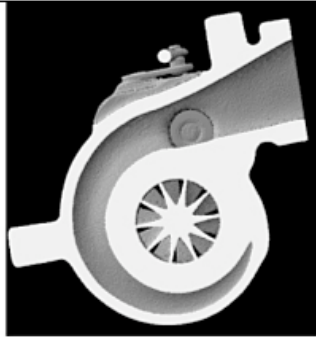
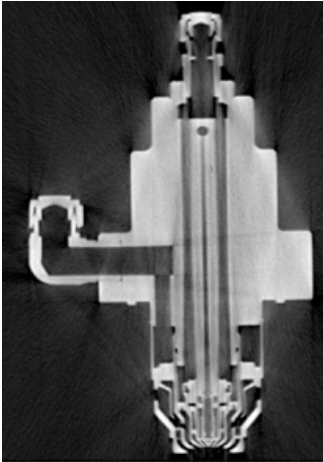


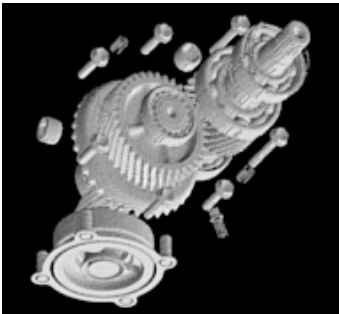
X-ray Computed Tomography



Cut Section of a Turbocharger



2D-Section



3D - STL

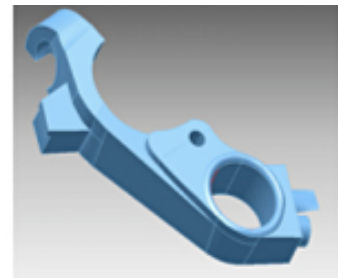
Example of Reverse Engineering – from scanning to CAD model



2D - Slice



3D - Reconstruction



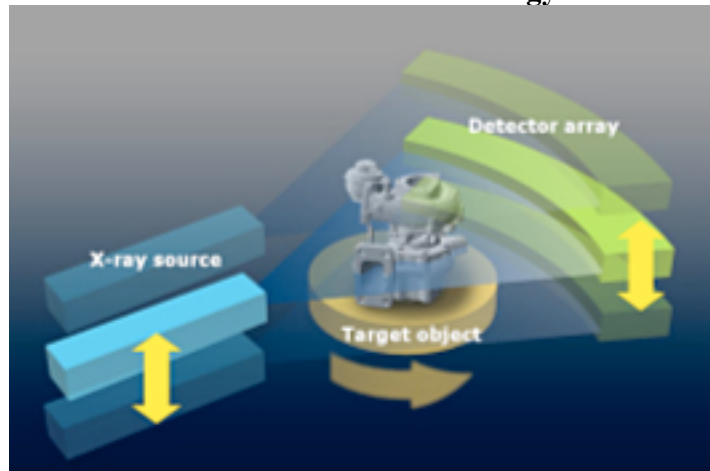
CAD Model

Hitachi X-ray Computed Tomography (XCT) is a state of the art technology to provide scanning and data analysis on various components. XCT can be used for Non-Destructive Testing to improve quality (void detection, dimensional analysis, etc.)

Features of Hitachi XCT:

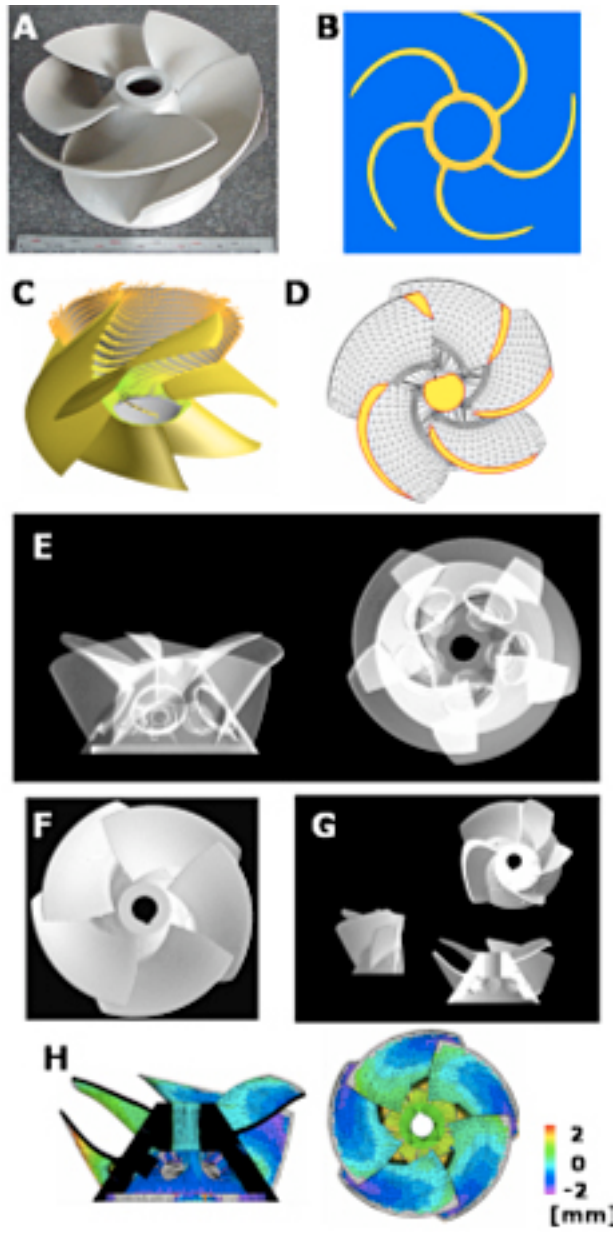
1. **Internal Dimensional Measurement:** With the use of XCT, measurement of complex internal shapes becomes easy and convenient
2. **Density Analysis:** Assemblies having materials with different densities can be analyzed with Hitachi's data analysis software
3. **Integrity Analysis of Assemblies:** One of the greatest advantages of using XCT is that complex assemblies can be scanned without disassembling them. This is particularly valuable when the integrity of an assembly has to be examined (i.e. if all the components in the assembly are assembled properly with respect to each other)
4. **Shape Comparison:** This feature enables the Engineer to compare the shape of the CAD model with that of the XCT reconstructed model (which would be in STL format). This would enable him to see in areas the dimensional of the actual product has deviated from the CAD model
5. **STL File Generation:** The output format of the reconstructed XCT model can be saved as a STL format which can be viewed in almost all CAD packages
6. **Support for Reverse Engineering and Rapid Prototyping:** With all the features and benefits mentioned above, this technology is ideal for Reverse Engineering and Rapid Prototyping

XCT Hardware Technology

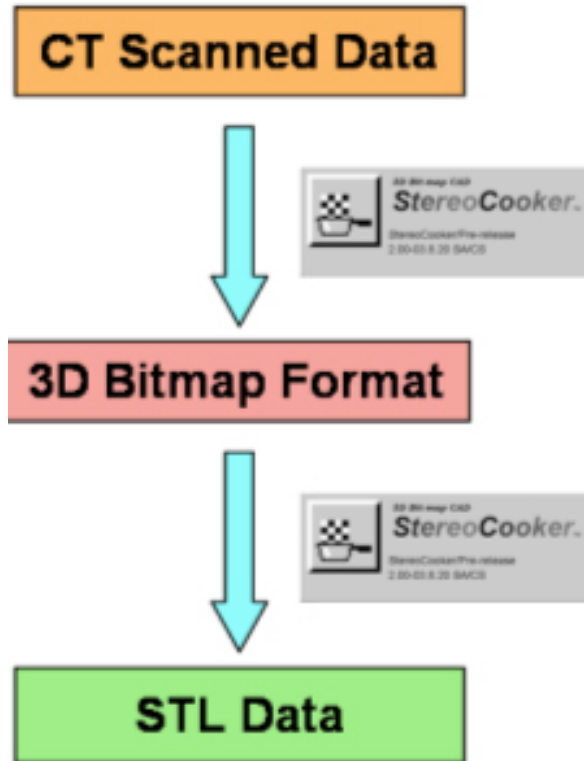


Features of Hitachi's Software - STEREOCOOKER™

- Advanced 2D bitmap analysis and 3D volumetric reconstruction enhance the use of XCT for dimensional analysis and void detection of components:
- Photo of Actual Component (A)
- Single CT Slice (B)
- Multiple Skewed Slices (C)
- Reconstructed STL model (D)
- Transparent Views of Reconstructed CT Model (E)
- Surface Models (F)
- Cut Models (G)
- Comparison of CAD and CT models (H)



Data Processing Technique



Applications

- **Automotive:**
Engine Blocks, Heads, Transmission, Body, Chassis, Suspension, etc.
- **Materials:**
Metals like Steel, Aluminum, Magnesium, Copper, etc.
Can also scan Plastic, Ceramic, Composite, etc.