

Rigaku Introduces the ultra-high-speed, high-resolution 3D X-ray micro CT imager into the industrial CT market

New CT Lab GX Incorporates the “Sample-Stationary Method” and achieves CT scan in 8 seconds at top speed and minimum resolution of 4.5 μm

March 2, 2015 – Tokyo, Japan. [Rigaku Corporation](#) has announced its launch of the new [CT Lab GX](#) series of industrial 3D X-ray micro computed tomography (CT) imagers, signaling its entry into the industrial CT market. The CT Lab GX is an ultra-high-speed, high-resolution 3D CT suited for measurements of pharmaceuticals, medical devices, bones, ores, electronic devices, batteries, aluminum castings, and printed circuit boards. Rigaku began sales of CT imagers for laboratory animals in 2006 as its rollout to the CT market, leveraging its experience in X-ray diffractometer systems, ongoing since its establishment. Thereafter, two types of dedicated-purpose products, with high-speed, high-definition, and high-resolution capabilities, the “R_mCT2/FX/GX”, the CT for laboratory animals, and the “R_mCT AX”, the CT for veterinary hospitals, have been in use by numerous customers. The new industrial CT announced today offers the latest 3D CT technology, optimizing the various distinctive technologies developed for the aforementioned industrial CT systems. For example, the technology enabling quick measurement to reduce the amount of radiation exposure to animals has been developed into a function to measure industrial products in a short period of time. Likewise, the mechanics to scan a living body has been redeveloped to facilitate the measurement of an industrial subject by simply placing it within the equipment.

A principal feature of the CT Lab GX is its capacity for ultra-high-speed measurement. In 3D mode, a CT scan can be achieved in 8 seconds and image reconstruction in 15 seconds. The software included with the system is designed so that any user can easily perform volume measurement and image rendering with easy-to-use settings.

In addition to X-ray radiography observation in 2D, included as standard, a high-resolution “Live mode” is available. The distinctive feature of this mode is the ability to observe the structural changes of a subject *in-situ* in real time. This feature is effective for observing the change in battery cells during charge and discharge, status of a cooling water hose when liquid flows through, or for the measurement of structural changes during heating. The result can then be recorded so the conditions when the change occurred can be checked afterwards. Additionally, since the power supply cable and hoses of the measurement subject can be connected outside of the equipment through the insertion port on the



***Rigaku CT Lab GX 3D X-ray
micro CT imager***

side, the power to the measurement subject can be turned on and off even while the measurement is in progress.

High-definition 3D observation is possible with a minimum resolution of 4.5 μ m and maximum number of pixels of 8000 \times 8000 - the largest available compared to other products in the same class. Measurement of a subject up to 72mm \times 36mm is possible. After wide field-of-view imaging, an image of the fine structure can be reconstructed in detail by specifying the region of interest (ROI) area in the new "wide view imaging" function.

Two versions are available: the low-powered "CT Lab GX90," suited for measurement of subjects such as resins, and the high-powered "CT Lab GX130," suited for subjects less penetrable by X-ray beams such as metals. The unit is now shipping, with an anticipated number of sales for the first year of 30 units.

Key features of the CT Lab GX series include:

- Ultra-high-speed CT scan and image reconstruction

The CT image can be created in 8 seconds and reconstructed in 15 seconds at top speed. Even in the high-resolution mode, scan time of 57 minutes is achievable, which is a dramatic reduction from the more typical two to three hours for high resolution images.

- High-resolution wide field-of-view measurement

Fine structures can be observed by selecting a field-of-view and resolution in the software, with a minimum resolution of 4.5 μ m, and the maximum number of pixels at 8000 \times 8000. With most imagers, the field-of-view narrows when the resolution is increased, but the CT Lab GX allows, the measurement to be performed while keeping a wide field-of-view even in high resolution mode.

- Incorporates the "Sample-Stationary Method"

A CT scan can be performed by simply placing the measurement subject within the equipment, with no need to move the measurement subject. The sample may be positioned easily, with no need to adjust it, and a CT scan can be performed even with a liquid in an open container.

- Low operating cost

The CT Lab GX operates using 100V power supply, and cooling water is unnecessary. The equipment has casters making it easy to move. X-ray radiation safety personnel are not required to operate this equipment.



About Rigaku

Since its inception in Japan in 1951, Rigaku has been at the forefront of analytical and industrial instrumentation technology. Rigaku and its subsidiaries form a global group focused on general-purpose analytical instrumentation and the life sciences. With hundreds of major innovations to their credit, Rigaku companies are world leaders in X-ray spectrometry, diffraction, and optics, as well as small molecule and protein crystallography and semiconductor metrology. Today, Rigaku employs over 1,100 people in the manufacturing and support of its analytical equipment, which is used in more than 70 countries around the world supporting research, development, and quality assurance activities. Throughout the world, Rigaku continuously promotes partnerships, dialog, and innovation within the global scientific and industrial communities.

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