EUROKILN
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LASER SCANNING OF MACHINE PARTS

At the end of 2021, we expanded the scope of our services with laser scanning of machine parts, which is the basis of the so-called **reverse engineering**, i.e. measurements aimed at obtaining accurate information about the geometry of a given element, in order to construct its most faithful counterpart.

So, if you want to copy an existing solution, you need to **recreate a detail for which you do not have technical documentation,** if you want **to check the dimensions and / or wear** of a selected part of your device, we recommend our services in this area.
We dispose devices that enable scanning with a mesh resolution from 0,05 to 3mm and with an accuracy of 0,04mm. As a standard and with the specified accuracy, we scan machine elements with dimensions up to 0,5m, and when laser scanning is combined with coordinate measurements using tachymeters (Total Stations), the range of dimensions becomes almost unlimited - with an accuracy of not less than 0,2 to 0,5mm.

We deliver the scan results in a digitized form, i.e. a cloud of points connected in the so-called geometric grid. This mesh can be viewed or edited in most popular CAD programs.

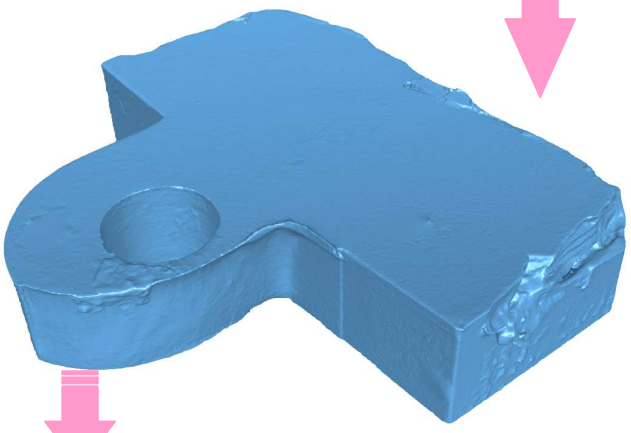
If you are additionally interested in **transforming a scanned object into a three-dimensional solid model** or even expect the **development of its executive documentation**, our engineers will prepare it for You.

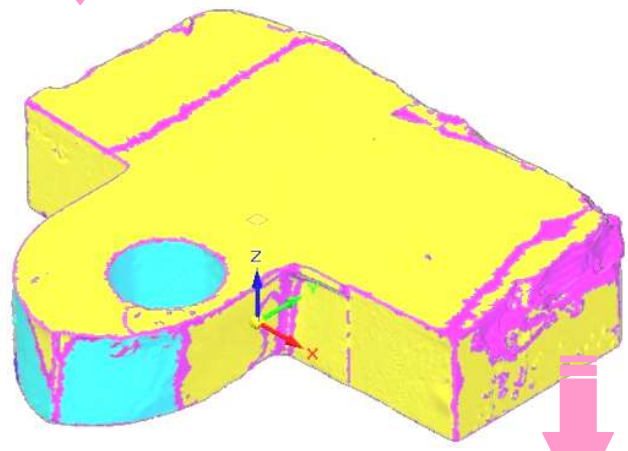
How does it work?

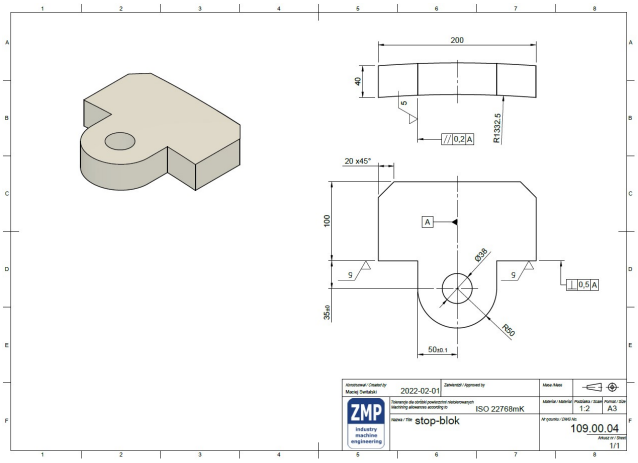
- show us the details of the element that determine its essential features and prepare its surfaces or simply provide us with the element You want to scan, and after consulting with You, we will do all of this for You,
- our engineer will apply markers (magnetic or glued stickers) to the shared / delivered body, thanks to which it can be scanned from several directions, and separately scanned clouds of points could be put together in a coherent whole in the same coordinate system,
- Your element will be scanned and the acquired cloud of points will be digitally processed, where in the first and basic phase it will be converted into a mesh of small elements (connecting individual points), and in the next step - depending on your needs - the virtual model of your element will be precisely measured and changed into a regular solid, with the option of making technical or dimensional documentation on its basis.

Typical applications:

- scanning of the machine parts with complex and / or irregular shapes, especially those which structures are difficult to reproduce using classic measuring instruments,
- scanning of selected machine details,
- acceptance measurements,
- measurements in order to develop a solid model necessary for strength analyses,
- diagnostics of machine parts by measuring their dimensions and comparing them with the dimensions of the theoretical model or with technical documentation,
- diagnostics of machine parts by determining their wear level,
- dimensioning of details under time pressure (minimizing the machine downtime necessary for the inspection and measurement of a given element),
- scanning for prototyping purposes with the option of printing a copied model (we also have got 3D printers),
- scanning of objects and people with the consideration of their surface characteristics, such as texture and colour (for demonstration purposes, for design simulations, etc.),
- non-contact measurement - important for highly flexible / deformable surfaces.







Measurements conditions

(in the case of scanning at the Client's premises):

- thorough cleaning, including meticulous degreasing of the details,
- locating the detail, preferably on three supports, ensuring visual access to all its surfaces (sides) or ensuring the possibility of changing its position (rotating), which only applies to heavy or large details (i.e. where manipulating the position of the detail by a single person is difficult or impossible),
- no vibrations,
- no dust in the environment,
- ambient temperature between 10ºC and 30ºC,
- ensuring protection of the detail and its surroundings (including the space for the scanner operator) against exposure to rainfall and wind,
- providing access to power supply 230V,
- indication of geometric areas of the scanned element, which constitute its essential features (where the scanning will be performed with the greatest possible accuracy).

More information about our firm's activity can be found on our Internet site **www.eurokiln.com**.