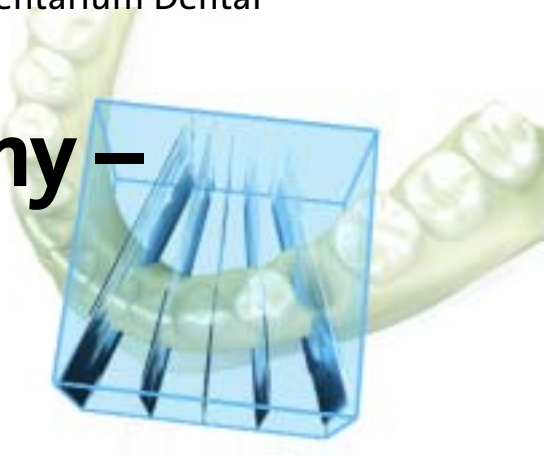
The digital Orthopantomograph OP200 D by Instrumentarium Dental

Volumetric Tomography – The Advanced Tool for Oral Implantology



In 1961, dental and maxillofacial imaging experienced a revolutionary change – the introduction of the very first dental panoramic x-ray Orthopantomograph, OP1. Now the trailblazer of panoramic imaging offers its most recent innovation to oral implantology. Instrumentarium Dental has launched VT – a new Volumetric Tomography option for the Orthopantomograph x-ray unit. The digital version of the Orthopantomograph OP200 D, equipped with the Orthoceph cephalometric unit and the VT Volumetric Tomography option, offers all of the important imaging tools in one premium quality unit.

The volumetric tomography modality of digital orthopantomographic units is a narrow-beam volumetric tomography (NBVT) imaging tool that provides digital tomography with reliable measurements and good image quality for implant site evaluation. Volumetric Tomography is intended for producing cross-sectional (tomographic) radiographic images from selected edentulous or dentate jaw areas. Typical applications range from dental implant planning to locating impacted or retained teeth. One VT image set covers a space of 60 x 60 x 60 mm, producing 256 cross-sectional slices with a minimum thickness of 0.23 mm.

The resulting 3D model is reconstructed from a set of projection images targeted only on the region of interest. A patented Statistical Inversion (SI) method is used for reconstruction. From the resulting wide volumetric stack of 256 slices, either a single optimal slice or any number of slices can be viewed. This sophisticated method includes the assignment of a panoramic image as a navigational view on which the exact vertical location of any cross-sectional slice viewed can be verified. The SI method facilitates high-quality imaging using standard panoramic sensors and a narrow x-ray beam. The quality of the image has been proven superior to other reconstructive methods. To ensure reliable measurements, the CliniView software automatically adjusts the slice angles to be perpendicular to the bone. Accurate magnification is obtained by keeping the focus stationary and the source-to-object-distance constant during each projection scan, ensuring equal magnification both horizontally and vertically.

VT exposes only the selected region of interest. Patient dose is further reduced by using a narrow beam and limited number of projections. The VT dose is significantly lower than the CT or CBCT dose, corresponding to approximately one to two panoramic images depending on the number of projection images. Retakes are almost never required, as the reconstruction feature automatically compensates for movement artefacts between projection images.

Capturing a VT panoramic image and projection images is a simple and straightforward process that is guided by smart positioning devices. No measuring or marking is needed, since the fiducials in the bite tray provide an automatic link between the panoramic and projection images so that the reconstruction software can compensate for all movement artefacts. Selecting regions of interest and patient positioning is made easy by five pre-defined positions. After acquisition, the cross-sectional image stack is navigated using the user-friendly windows of the CliniView software, the panoramic image always serving as a reference for slice location. Any desired slice can be easily selected and the angulation of the slices further adjusted if necessary. The implant planning tool helps select the correct implant. The tool optionally provides the necessary measurements and includes a library of implant models from various manufacturers. ■

More information?

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