STORK TURBO BLADING
3D-SCAN SERVICES
1. Reverse Engineering
   - Digital 3D-Copy of blades, turbine components and other products
   - Reproducing a CAD-model for further Engineering
   - As-built information
   - Integrated production capabilities accelerate product lead time

2. Dimensional Quality Control
   - Single Part & Series Inspection
   - Product Release & process approval
   - 3D-comparison and verification with CAD-model or direct dimensional measurements on product

3. Dimensional Verification & Analysis
   - Geometrical Verification
   - Alignment of Installations
   - 3D Corrosion Analysis
   - Deformation Analysis
Equipment Capabilities

- 3D scanning for quick measurements with ATOS III and TriTop
- Minimal dimensional restrictions
- On-site and off-site scanning
- Reverse Engineering, Quality Control & Dimensional verification
- High accuracies (<0,01 mm)
- From single scanning services to an integrated engineering package
Measuring Principle

First method: Tritop
Accuracy 0.01 mm/meter.

This is done with a high end camera, the software needs to have references (markers) and scalebars in each project, also stickers can used on the object for measurement.

Second method: Atos III
Accuracy 0.01 mm/meter

This is done with special 3D camera, the software uses Tritop point cloud for reference, the result will become a 3D model.

Engineering to purpose
Dimensional Quality Control
3D-comparison and verification with CAD-model

- Deviation control by fitting scan data in the CAD-model

**Turbine Blade:**
- Blade Dimensions: 20mm x 120m
- Accuracy: 8µm

**Boiler Membrane Wall:**
- Wall Dimensions: 2m x 3m
- Accuracy: 50µm
After scanning, data of all dimensions can be extracted.
Reverse Engineering
Turbine Blade

Optical measuring device used for digitizing samples to 3D-pointcloud and mesh model

3D optical scan

Screenshot

Mesh model
Reverse Engineering
Turbine Blade

Optical 3D scan → Mesh file → New model
On-site Scanning

Citrique Belge Tienen - Tienen, Belgium

EDF Energy - Somerset, England

Vattenfal - Odense, Denmark

AVEBE - Foxhol, Netherlands
On-site Scanning

Radial compressor rotor - Essen, Germany
On-site Scanning

Siemens Rotor and Stator segment, Kemi - Finland
In-house Scanning

Impeller,