

Aerospace Castings Inspection Using ShapeGrabber Ai310 System

Complex shapes are our specialty

Precision Metal castings are used extensively in the aerospace industry, particularly as jet engine components. They can be manufactured to very complex shapes that optimize performance and weight, while exhibiting great strength and resistance to extreme heat. Their complex shapes, however, make metal castings some of the most difficult to measure for conformance to designed dimensional specifications.

Benefits to Aerospace Manufacturers

ShapeGrabber® 3D laser scanners are ideal for the complete inspection of complex-shaped aerospace parts:

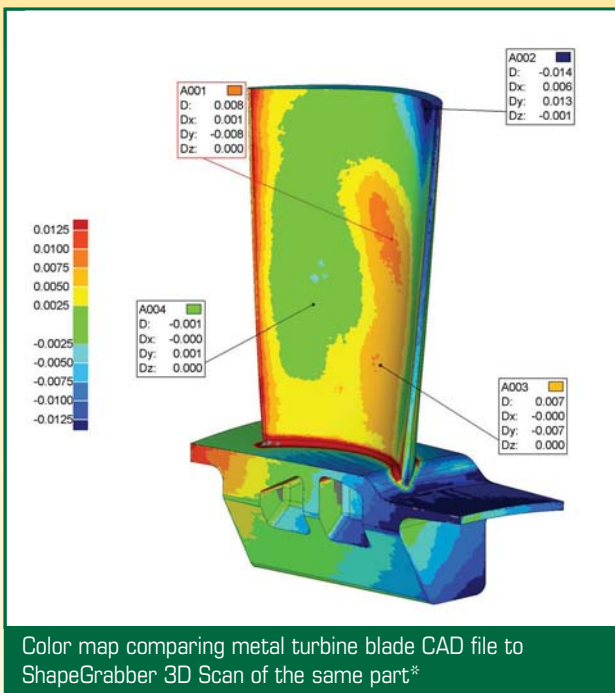
- Allow rigorous quality control measures to be applied to precision metal castings.
- Capture millions of data points in a few minutes which represent the true surface geometry.
- Scans can be easily compared directly to CAD models.
- Scan data provides accurate and timely feedback on prototypes, allowing faster and better part design and process optimization.

On-line production no longer needs to rely on a few sample points collected with a slow CMM. With ShapeGrabber, it is possible to inspect the whole part and still make rapid pass/fail decisions with confidence.

Select Customer List

These are just a few of the aerospace manufacturers using ShapeGrabber systems to measure their complex parts:

- Belac
- Chromalloy Nevada
- Kapco
- Moog
- Northrop-Grumman



ShapeGrabber for Metal Castings

ShapeGrabber systems are particularly valuable for use with metal castings because:

- They accurately measure complex shapes with compound curves.
- Scans containing millions of data points can be completed within minutes, so the complete part can be verified in production.
- The visual nature of the results makes it possible to more quickly troubleshoot the source of a problem and get back to production.
- Parts do not have to be placed in an expensive fixture to be scanned, leading to significant savings in capital costs.
- Scan results are documented in automatically generated reports and can be provided to customers as part of the quality assurance process.

ShapeGrabber systems include a variety of automated, portable, large and small 3D scanning options to accommodate different needs. Turn the page to learn more about the Ai310 system and accompanying inspection software.

* Inspection results generated using Geomagic Qualify software with ShapeGrabber scan data

Featured Product: ShapeGrabber Ai310

ShapeGrabber® 3D laser scanners are ideal for the complete inspection of complex-shaped aerospace parts:

The ShapeGrabber Ai310 automated inspection system is ideal for complex shaped parts where speed, complete coverage and ease-of-use are important. Its compact size allows the Ai310 to fit easily on a workbench or standard inspection table.

With the Ai310, aerospace manufacturers who need to inspect metal castings and other complex-shaped parts can reduce inspection time (both first article and production) and greatly enhance part coverage, increasing customer satisfaction by reducing defects and providing proof that specs are met.

Rapid and efficient inspection scans also reduce production equipment downtime, material waste, and human inspection error.



The ShapeGrabber Ai310 scanning a turbine blade.

System Features

- Full surface 3D quality control
- Automated inspection in minutes
- Easy to use
- No CAD training required
- Go/No Go: back to production
- Complete design verification
- Automatically save and print reports
- Save and share data

Benefits

- Reduce inspection time
- Reduce defect ship rate
- Increase sampling rate
- Reduce equipment downtime
- Improve process monitoring
- Reduce material waste
- Reduce human error
- Provide proof that specs are met

Specifications Overview

Data acquisition rate:	18,000 to 100,000+ points per second
Scan volume:	Cylinder of 300 mm (12 in) in height by 170 mm (7 in) in diameter
Laser:	Class II, eye safe
Report types:	Color error maps, fly-out boxes, tables, cross sections, GD&T, tabular all available
Report formats:	Excel, Word, HTML, PDF

Systems are available in various configurations to accommodate different part sizes, automation and quality control requirements.

Call us to discuss your specific needs and visit www.shapegrabber.com to learn about our complete product line and to obtain detailed specifications.