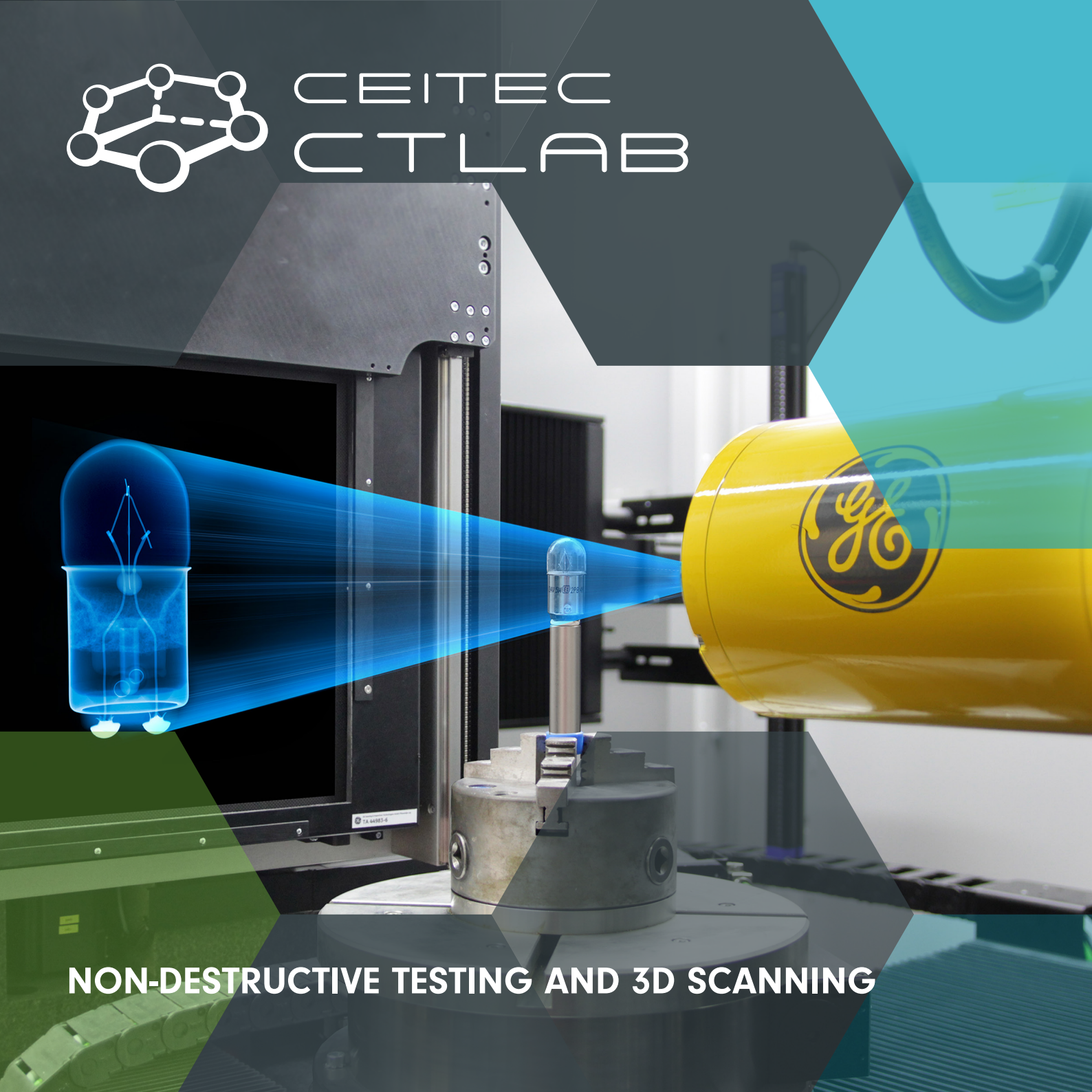
CEITEC
CTLAB



NON-DESTRUCTIVE TESTING AND 3D SCANNING

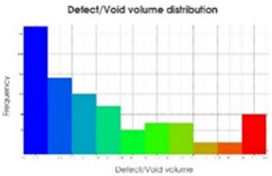
ANALYSES

CT DATA VISUALIZATION AND QUANTIFICATION

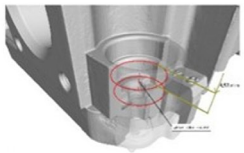
ANALYZED OBJECT
plastics, aluminium alloys, ceramics,
glass, steel, rubber, electronics, ...

Geometric reconstruction
export to STL/STP

Inner defects mapping
statistical evaluation

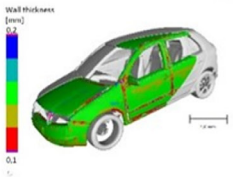


Measurement of dimensions
coordinate measurement of unavailable structures

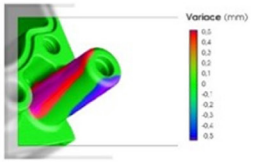


Inner structure imaging
with distinguishing of individual materials

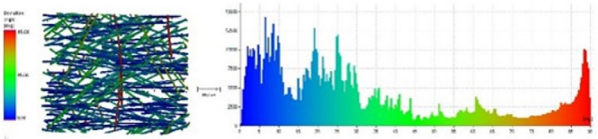
Morphology evaluation
Wall thickness analysis



Manufacture accuracy inspection
comparing to design documentation



Composite Material Analysis
fibre orientation and concentration



FIELDS OF APPLICATION

Automotive

Electronics

Materials and composites

Aerospace and Aviation

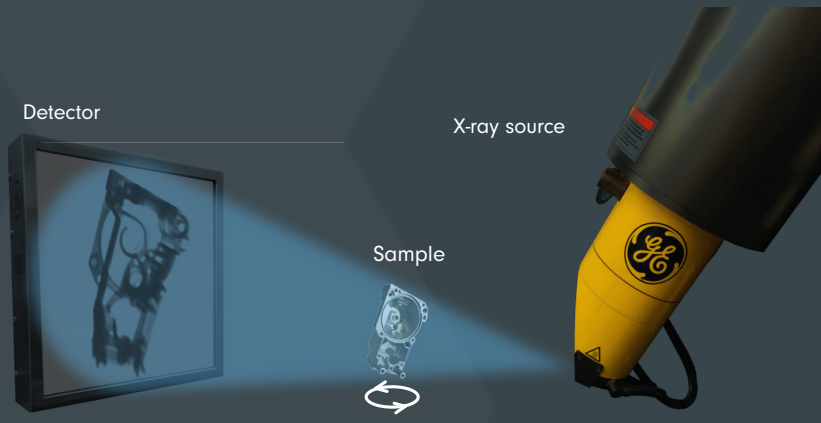
Foundry industry

Pharmaceutics

Plastics

etc.

INDUSTRIAL COMPUTED TOMOGRAPHY



CT LABORATORY

Is authorized testing laboratory by **Czech Accreditation Institute** according to CSN EN ISO/IEC 17025.

Application laboratory of **Rigaku** and **Thermo Fisher Scientific**, testing laboratory of **General Electric**.

Part of the biggest multi-disciplinary research centre in the Czech Republic.

Effective national and international cooperation in **R&D**.

Is equiped with **proffessional software** tools.

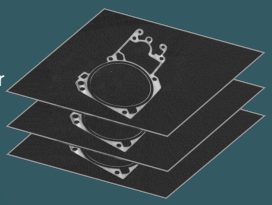
Special working regime driven by industrial needs.

SERVICES

We offer world-class non-destructive testing within X-ray computed tomography and X-ray radiography. The laboratory provides qualified and certified inspection according to international standards. A team of experienced professionals guarantees a rapid response, an effective analysis, and a examination of the parts. Diverse state of the art CT systems address a wide range of parts and assemblies for numerous applications. The resolution from hundreds of microns to hundreds of nanometers can be reached and various shapes, sizes and materials (steel, aluminum, glass, plastics) can be analysed. Moreover, we provide a feasibility studies, a long term cooperation in the development and a design of innovative data processing.

OUTPUT

- Original CT cross-sections with viewer
- Images and videos of data analysis
- STL and STP model
- Results commented by expert report



COMMON EXPERTISES

100% Dimensional inspection

Leakage detection

Porosity evaluation

- P 201 / VW 50097 and P 202 / VW 50093
- ASTM E505

All dimensions measurement of the component

NOK/OK parts comparison

Position verification of assembly components

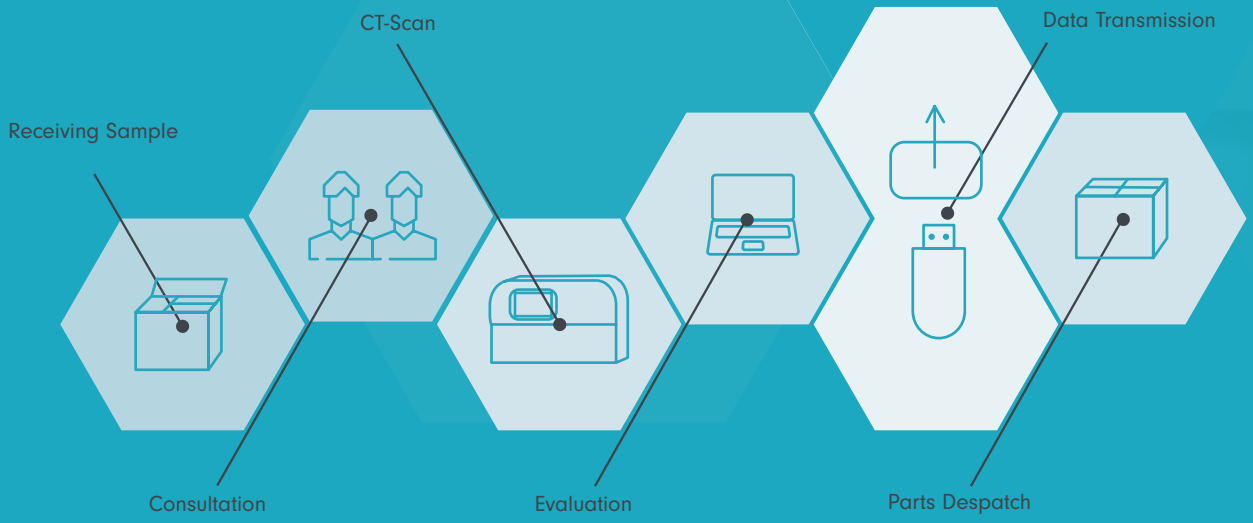
Material inspection

Measurement in working conditions

Reverse engineering (STL, STP)

3D printing optimization

QUICK AND PROFESSIONAL PROCESSING



EQUIPMENT

We are equiped with 4 complementary CT devices and professional software tools.

GE phoenix v|tome|x M300

- Max. sample size – Ø 360×600 mm
- Max. weight of the sample 50 kg
- Max. voxel resolution 2 µm
- **Microfocus X-ray tube 300 kV/500 W**
- Flat panel detector, 2048×2048 pixels active area (200 µm pixel pitch)

GE phoenix v|tome|x L240

- **Max. object size – Ø 800×1300 mm**
- Max. weight of the sample 50 kg
- Max. voxel resolution 1 µm
- Microfocus X-ray tube 240 kV/320 W and nanofocus – Xray tube 180 kV/30 W
- **Flat panel detector, 4000×4000 pixels active area (100 µm pixel pitch)**

RIGAKU nano3DX

- Max. sample size – Ø 7.2×5.4 mm
- **Max. voxel resolution 0.27 µm**
- X-ray tube with optional Cr, Co, Mo rotating target material
- CCD camera, 3300×2500 pixels active area (270 nm pixel pitch)
- **Phase contrast imaging (for light materials)**

Thermo Fisher Scientific Heliscan

- Max. object size – Ø 240 x 100 mm
- Max. weight of the sample 3.5 kg
- Max. voxel resolution 0.8 µm
- Microfocus tube 160 kV/8W
- **High quality data and helical trajectory**

SOFTWARE

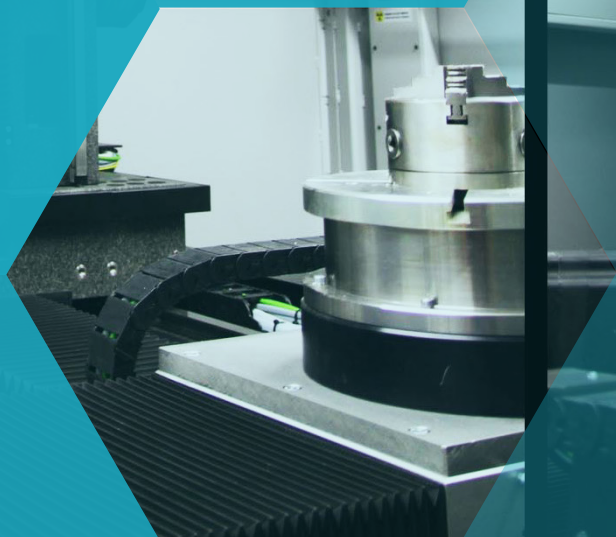
VGStudio MAX

Avizo

MATLAB

GOM inspect

MAVI



CONTACT

CT laboratory
+420 541 142 875
ctlab@ceitec.vutbr.cz
www.ctlab.cz/en

Head of CT laboratory
Ing. Tomáš Zikmund, Ph.D.
+420 541 142 846
tomas.zikmund@ceitec.vutbr.cz

Research group leader
prof. Ing. Jozef Kaiser, Ph.D.
+420 541 149 700
josef.kaiser@ceitec.vutbr.cz

CEITEC – Central European Institute of Technology
Brno University of Technology
Purkynova 656/123,
612 00 Brno, Czech Republic