

API

NOTHING BEYOND MEASURE



iScan 3D

December 2022

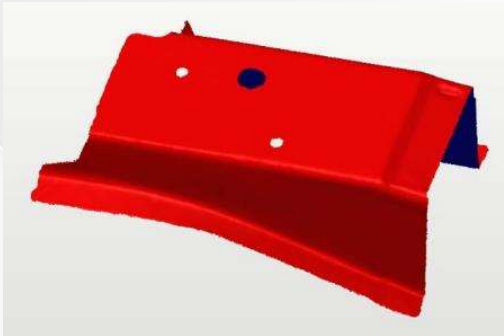
iScan3D - Metrology Grade Hand-held Laser Scanner - Overview



- **For portable shop-floor dimensional inspection** and scanning markets
- **Use in applications** that include fixture inspection, gap and flush inspection, and reverse engineering
- **Scans wide variety of surface textures** such as high-gloss and contrast areas
- **Provides unique probing ability** for hidden-points measurements
- **Compact, fast and highly accurate**

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iScan3D - Applications

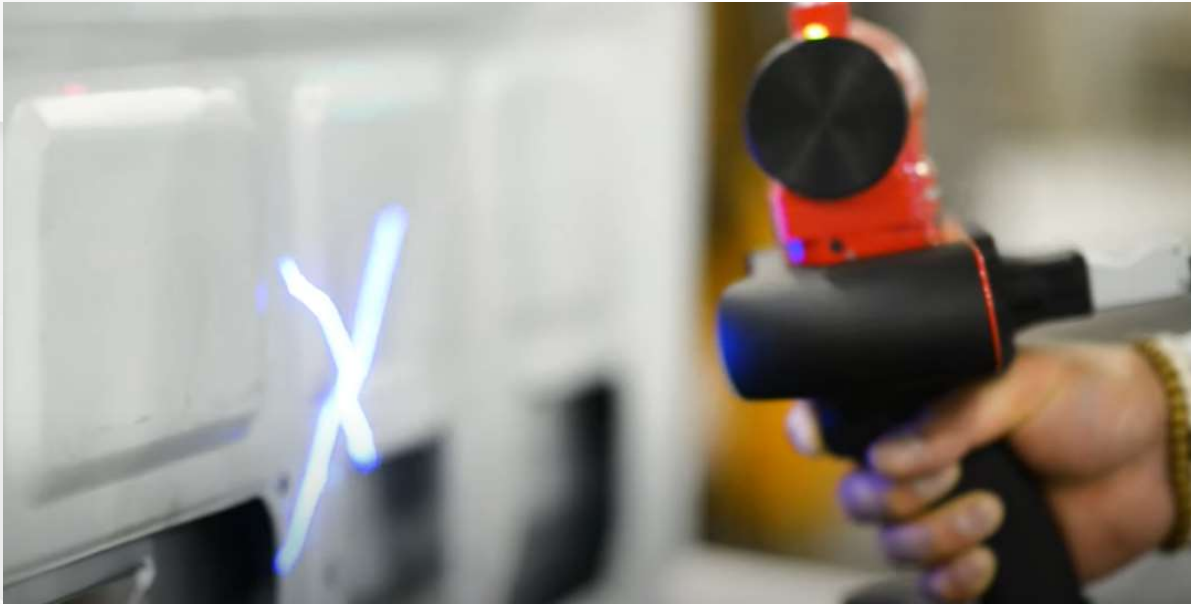


- Reverse Engineering
- Flush and Gap
- Surface Contours
- Large Body Assemblies
- Rapid Prototyping
- Mold and Die Cavities
- Compare CAD
- Fixture Inspection
- Tooling, Fixtures and Jigs



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Videos



iScan3D - (15 sec) - English

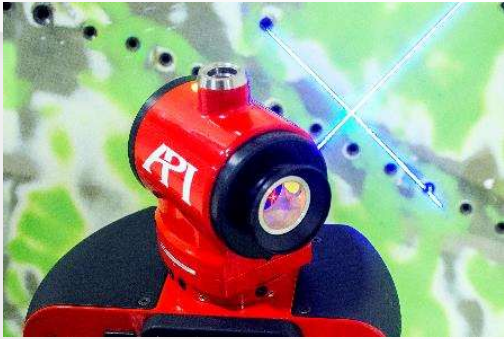
<https://www.youtube.com/watch?v=CkgUR0B64kc>

iScan3D - How it works -- (4:11 min)
English

<https://www.youtube.com/watch?v=nXLNVUFQREc&t=50s>

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iScan3D – Features and Benefits (1)



- **Accuracy** - IFM based precise measurement
- **Controllerless** - makes large-scale scanning quick and simple
- **Large scanning volume** - in tandem with API's Radian Laser Trackers to scan large areas
- **Rotating head** provides flexibility by allowing complete 360° rotation
- **Compact** - lightweight, easy to transport and use
- **360° Continuous tracking** - swivel head for continuous movement in line of sight with laser tracker
- **Ergonomic design** - Easy to hold and operate during measurement of cavities, hidden angles and curves

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iScan3D - Features and Benefits (2)



- **Smart Buttons** - Pre-Programmed
- **RFID** - Automatic probe stylus recognition
- **Tactile Probing** - Variety of probe styli (up to 500mm supported) and dual stylus mounting
- **Dense Point Cloud** – provided by blue lasers and high-resolution camera in real-time - 32,000 points/second
- **Dynamic Stability** - Advanced electronics



iScan3D – Reverse Engineering Project

- **Step One: Scanning**

Polygon model of the aluminum casting

- **Step Two: 3D model generation**

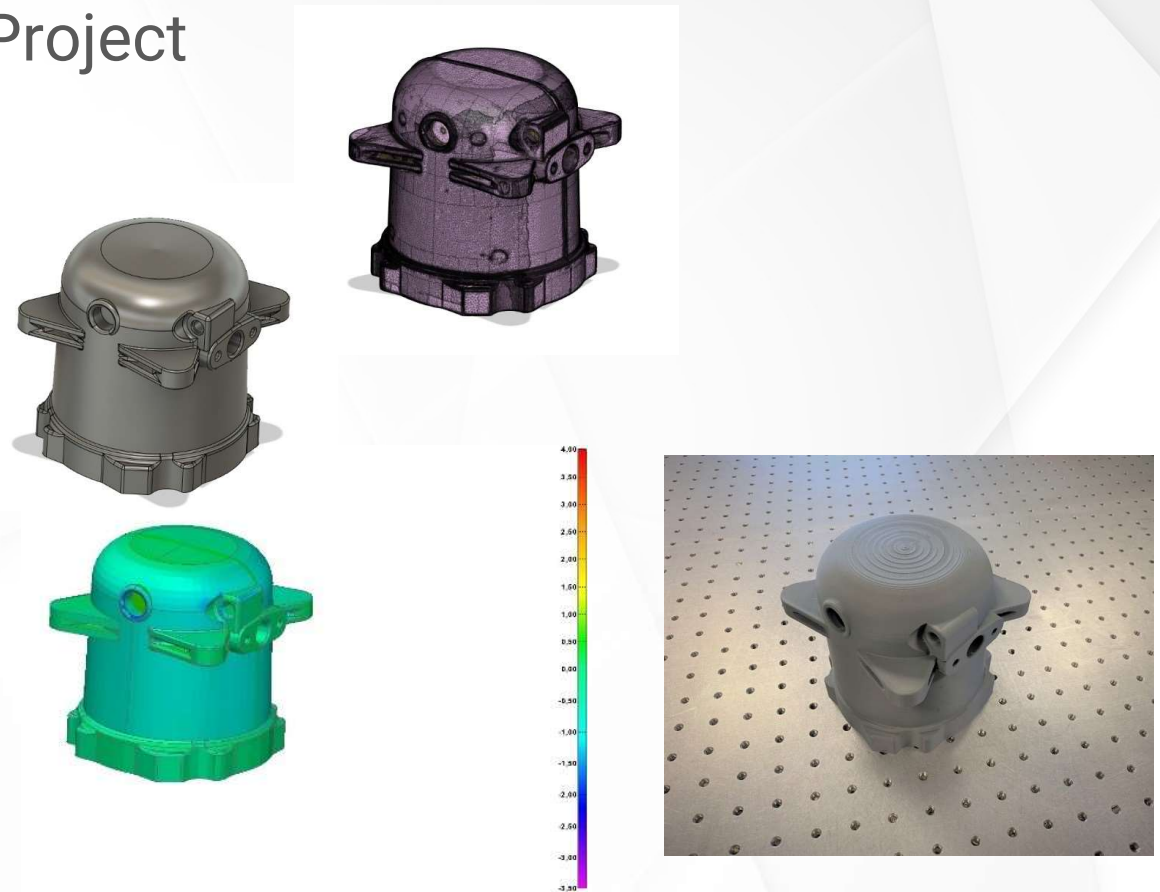
CAD model

- **Step Three: Verification of the result**

False color comparison

- **Step Four: Creation of a physical model**

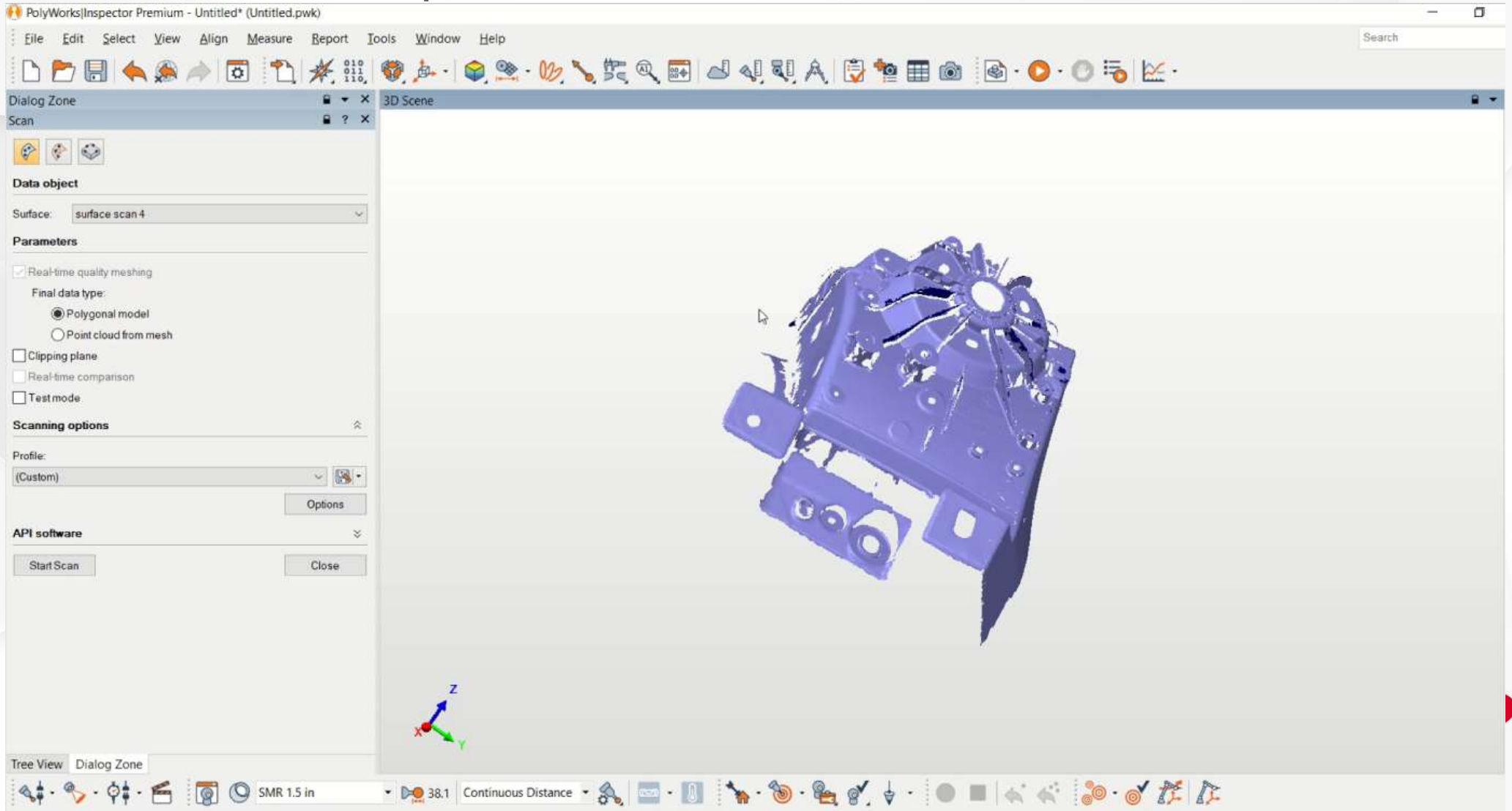
Finished 3D print



API Arm Reverse Engineers Cast Aluminum Part	https://apimetrology.com/api-arm-reverse-engineers-cast-aluminum-part/	https://apitreck.sharepoint.com/:b:/g/Sales%20Kits/EY3D_rokO6VGoKt8da0dUg8B2OleGwSMTvRZzWFPqCBerQ
Der Reverse Engineering Prozess am Beispiel eines Alurohgssteils	https://apimetrology.com/de/der-reverse-engineering-prozess-am-beispiel-eines-alurohgssteils/	https://apitreck.sharepoint.com/:b:/g/Sales%20Kits/EY3D_rokO6VGoKt8da0dUg8B2OleGwSMTvRZzWFPqCBerQ

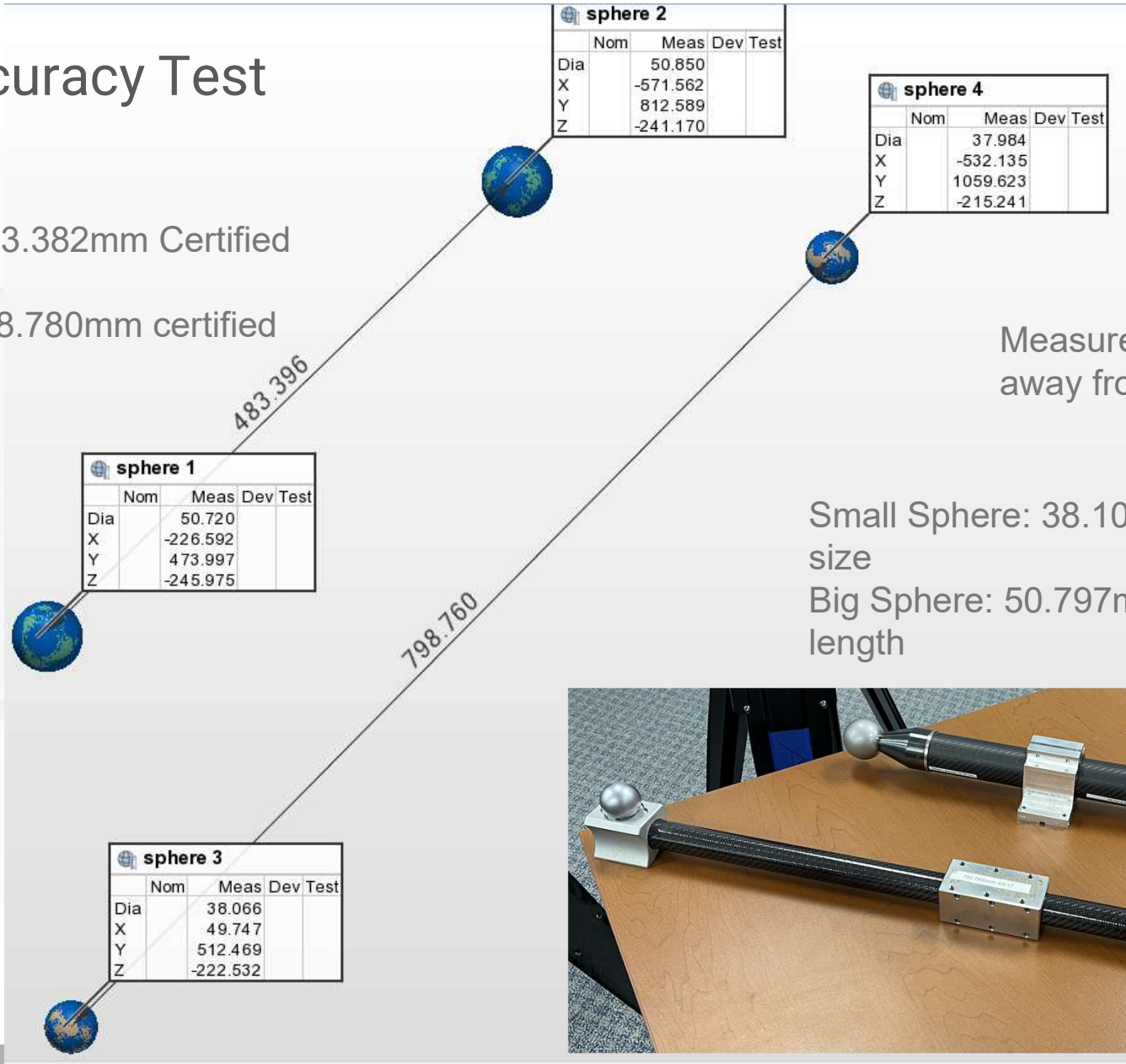


iScan3D Scan Sample



iScan3D Accuracy Test Sample

Short Bar: 483.382mm Certified Length
 Long Bar: 798.780mm certified length

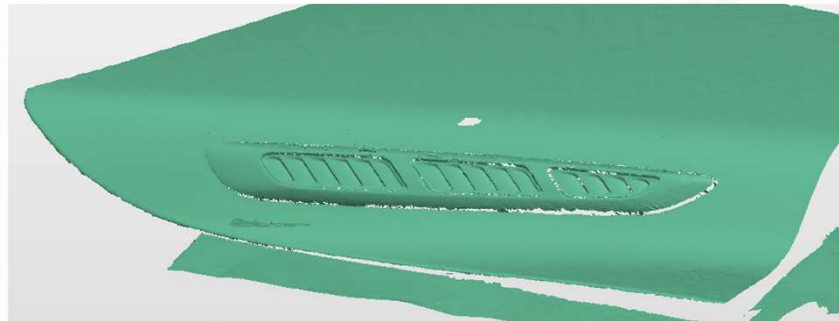
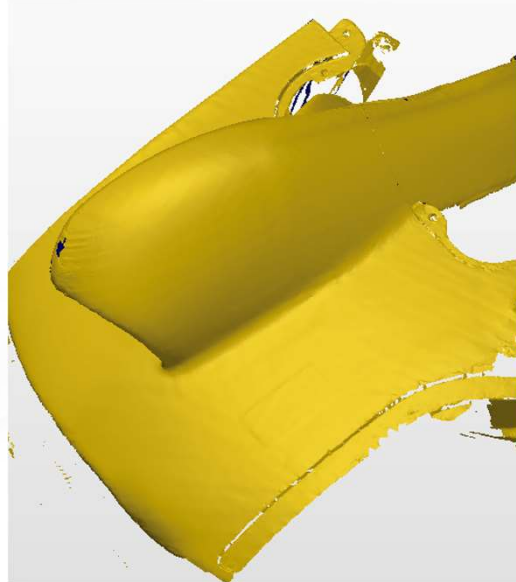


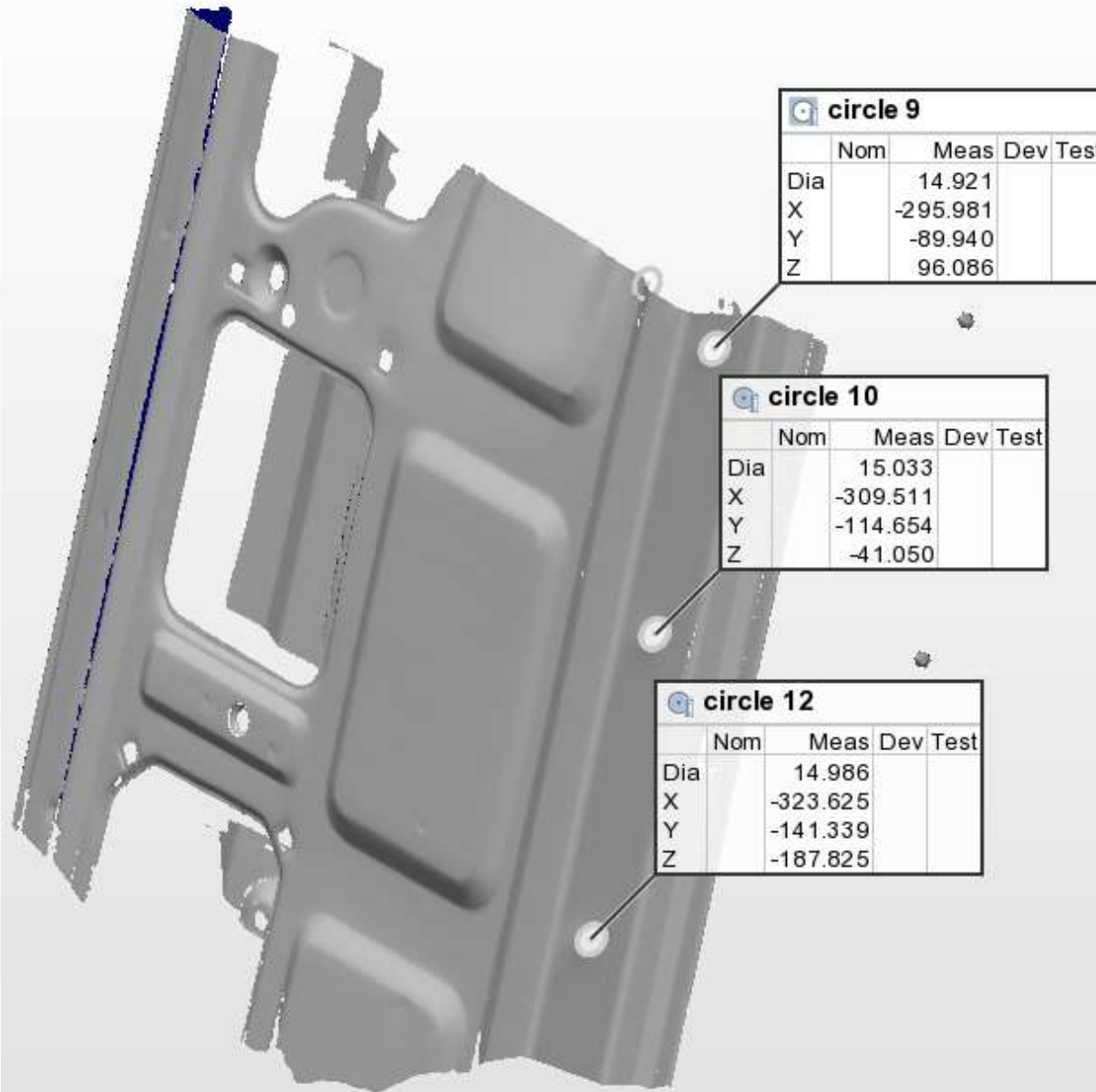
Measured about 5 meters away from the tracker

Small Sphere: 38.10mm certified size
 Big Sphere: 50.797mm certified length



iScan3D Scan Samples





iScan3D Specifications

System Accuracy			
	2-7 Meters	7-15 Meters	Above 15 Meters
Spatial Length (2 σ)	$\pm 50\mu\text{m}$	$\pm 80\mu\text{m}$	$\pm (20\mu\text{m} + 4\mu\text{m}/\text{m})$
Sphere Radius (2 σ)	$\pm 50\mu\text{m}$	$\pm 75\mu\text{m}$	$\pm (30\mu\text{m} + 4\mu\text{m}/\text{m})$
Surface (2 σ)	$\pm 60\mu\text{m}$	$\pm 70\mu\text{m}$	$\pm (80\mu\text{m} + 2\mu\text{m}/\text{m})$
Attributes			
Angle Acceptance	$\pm 45^\circ$ (Pitch and Yaw) 360° Roll		
Sampling Frequency	100Hz		
Max. Scanning Speed	200,000 pts/sec		
Laser Line Color	Blue		
Min. Point Spacing	70 μm		
Stand Off Distance	170mm \pm 40mm		
Depth of Field	\pm 40mm		
Field of View	110mm x 100mm		
Size and Weight	H 265mm x W 110mm x L 110mm / 1.03kg		
Working range	Up to 50m (using 50m cable)		
Autolock			
iVision Field of View	30° (diagonal)		
Acquisition Range	2m – 40m		
Environmental			
Operating Temperature	-10°C – 45°C		
Relative Humidity	10% – 95% (non-condensing)		
Power			
Power Supply Voltage	110v/230v \pm 10%		
Power Consumption	100w		



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