

3D measurement and digitization

Department of Manufacturing Systems and Automation disposes of contactless optical and laser scanners, which are designed to quickly and accurately digitizing the real parts of size the order of millimeters to tens of meters. The output 3D format is a high quality optimized polygonal network (*. STL), which can be further processed by specialized software to create a surface or solid models (*. STP *. IGES) suitable for CAD / CAM systems.

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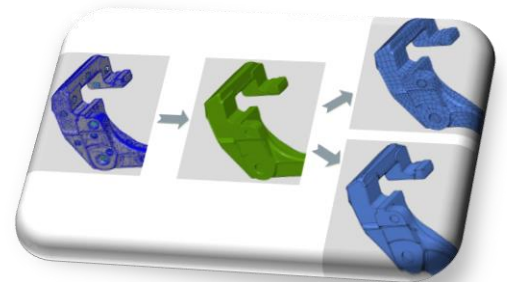
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THE FIELDS OF APPLICATION:

- **Reverse Engineering** - the digitization of real parts and conversion to 3D CAD data (e.g. to obtaining the missing drawings, physical tests); conversion of handmade models (e.g. earthen designs, concept studies) to 3D graphic form for further processing; data archiving of historical objects, sculptures, reliefs.
- **Rapid manufacturing** of metal or plastic prototyping (3D printing).
- **Check of dimensions, analysis, inspection** - a graphic comparison of the CAD model and the scanned data (color map deviations, sections, contour and contrast curves); linear and angular dimensions, shape and position tolerances (GD&T), measuring the thickness of the sheet; options of alignment (Best Fit, RPS points, 3-2-1); output reports of measurement (PDF, HTML), etc.



THE EQUIPMENT



Laser 3D scanner Trimble CX



Optical 3D scanner ATOS II 400



Optical 3D scanner RevScan

THE BENEFITS

- The high speed measurement and obtaining of real 3D model of complex shaped objects.
- Measuring accuracy to 0.01 mm, a high data density - up to 625 points per mm² and millions points per scan.
- The flexibility of the system (connection of individual images into one), the objectivity of measurements.
- The possibility to measure also shiny and transparent objects (after safe surface treatment).
- The independence of the results on the stiffness of the component, on the mass and temperature.

