

REVERSE ENGINEERING

The way to Speed up the Work Flow Reducing Costs

Reverse engineering is the process used to reproduce the three dimensional geometrical forms of an object, device or piece of equipment

Agiotech has been using **Atos CORE and Atos COMPACT** optical topometric digitalisation systems for its scanning process since years.

Starting from an existing physical model, irrespective of its shape, it is possible to obtain the proper 3D CAD models suitable for:

Atos Core

Defining modifications, wear and tear and deformations

Reproducing complex shape objects

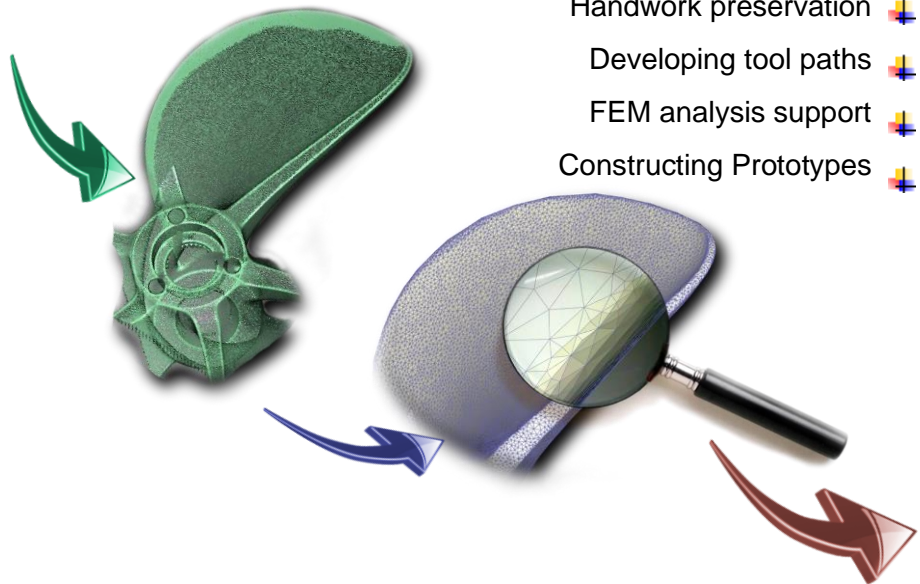
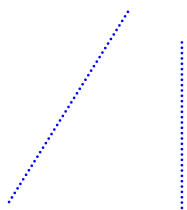
Reproducing soft and flexible objects

Handwork preservation

Developing tool paths

FEM analysis support

Constructing Prototypes



Advantages:

- ✚ Non-invasive contactless data acquisition
- ✚ No part fixtures required
- ✚ Acquisitions may also be carried at customer's premises
- ✚ Fast and accurate acquisitions of 3D geometrical forms

Specifications:

AtosQ 12M / Core5M

Acquisition volume: ~200 mm³ up to ~25dm³
 Acquisition points: 5-12 Millions
 Acquisition time: 6-8 seconds
 Accuracy: from ±0.01 to ±0.05mm
 Black surfaces: ✓

Atos Compact 12M

~25dm³ up to ~30m³
 12 Millions
 6-8 seconds
 from ±0.05 to ±0.2mm
 ✓

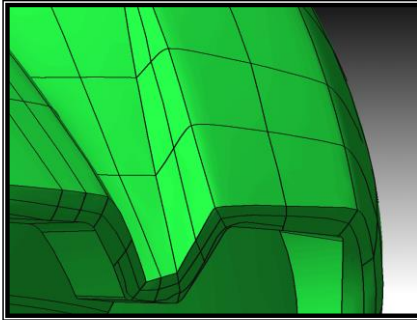
Atos Scan Box



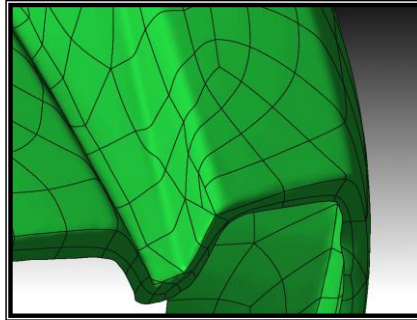
3D CAD Models

Exact Surfaces modelling (Patching)

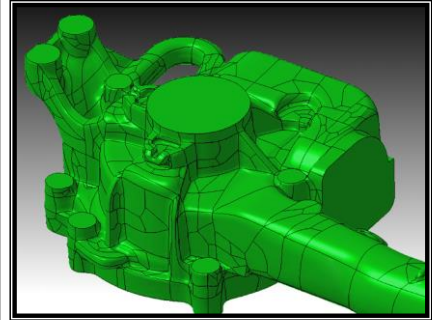
Exact surfaces (NURBS) are applied to the scans in order to reproduce the entire object with the maximum accuracy level.



Guided Patching
High accuracy on every type of surface



Automatic Patching
Faster than Guided Patching but less accurate

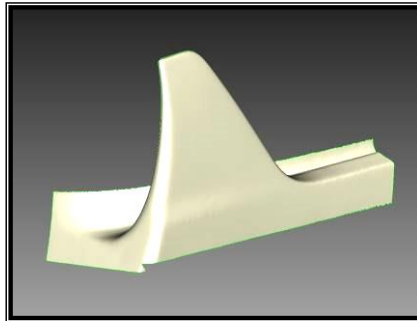


Hybrid Modelling
Accuracy of the autopatch on complex surfaces and native geometrical forms on machined areas.

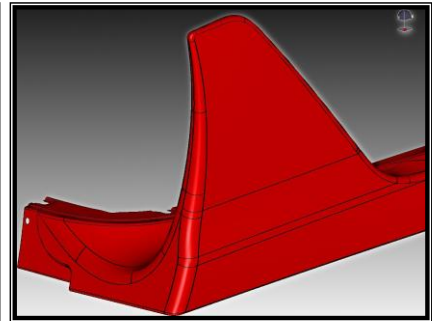
Native Reverse "B" Class / "A" Class



Physical Object



Three-Dimensional Scan

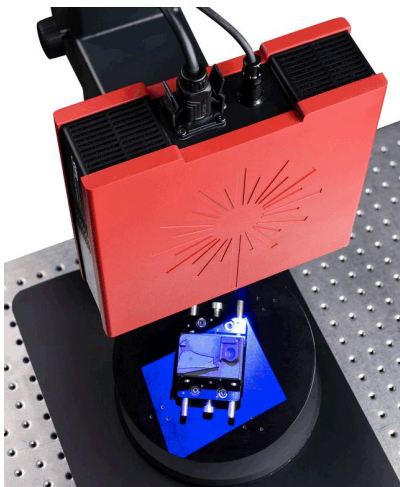


Native 3D CAD model

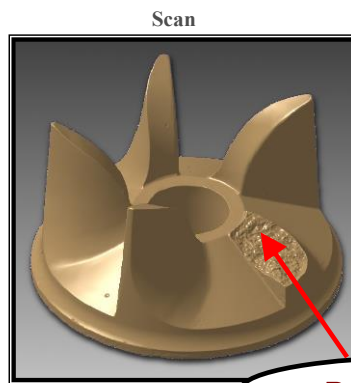
Reverse Engineering Application

Molds Reconditioning and Repairing:

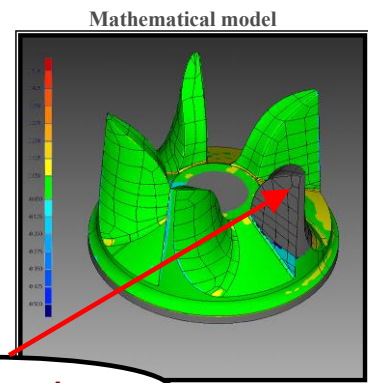
It is possible to reconstruct worn or missing parts, regenerate the "cavities", the closures and all damaged mechanical parts..



Small object system



Scan



Mathematical model

Reconstruction