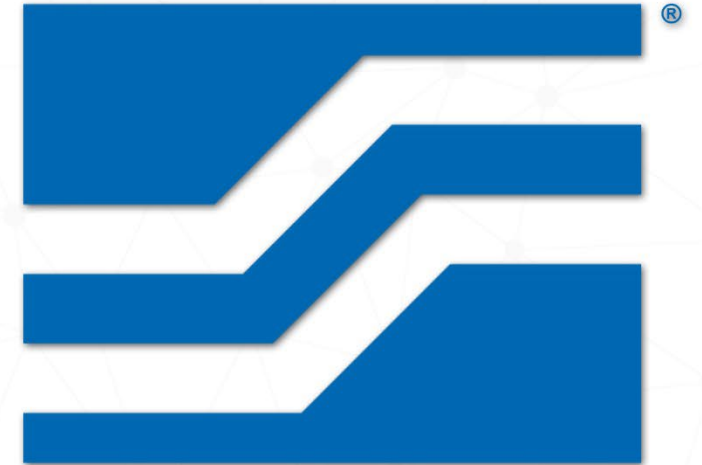


IFS Scanning Technology

Date: 10 May 2026

Prepared by:
Garrett Kaiser



ENGINEERED SOLUTIONS

Garett Kaiser

Engineering Technician - 3D Scanning, Video and Drone Operations

“Recent“ History of Scanning

- ❖ I started doing scanning work in the late 90’s using Faro Arms and Total Stations Collecting 1 data point at a time or building 1 polygon at a time, until you had enough data points that you could then construct or rebuild a model in a 3D modeling or design application. With accuracy in the 0.125-inch range



The Faro Arm

Fixed Location CMM Measurements

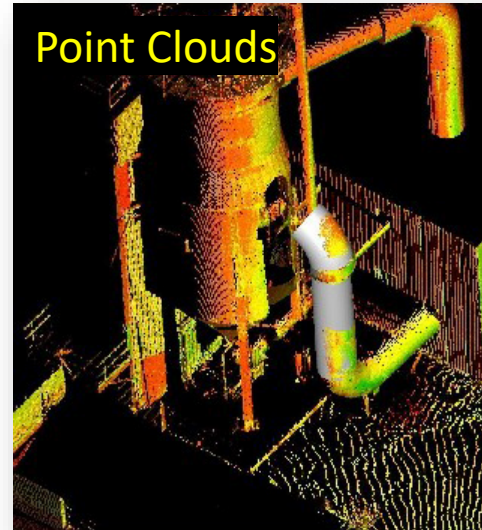


Leica – Total Stations



Technology Advances...

- ❖ Technology had advanced to laser based “Lidar” in roughly 2010 and the Faro Focus Scanners capturing 100,000’s data points per second creating a “point cloud”. This allowed you to capture entire areas not just focused parts in a matter of hours vs. days. And other technology that would use “Structured Light” in data collection for polygonal models



Structured Light

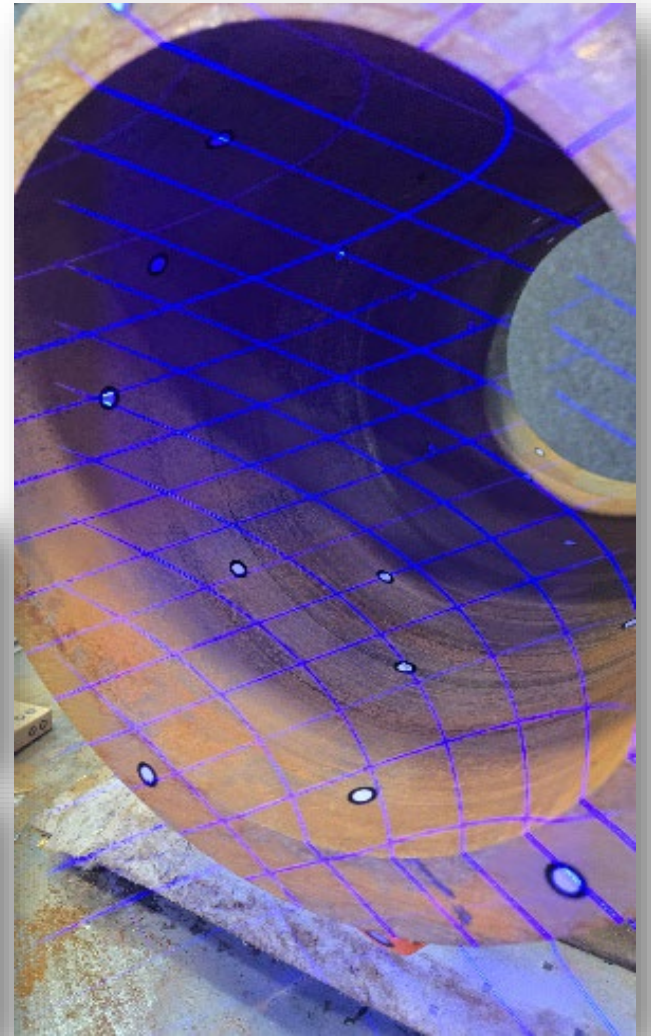
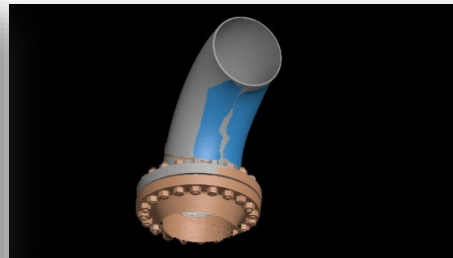
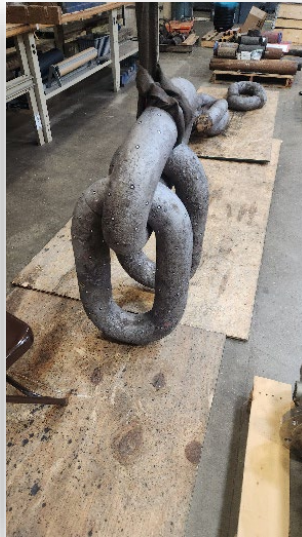


Leica Scan Station



Scanning Today:

- ❖ About that same time and into 2015 Lidar continued to improve and laser based hand held scanners were introduced and became highly accurate scanner options collecting millions of data points in minutes. And accuracy has now reached levels of .001 inches.



Faro Focus and Creaform Elite Scanning



Creaform Video

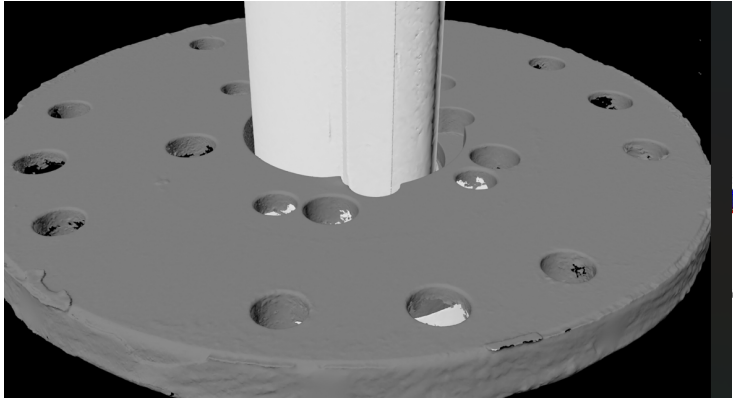
Comparison – Through the Years

2005

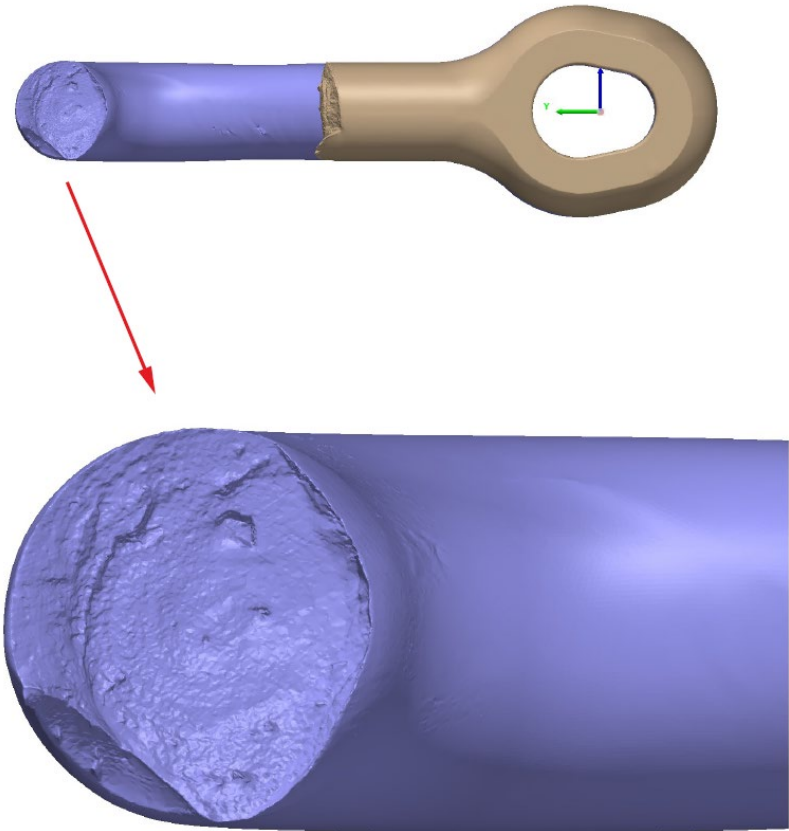
(Approximate Year)



2019



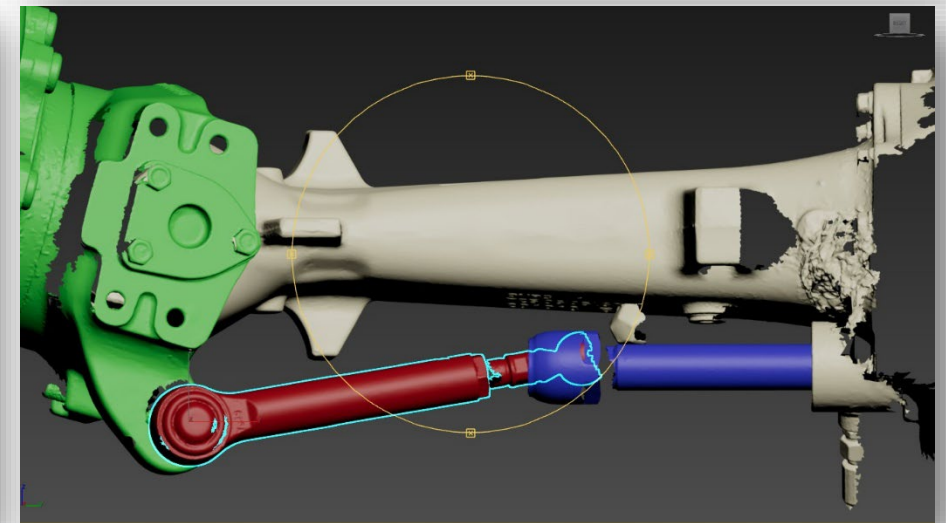
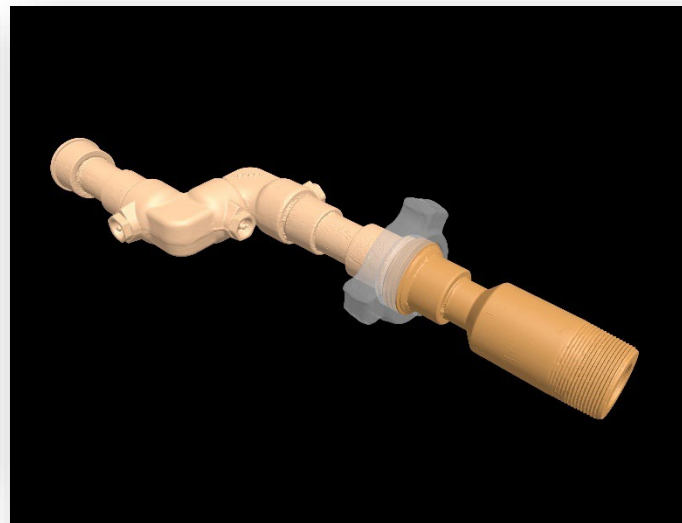
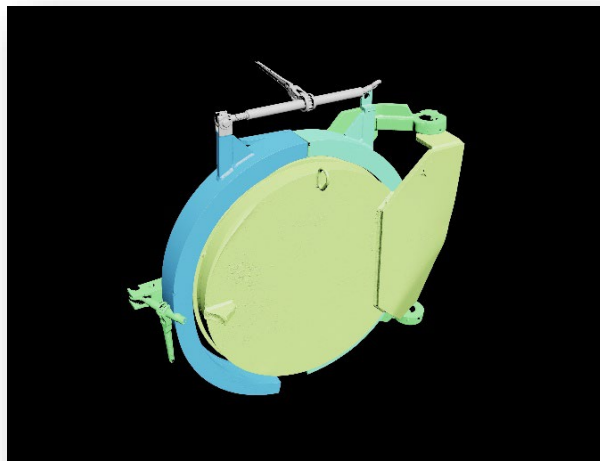
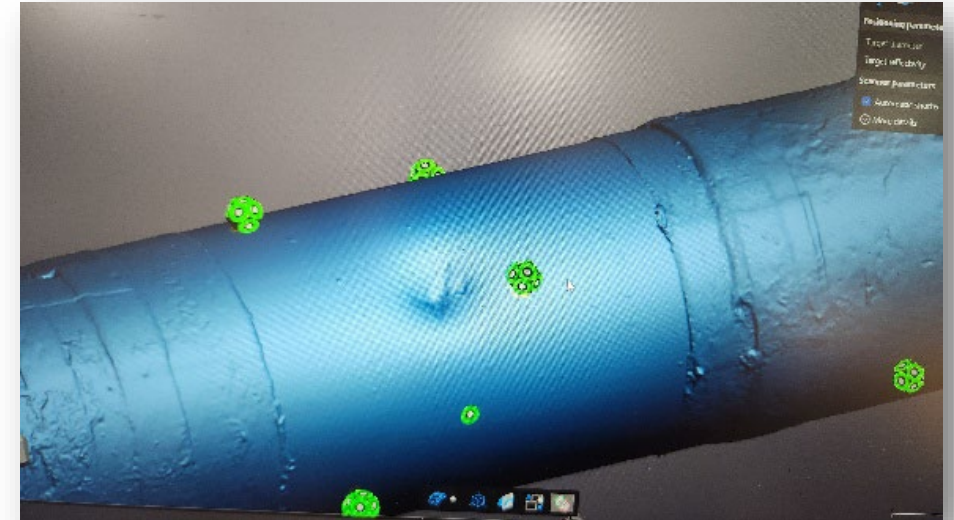
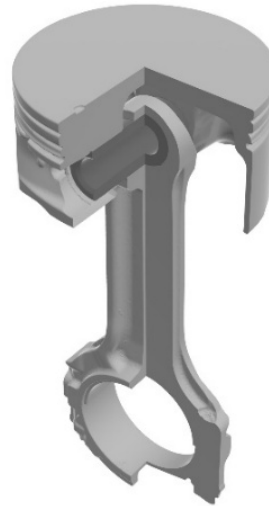
2026



3D Scanning Output

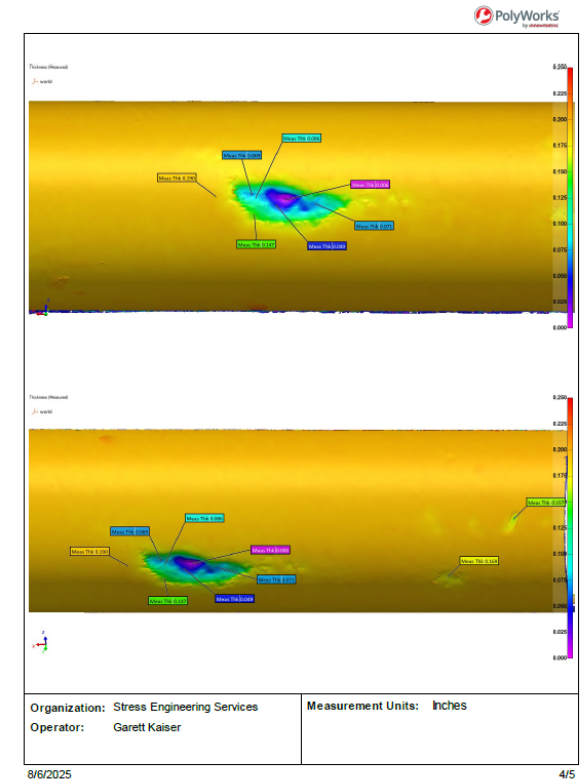
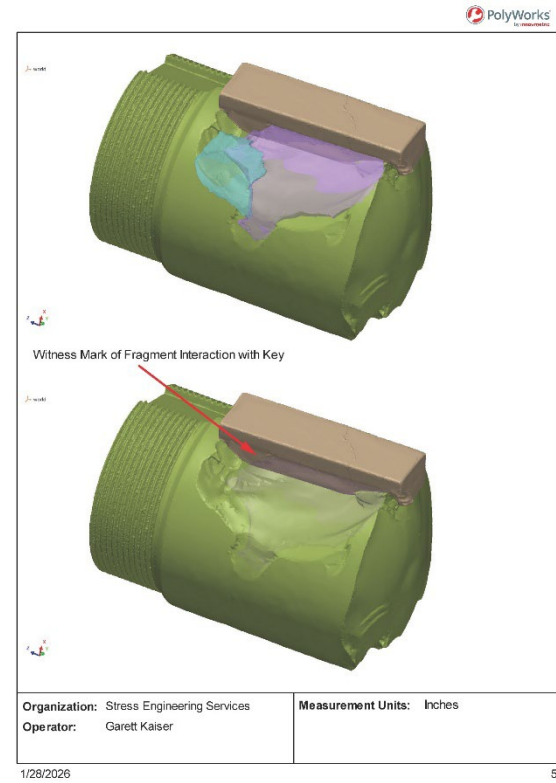
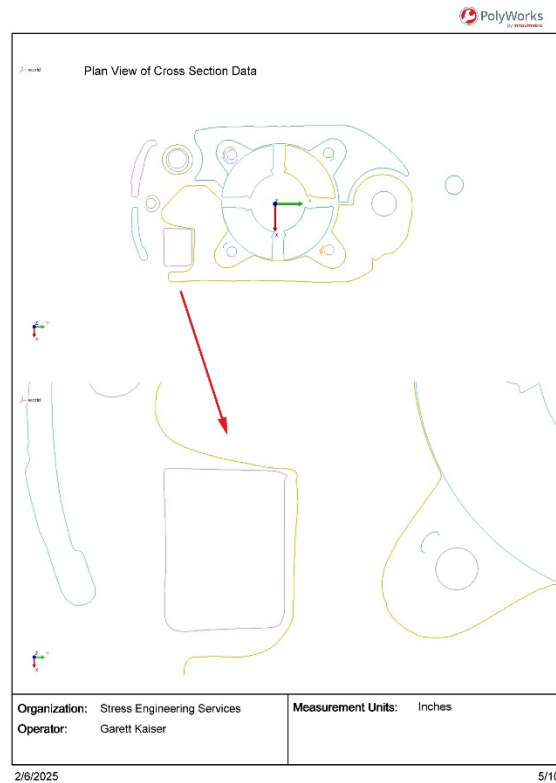
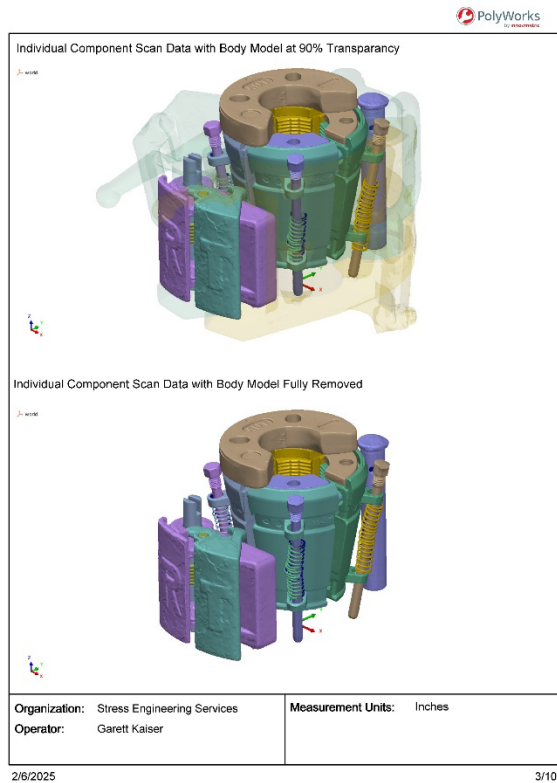
Model Data can be output for

- ❖ Reverse Engineering, Product Development and Design Work
- ❖ Non-destructive Testing (NDT)
- ❖ 3D Printing
- ❖ FEA Analysis
- ❖ Corrosion and Pit Depth Analysis
- ❖ Illustrations and Animation
- ❖ As Built vs. As Designed Comparisons
- ❖ Endless Possibilities.



Work - Examples

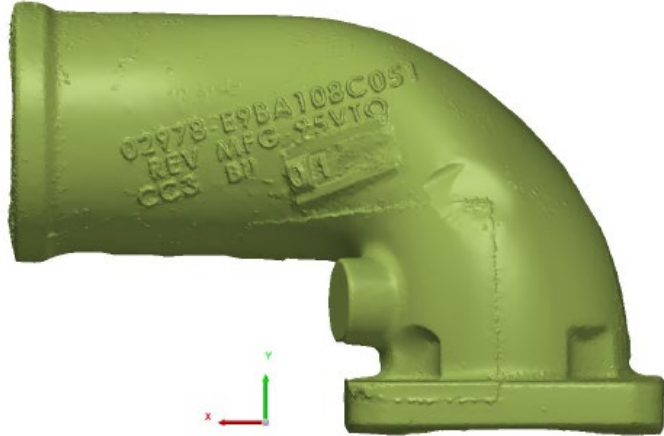
Cross Section and Component Interaction



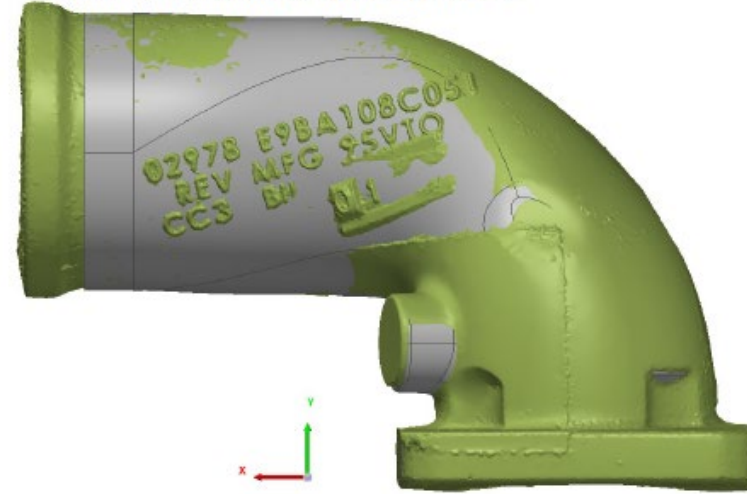
Work - Examples

As Built vs. As Designed 3D

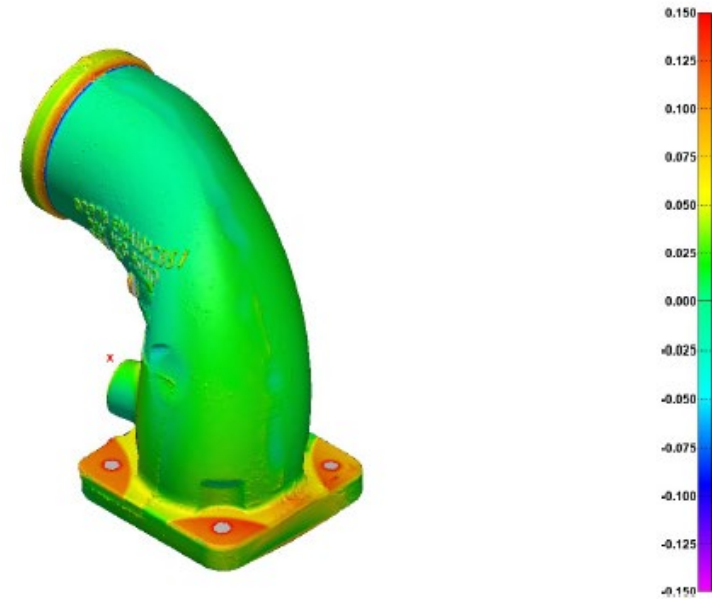
Scan Data - C051 - CC3



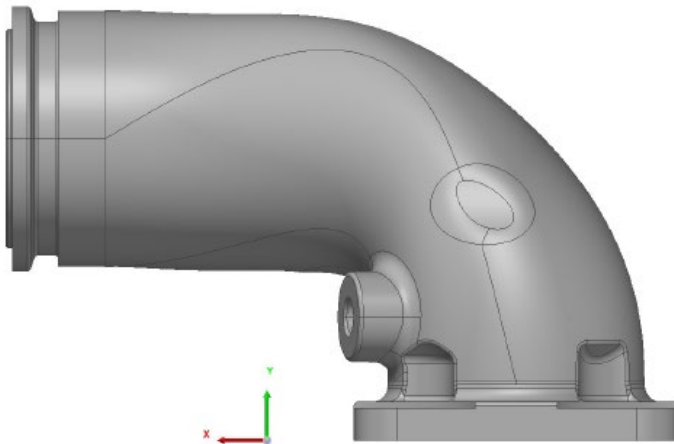
Scan Data and CAD Model Aligned - C051 - CC3



Scan Data Deviation from CAD Model - C051 - CC3 - Color Map

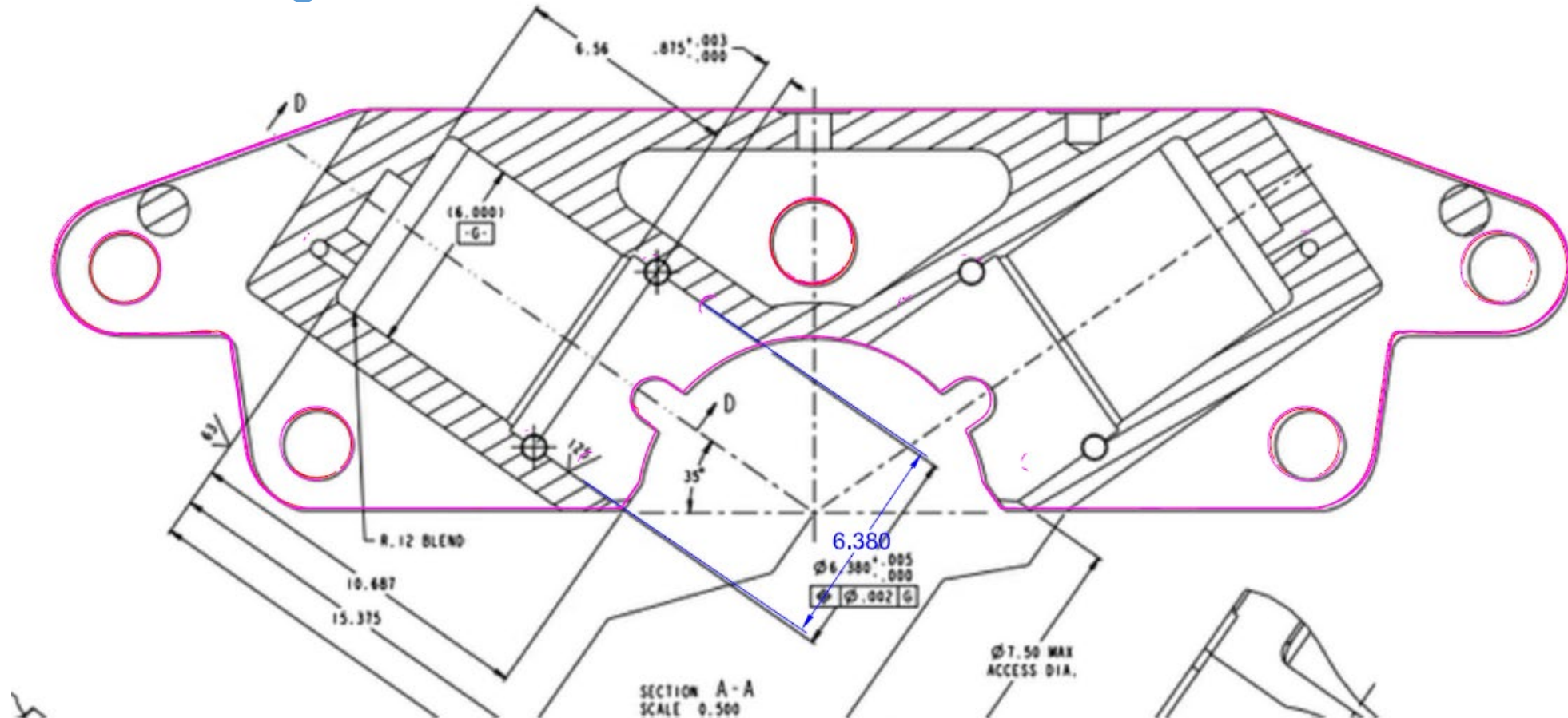


CAD Model - C051 - CC3



Work - Examples

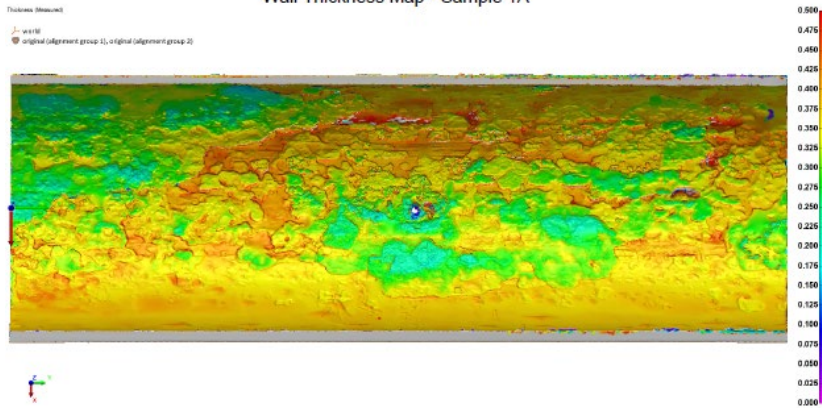
As Built vs. As Designed 2D



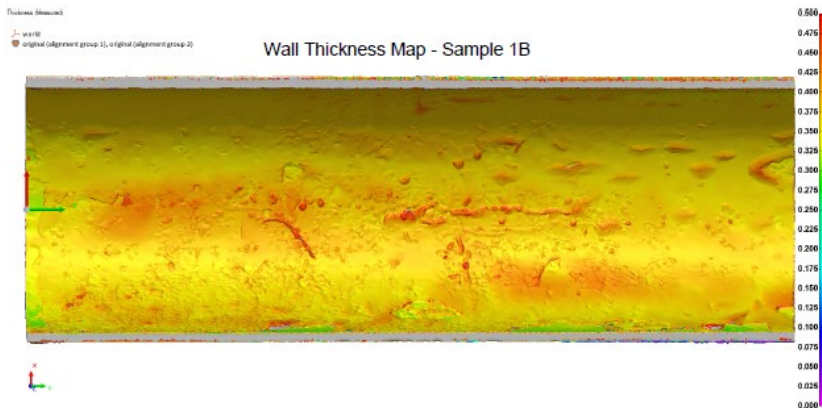
Work - Examples

Corrosion Analysis and Weld Fractures

Wall Thickness Map - Sample 1A

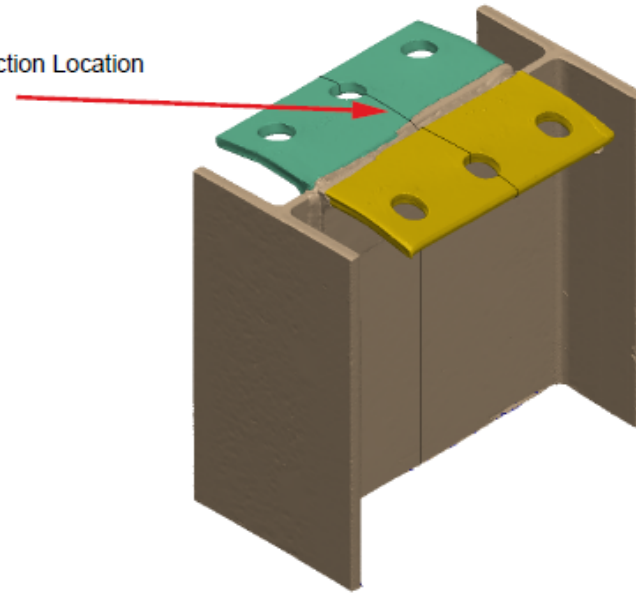


Wall Thickness Map - Sample 1B

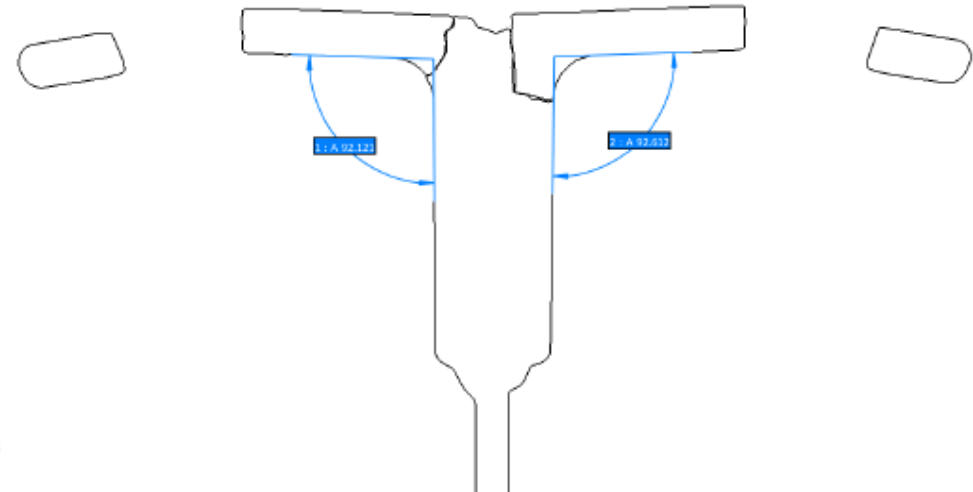


world

Cross Section Location



Cross Section Through Fracture Area



Now and Into the Future!

Drone Based Scanning – Up to 100 Sq KM Per Day And 3cm Accuracy!

Drone Video

Thank You

Garett Kaiser

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