

ZEISS ATOS LRX

Large volume 3D scanning



21 May 2024



ZEISS ATOS LRX

Large volume 3D scanning



ZEISS ATOS LRX with MV 2000

- Fast scanning of very large surfaces
- Based on ATOS 5X technology



Goal

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ZEISS ATOS LRX is the specialist for fast scanning of very large surfaces.

Thanks to its powerful light source in combination with the very large measuring area, the sensor delivers precise full-field data in a short time especially for large parts.

ZEISS ATOS LRX captures up to 2×12 million coordinate points with a single scan.



Next Generation Laser Light Source

ZEISS ATOS LRX



Extremely bright laser light source

- Generated by advanced integrated Laser Light Compressor
- Resistant to ambient light conditions
- Uniform, non-coherent, speckle-free light over the entire measuring area of 2000 x 1600 mm²
- Short exposure times even for dark and shiny surfaces
- High detail resolution with precise coverage of complex geometries



Next Generation Laser Light Source

ZEISS ATOS LRX



High safety

- Class 2 (no further protective measures)
- Built-in radar sensors automatically turn off the light source if the safety distance is not maintained and if they detect movements in the critical area
- No protective equipment, no laser safety officer necessary
- Interactive operation possible (using reduced projector light for operator convenience)
 - Touch probe
 - Live tracking
 - Backprojection



Members of the ATOS 5 family

ZEISS ATOS LRX



ATOS 5 for Airfoil

Precise scanning
of smallest details

Light source
LED



ATOS 5

High-speed
3D scanning system

Light source
LED



ATOS 5X

Automated scanning
for large volumes

Light source
Laser



ZEISS ATOS LRX

3D scanning for
very large volumes

Light source
Laser

Applications

ZEISS ATOS LRX



Fast scanning of large surfaces

ZEISS ATOS LRX serves applications for which neither large volume scanners (laser trackers or laser radars) nor the current fringe projection systems are well suited today: The fast measurement of large surfaces.

ZEISS ATOS LRX is a specialist. Applications include:

- Aerospace
- Automotive
- Casting
- Shipbuilding
- Wind power



Applications

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Aerospace

- Structural components like fuselage, wings, wing ribs, tail
- Outside fuselage (rivets and gap/flush lines between panels)
- MRO (e.g. surface defects)



Applications

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Automotive

- Design (e.g. pre-milling of clay models)
- Crash testing



Applications

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Large castings and structures

- Automotive tool making (cast blanks for forming tools, e.g. for side and floor panels, fenders)
- Machine building (e.g. injection molding machines, welded assemblies)



Applications

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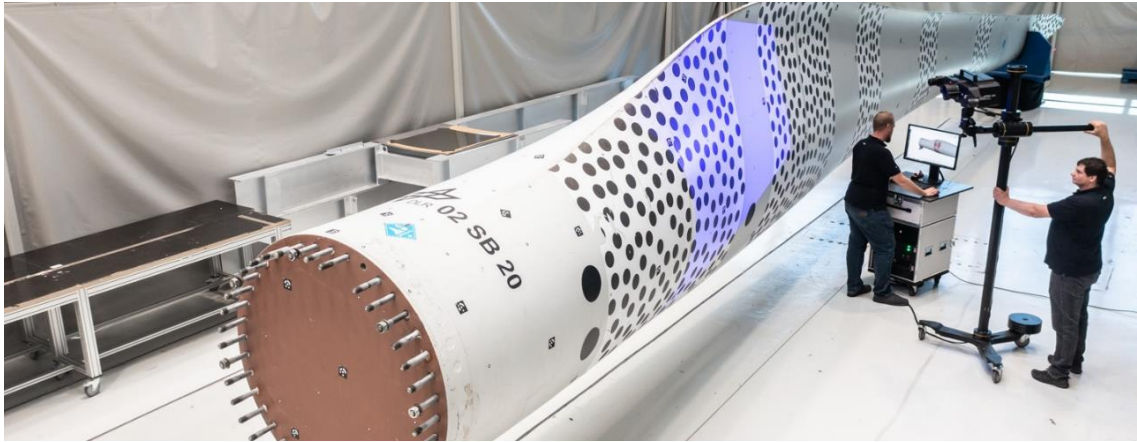
Shipbuilding

- Marine propellers
- MRO



Applications

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Wind power

- Rotor blades and molds
- Wind turbine housings



Automated Set-up

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ZEISS ATOS LRX is compatible with **ScanBox Series 8**. In this way the system can be used as an automated solution.

- ScanBox Series 8 is specially designed for big parts
- Especially used in the automotive industry for quality assurance in car body manufacturing or crash tests

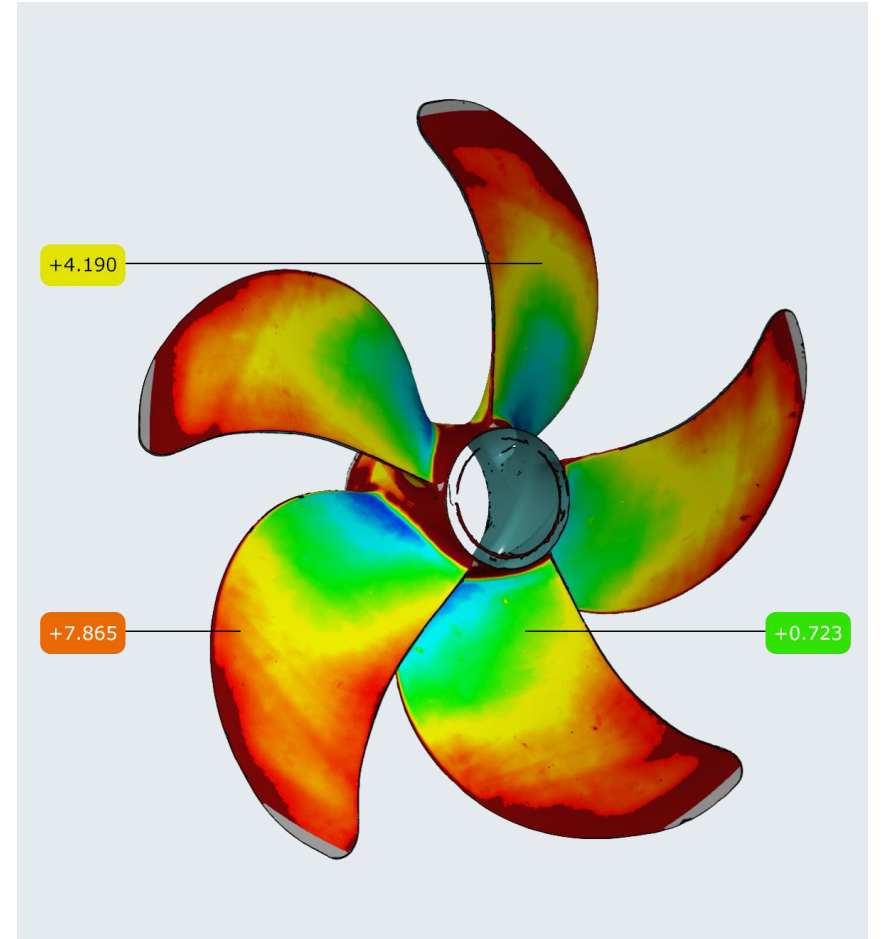
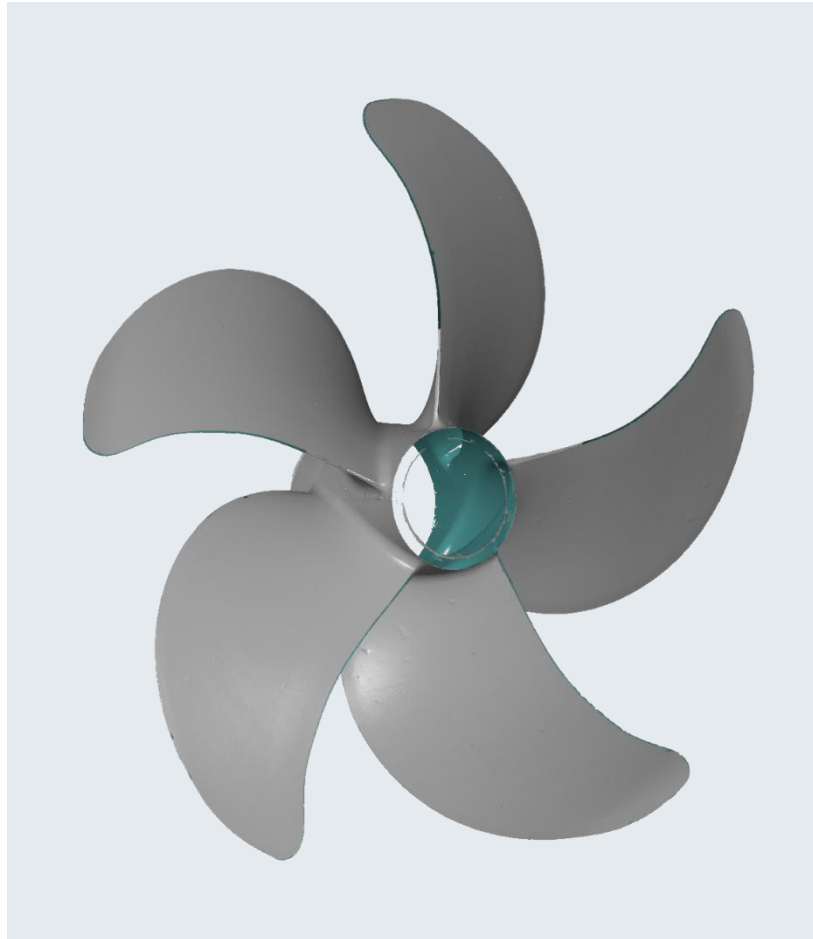
For projects with more specific requirements such as extremely large parts, **individual measuring cells** can be installed.



The German Siempelkamp Gießerei has installed the world's largest non-contact robot measuring cell together with ZEISS, to ensure precise quality of their very large castings.

Dimensional inspection with ZEISS INSPECT Optical 3D

ZEISS ATOS LRX



Benefits

ZEISS ATOS LRX



Speed

Advanced laser light source in combination with large measuring area

Reduced number of required scans

Short exposure times even for dark and shiny surfaces

Precision

- Precise triangulation thanks to increased camera distance and high working distance

- Triple Scan

- High detail resolution with low noise level and precise coverage of complex geometries

Robust sensor design

- Industrial housing

- Fast data processing

- Industrial connectivity with fiber optical cables and robust connectors

User-friendly software

- Complete workflow in one software package

- Digital twin for inspection, reverse engineering, simulation and more

- Full software functionality with Touch Probe, Back Projection and Tracking

Technical Data

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Light source	LD
Laser class	2
Measuring area [mm²]	2000 × 1600
Working distance [mm]	1810
Measuring points per scan	2 x12 million
Dimensions [mm]	approx. 950 × 320 × 200
Weight	17 kg

Standard calibration with Calibration Cross CC50/2000; optional with Calibration Panel CP40/2000 and HyperScale CC50/2000
Combinable with Touch Probe (PM8)

Fast on-site Calibration with HyperScale

ZEISS ATOS LRX



Enhanced measuring accuracy with HyperScale

- New software function HyperScale
- Fast on-site calibration with DAkkS certified length standard
- Easy setup: calibration cross CC50/2000 remains folded together; single scan completes calibration
- Compensation of undesired effects of temperature changes

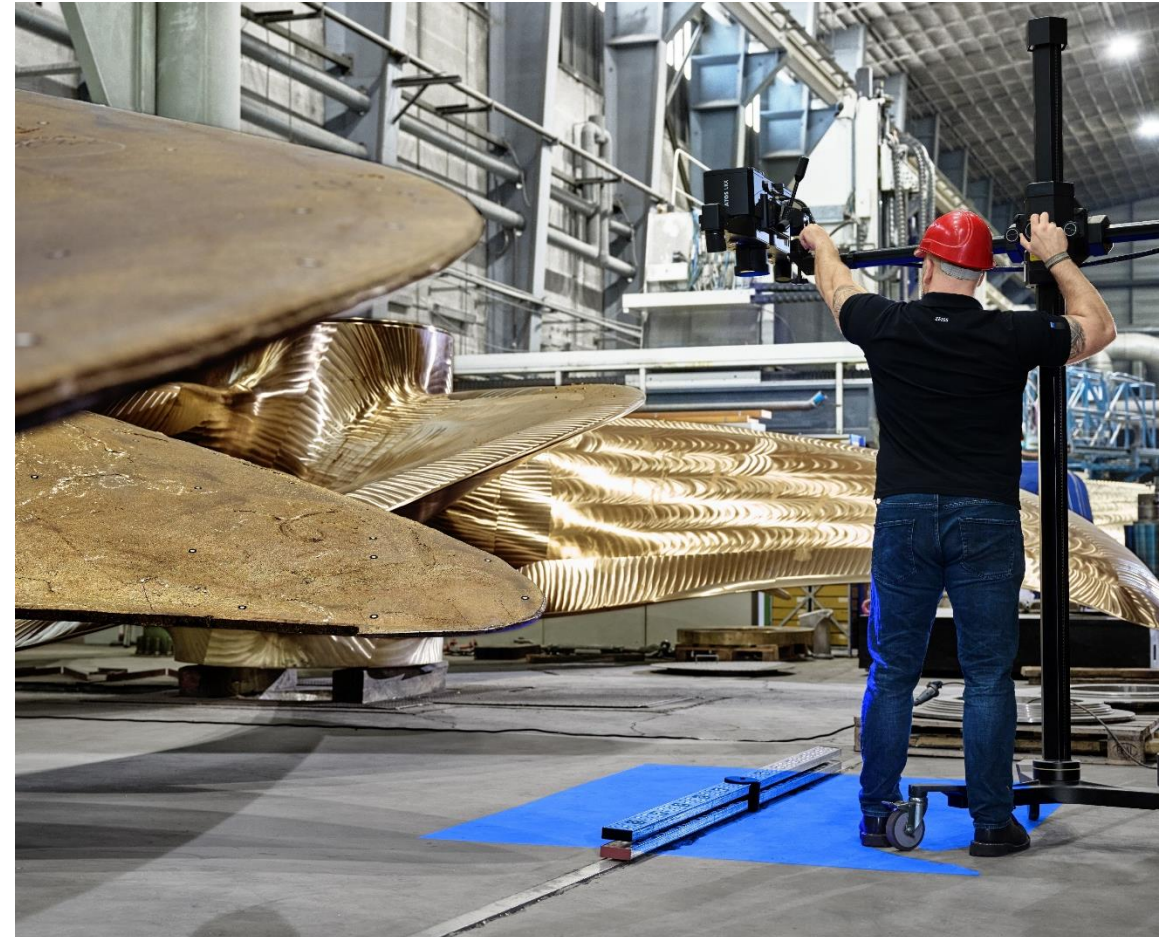


System Example

ZEISS ATOS LRX



- ZEISS ATOS LRX sensor with case
- MV 2.000 (including calibration cross)
- Sensor Driver ZEISS ATOS LRX
- Software: ZEISS INSPECT Optical 3D
- 12 months of Software Coverage
- Cable for manual usage
- Touch Probe PM8
- Controller
- ASABA stand with arm and tilt/swivel head
- Image Processing Computer 7820 Rack Design incl. TFT 24"





Seeing beyond