ZRE (ZEISS Reverse Engineering)  
ZRE is software that creates and corrects 3D CAD models based on measurement results of parts. It can intuitively conduct reverse engineering and has an innovative, efficient and quantitative injection molding tool correction.

**Reverse engineering with an intuitive procedure**
ZRE can create 3D CAD models from measured point cloud data with a simple procedure. Unlike conventional software, it does not require pasting of triangle meshes; instead, it creates a surface directly from point cloud data.

**Scanning function of unknown contours to reconstruct a surface from contact measurement results**
Equipped with an unknown profile scanning function that can easily measure a surface without CAD data. Scanning is conducted by probing the surface to be measured and designating the measurement direction on ZRE. Point cloud data is transferred to ZRE. Since this function is effective both for non-contact and contact measurement, data necessary to construct a surface can be acquired with a contact-type probe.

**“Tool correction” innovative and quantitative correction CAD models of injection molding tools**
Classical method of tool correction is performed by workers using intuition based on measurement data of an actual injection molded part. This new method transfers deviations between the 3D CAD model and actual data of the part and quantifies the amount of tool correction. Thus, the trial-and-error process of measuring a part, correcting the CAD model of the tool, remanufacturing and measuring the part, and recorrecting the CAD model of the tool is minimized. Tool correction can be performed efficiently without requiring experienced workers.

**Conventional tool correction process**
- Manufacture and measurement of a injection molded part
- Checking deviations with the CAD model of the part
- A worker **intuitively** corrects the CAD model of the tool based on the deviations
- Correction of the CAD model of the tool completed
  - Intuitive correction based on the worker’s experience
  - A trial-and-error process should be repeated several to dozen times
  - Tool correction requires a huge amount of time

**Tool correction process with ZRE**
- Manufacture and measurement of a injection molded part
- ZRE transfers deviations between the CAD model and actual data of the part to the CAD model of the tool for quantitative correction
- Correction of the CAD model of the tool completed
  - Quantitative correction on the software without depending on the worker’s intuition
  - Trial-and-error can be minimized
  - Tool correction completes quickly

Significant efficiency increase!