

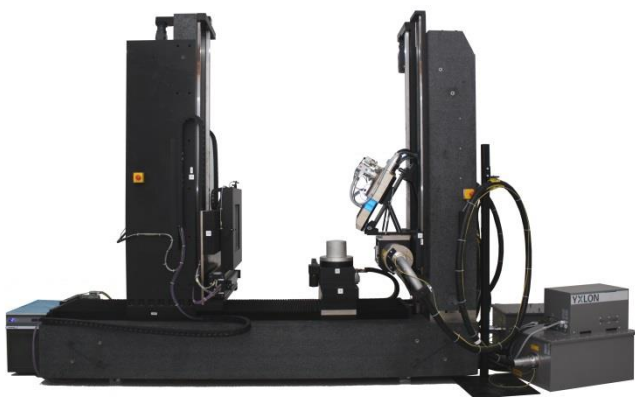
Industrial computer tomography (iCT) in the field of art and cultural goods

Qualitech AG is a leading service provider for non-destructive material testing with highly trained and qualified experts. Our decades of experience in all common methods of non-destructive testing offer you a wide range of testing options to check your materials and workpieces for freedom from defects. This guarantees you satisfied customers, because nothing is more damaging to your business than unexpected damage.

In spring 2016, Qualitech AG expanded its range of services to include **industrial computer tomography (CT)**.

CT makes it possible to generate a non-destructive digital image of the current state of an object within a short time. Subsequently, the data set obtained can be specifically analysed, allowing a direct comparison with the target condition. Compared to conventional material testing or tactile measuring methods, CT offers several advantages. By means of CT, for example, cracks can be detected very well, which are often difficult to detect with conventional 2D radiographic inspection. In the field of metrology (measurement) it is possible to measure internal structures which are not accessible by tactile means.

Qualitech AG operates one of the **most modern** and **largest CT systems in Switzerland**. The high radiation power of up to 600 kV allows the analysis of large and thick-walled components, while the 225 kV microfocus X-ray tube allows high-resolution images in the micrometer range



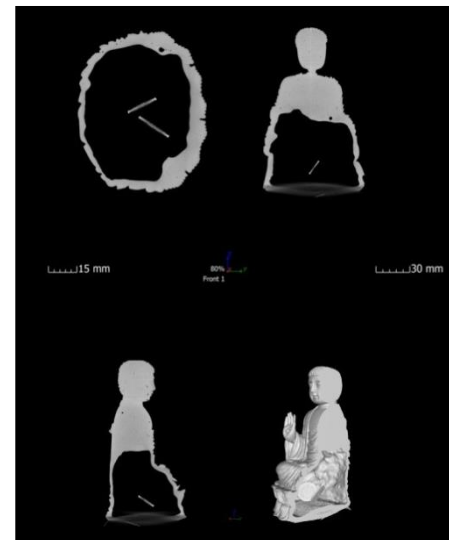
Modular CT of the company YXLON at Qualitech AG

CT of art and cultural assets

Do you ask yourself how your object is constructed or whether other art objects are possibly hidden in the object? Or do you just want to capture the 3D structure with inner geometries? This is possible by means of computer tomography, of course always depending on the material and the geometry of the object.



3D representation of a sculpture scanned with CT.



CT scan of a sculpture; bottom right: cut open
Volume model: top left and right: sectional views through the sculpture



In addition to the three-dimensional representation of the visible surface, it is also possible to show the inner structure and composition, usually hidden to the eye, in sectional images. In this way, for example, materials can be differentiated on the basis of their grey values and one gets a completely new impression of the object.



Digital "sliced" model



Details from the interior of the object

Technical data sheet of the computer tomograph

As a service provider, we want to cover the widest possible range of applications for various materials, component sizes and wall thicknesses. With the modular system we can test very large components, such as cast cylinder heads or housings up to a theoretical height of 2.10 m and a diameter of approx. 880 mm. But also very small components can be displayed in high resolution. For this purpose, two different X-ray tubes and two detectors were installed.

	Kegelstrahl-CT		Cone Beam CT
	225 kV Microfocus	600 kV Minifocus	600 kV Minifocus
Scan field height::	ca. 2100 mm	ca. 1950 mm	ca. 1550 mm
Scan field diameter:	ca. 610 mm	ca. 650 mm	ca. 880 mm
Opt. spatial resolution:	ca. 15 µm	ca. 175 µm	ca. 190 µm
Component weight:	ca. 350 kg	ca. 350 kg	ca. 350 kg

Radiolucent wall thickness:			
Steel:	ca. 7 mm	ca. 90 mm	ca. 90 mm
Aluminium:	ca. 100 mm	ca. 300 mm	ca. 300 mm
Ni-Basis:	ca. 4 mm	ca. 50 mm	ca. 50 mm

Technical data of the different measuring modes of the computer tomograph with an approximate indication of the radiolucent wall thickness of different materials

Delivery times

Depending on the type and scope of the examinations carried out and the necessary test duration. Usually within a few working days or even hours.