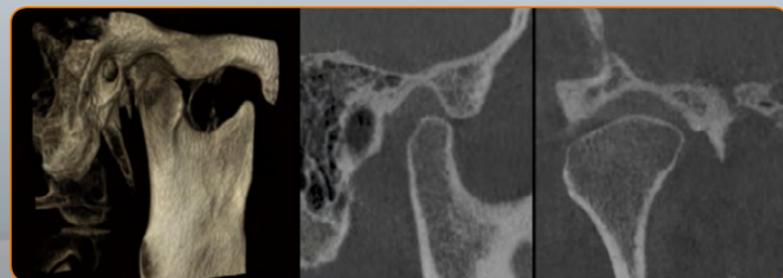
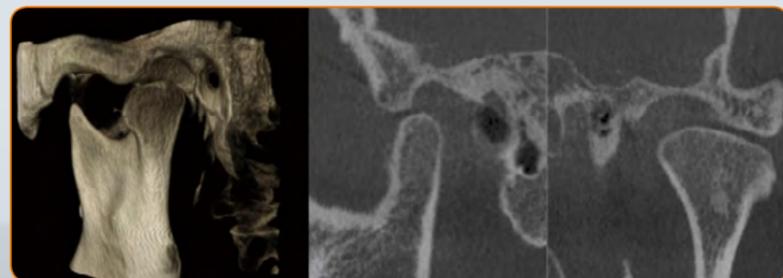
Diagnosis and Planning Design before Implantation

Examine the thickness of alveolar bone and the distance to neural tube before implanting, the doctor can choose the most proper implant.



Examination of Temporomandibular Joint

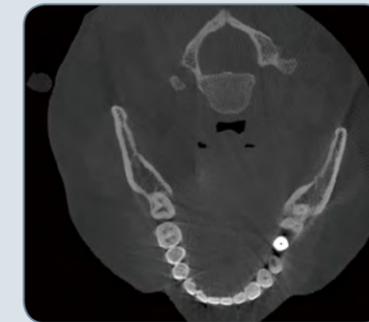
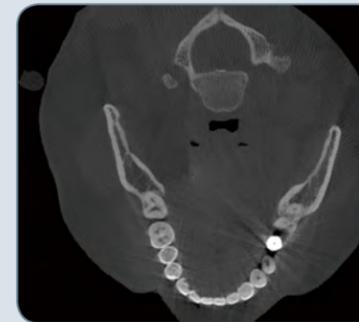
The high-resolution 3D images produced by HiRes3D and the cross-section reconstruction of SmartV help to display condylar structure clearly, providing more information for the diagnosis and treatment of temporomandibular joint disorders.



Temporomandibular Joint Disorders

Evaluation after Implantation

Use the cone beam computed tomography to examine the position and orientation of implant after the implanting procedure. The effective metal artifacts removal technique can help the doctor to determine the synostosis.

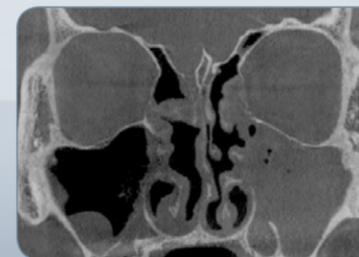


Before Metal Artifact Removal

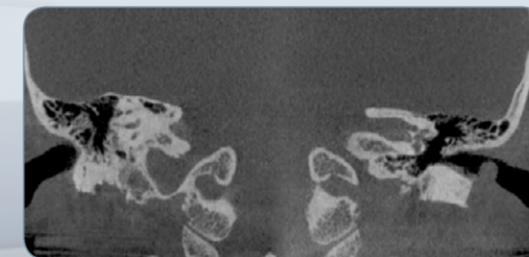
After Metal Artifact Removal

ENT diagnosis

HiRes3D and HiRes3D-Max with multiple FOVs and high resolution, they cater to not only dental clinical demand but also ENT diagnosis.



Maxillary sinusitis , septal deviation , turbinate adhesion



Tumor or cyst in ear canal

Examination of Endodontic and Periodontal Diseases

The voxel size of reconstructed images of HiRes3D can reach 0.075 mm, and the resolution is as high as 2.6 lp/mm, providing rich and accurate information for the examination of endodontic and periodontal diseases. Compared with ordinary X ray image, HiRes3D image avoids overlapping of the teeth and the jaw. It is able to show the anatomical structure of tooth root canal, internal and external root resorption, side perforation, omission of root canal, longitudinal crack on root, periapical bone destruction, the location and degree of alveolar bone defect. HiRes3D is very effective for preoperative diagnosis and follow-up observation of dental diseases, especially root canal anatomy, complicated periapical periodontitis and periodontitis.



Root Fracture



Periapical Periodontitis

Examination of Cystis and Tumor

The panoramic view and 3D slice view of HiRes3D can help the doctor to detect the cystis and tumor more directly, which is important for the diagnosis and treatment planning.



Bone Tumor



Maxillary Sinus

Positioning of Impacted and Supernumerary Tooth

Compared with traditional 2D images, the 3D image of HiRes3D has great advantages in the impacted and supernumerary tooth positioning. HiRes3D can accurately show the shape and location of teeth, its locative relationship with the adjacent teeth or adjacent important anatomical structures (such as the maxillary and mandibular canal, etc.), and the external resorption of adjacent teeth. All these help dentists make more accurate treatment plan, evaluate the operation risk and prognosis.



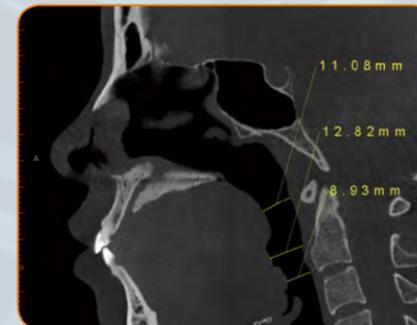
Supernumerary Teeth



Impacted Tooth

Observation of air passages

It can be observed that the relationship between the structures of maxilla, mandible, soft palate, root of tongue, hyoid and sagittal of skull base. Compared with the traditional cephalometric radiographs, it can provide full information for diagnosis.



Air Passages



Air Passages

Examination of root canal filling

Clearly display the root canal direction, shape and number. For multiple root canals and complex cases, a more accurate observation from any angle can be demonstrated by 3D presentation.



Root canal filling

Jaw fracture

Doctors can view from different angle on coronal, sagittal, and axial. Clearly show the fracture line and its spatial position to guide surgical treatment.



Jaw fracture

Technical Specifications

Model	HiRes3D	Hires3D-Max
Field of View (mm * mm)	160 × 150 160 × 80 80 × 80 50 × 80	230 × 180 160 × 100 160 × 50 80 × 80
Voxel Size (mm)	0.25 0.125 0.1 0.075	0.3 0.25 0.2 0.125 0.1 0.075
Best Spatial Resolution	2.6 lp/mm	2.4 lp/mm
Reconstruction Time (min)	≤30s	≤40s
Tube Current	min: 2mA max: 10 mA (60kV)	
Tube Voltage	min: 60kV max: 100 kV (6mA)	
Scan Time	13s , 15s , 18s	13s , 15s , 18s
Focal Spot Size	0.5(IEC336)	
Sensor Type	CMOS Flat Panel Detector	α-Si Flat Panel Detector
Weight	340kg	
Power Requirements	AC 220/230V, 50Hz	
Outer Dimensions	1705mm (L) × 1228mm (W) × 2107mm (H)	
Room Requirements	1.8m (L) × 1.5m (W) × 2.5m (H)	

※ The data are subject to change without notice.

