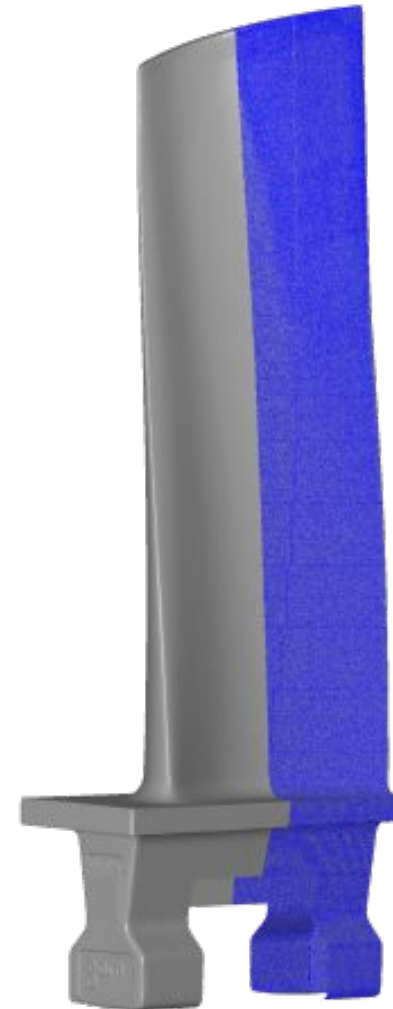
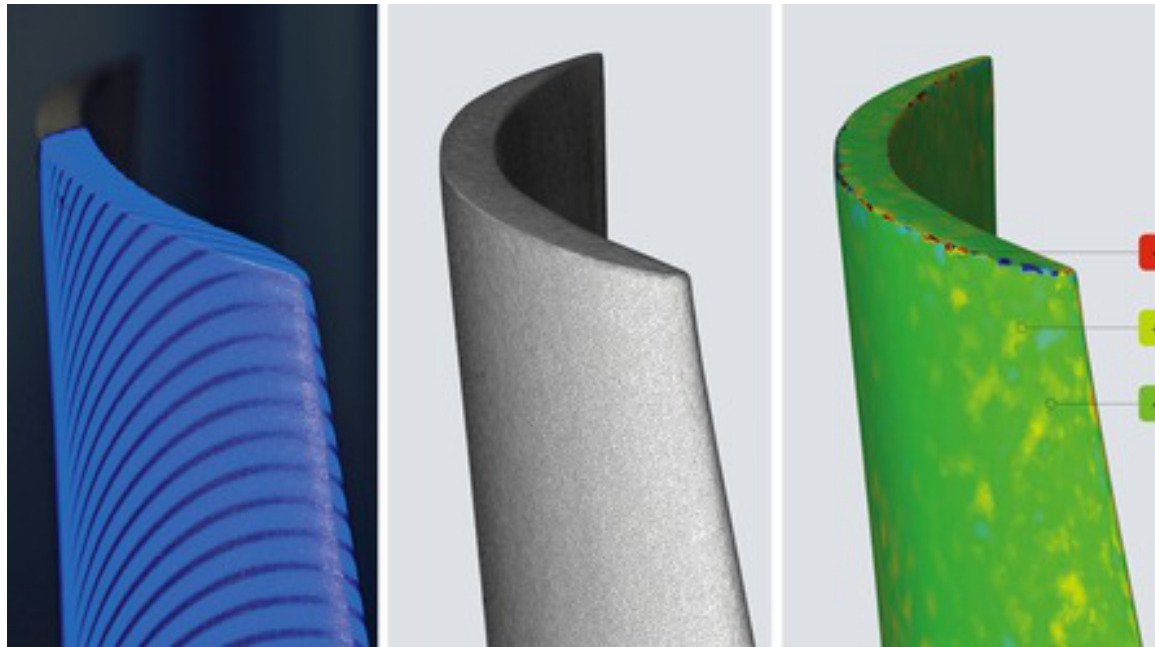


Capture 3D Non-Contact Measurement Technology for Manufacturing, Digital Twin and Quality 4.0

Aerospace Engineering - Casting

info@capture3d.com





Inspector: Capture 3D Employee

Company: Capture 3D

Department: Engineering

Location: Santa Ana, CA

Date: 1/1/2021

Project: IGT - Turbine Blade Casting Demonstrator

Part: GOM IGT Turbine Blade Casting

Serial no.: SN014

Version: ATOS Professional 2020

Charge no.: N/A

System: ATOS 3D Scanner

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Changing the way you experience measurement.

- Incorporated in 1997 as the United States partner for GOM GmbH in Germany with locations in:
 - California (Headquarters)
 - Connecticut
 - Michigan
 - North Carolina
 - Washington
- 100 team members and growing.
- Capture 3D has over 2,800+ systems installed. There are over 17,000+ GOM systems installed worldwide.
- The GOM network is comprised of 60 global locations and 1,000+ specialists.



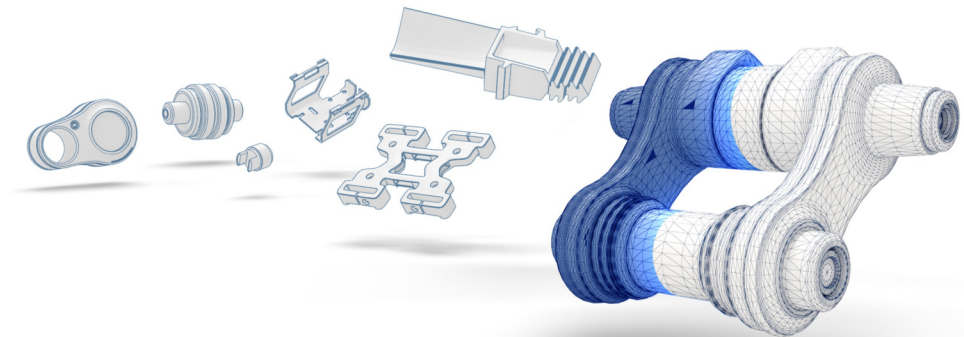
Capture 3D Automated 3D Metrology Solutions Center
Farmington Hills, Michigan

info@capture3d.com
www.capture3d.com

- **Solve immediate quality issues**
Quickly derive the optimal corrective action.
- **Lean manufacturing**
Eliminate unnecessary repetitive processes, rework, and iterations.
- **Process optimization**
Improve cycle times, productivity, and/or capacity.
- **Cost avoidance**
Resolve unforeseen issues to eliminate making bad parts.
- **Improve product quality**
Tighter part quality standards.

Results

- Faster Time to Market
- Increased Profits
- Improved Competitive Advantage



- High-resolution and high-speed 3D scanner with short exposure times. The system is ideal for measuring from small to medium sized Aerospace and Power Generation engine components. (Turbine blades, blisk/stator, turbine housing, etc.)
- Advanced structured blue light fringe projection technology
- Measuring volumes are VDI/VDE certified to NIST traceable artifacts

Blue-light equalizer:

- LED light source with 1.5 times brighter than the previous generation 3D scanners
- Less influence of reflections and ambient light on black and shiny surfaces
- Low noise level
- Precise coverage of complex geometries

High speed scanning:

- 0.2 seconds per scan
- With fiber optic cables
- Various configurations available
 - From manual to fully automatic setup
- Four different measuring volumes:
 - From 100 mm to 400 mm
 - Same stand-off distance regardless of measuring volume
- High quality data:
 - 2 x 12 megapixel camera
 - 0.025 mm - 0.097 mm point spacing per scan

For ATOS Airfoil videos, click the link below.

www.youtube.com/user/Capture3DScanning



Further Increase throughput, repeatability, and productivity with an automated configuration.

- Mobile
 - Assembling and dismantling possible in 1 day
 - Transportation by truck
- Module system
 - The entire system is located in modules, which can be easily moved with a pallet truck
 - The robot enables an internal cable routing, which ensures that the robot paths, calculated by Auto Teaching.
- Virtual Measuring Room (VMR)
 - Build automated measurement environments virtually. Full simulation of measurement processes with both online and offline programming.
- Compatible with ATOS high resolution 3D scanners
- General info:

• Dimensions	2000 x 2550 x 2700 mm
• Power supply	200 - 500 V (3-phase, 16A)
• Max part size	Ø 800 mm
• Max part weight	300 kg
• Automated axes	7
• Entry	Sliding door with safety lock
• Opening width	800 mm
• Floor mounting or fixing	Not required
• Loading concept	Manual



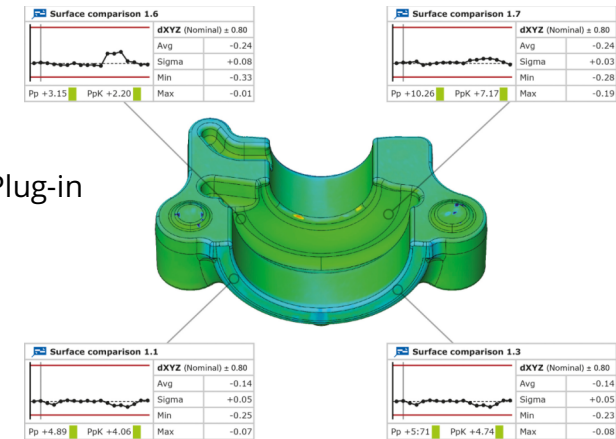
For ScanBox videos, click the link below.

www.youtube.com/user/Capture3DScanning

ATOS Professional software is used to operate the sensor head, process the 3D point cloud and to edit and post-process the data. The simple graphical user interface helps support today's demanding tasks in quality control, manufacturing processes and reverse engineer.

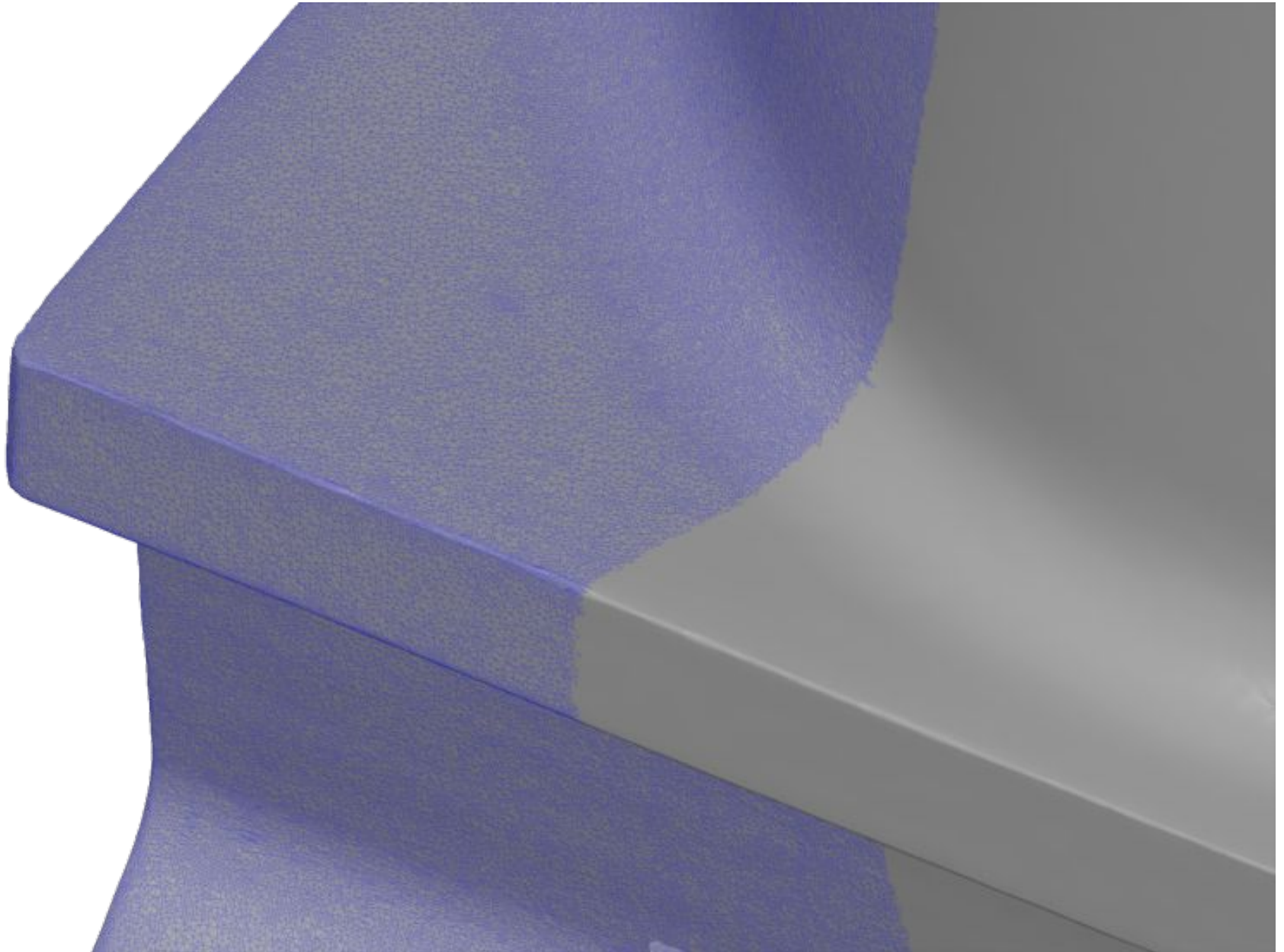
Software Highlights

- Airfoil Inspection
- Augmented Reality
- Alignments
- Back/Reverse Projection
- CAD Import Basis and Native
- CFD/FEA simulation and analysis support
- Curve-Based Inspection
- Deformation Analysis
- Digital Assembly
- Flexible Solution for Network Licenses
- GD&T Analysis
- Golden Mesh (Average mesh)
- Import/Export Measurement Data
- Kiosk Touchscreen Interface - Add-on
- Mesh Processing / Polygonize and process data
- Motion Replay
- Nominal-Actual Comparison
- Optical Tracking
- Parametric Inspection
- Photogrammetry
- Point-Based Inspection
- Reporting
- Reverse Engineering with Design X Plug-in
- Scripting
- SPC Analysis
- Surface Inspection / Defect Map
- Teaching by Doing
- Templates
- Touch Probe
- Traceability
- Trend Analysis
- Virtual Clamping - Add-on
- Virtual Measuring Room (VMR) - Add-on
- Volume Inspection (CT Data) - Add-on



- Single scans are aligned automatically based on the geometry and reference points
- Both sides can be scanned and transformed into one object

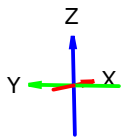




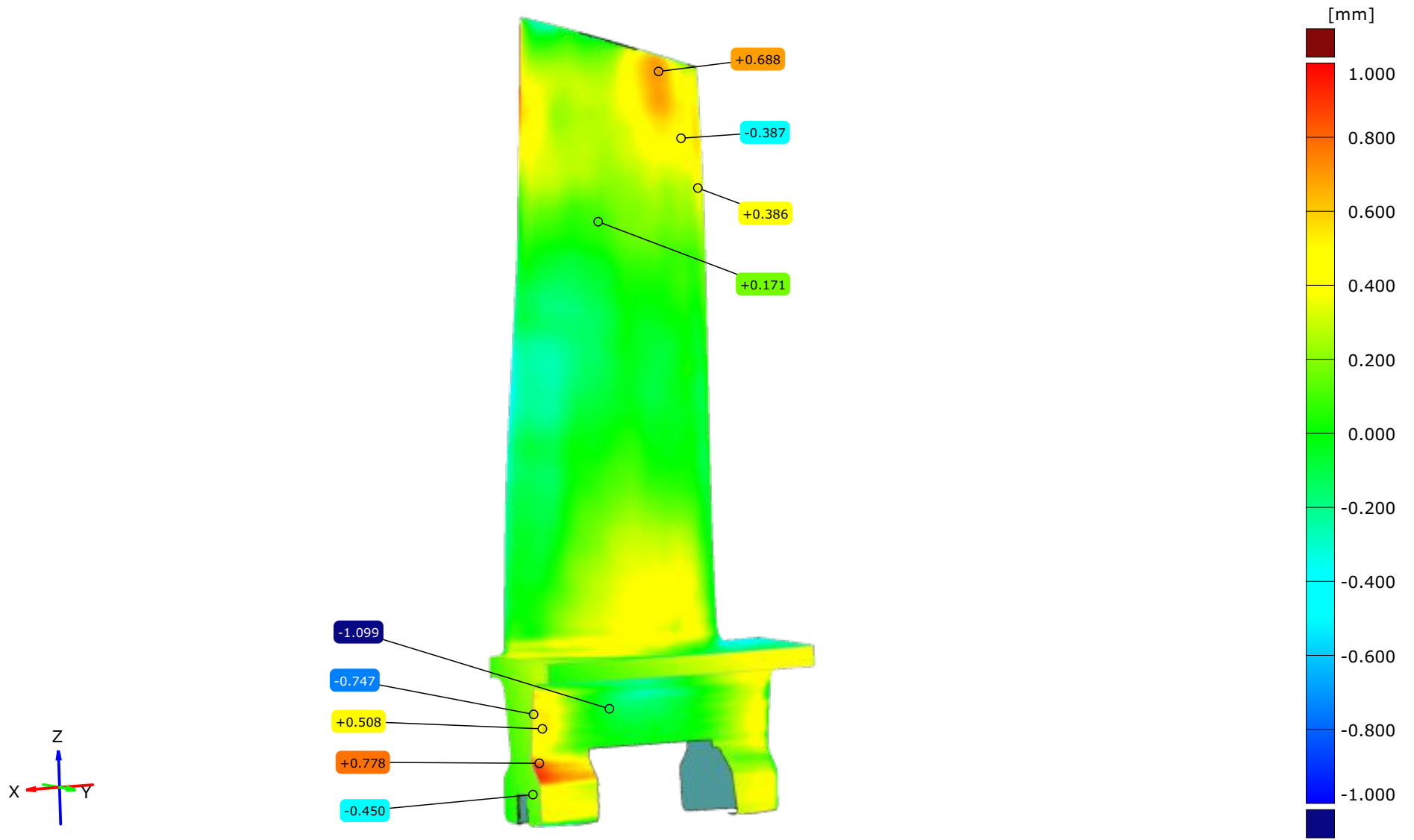
- Nominal and actual data side-by-side

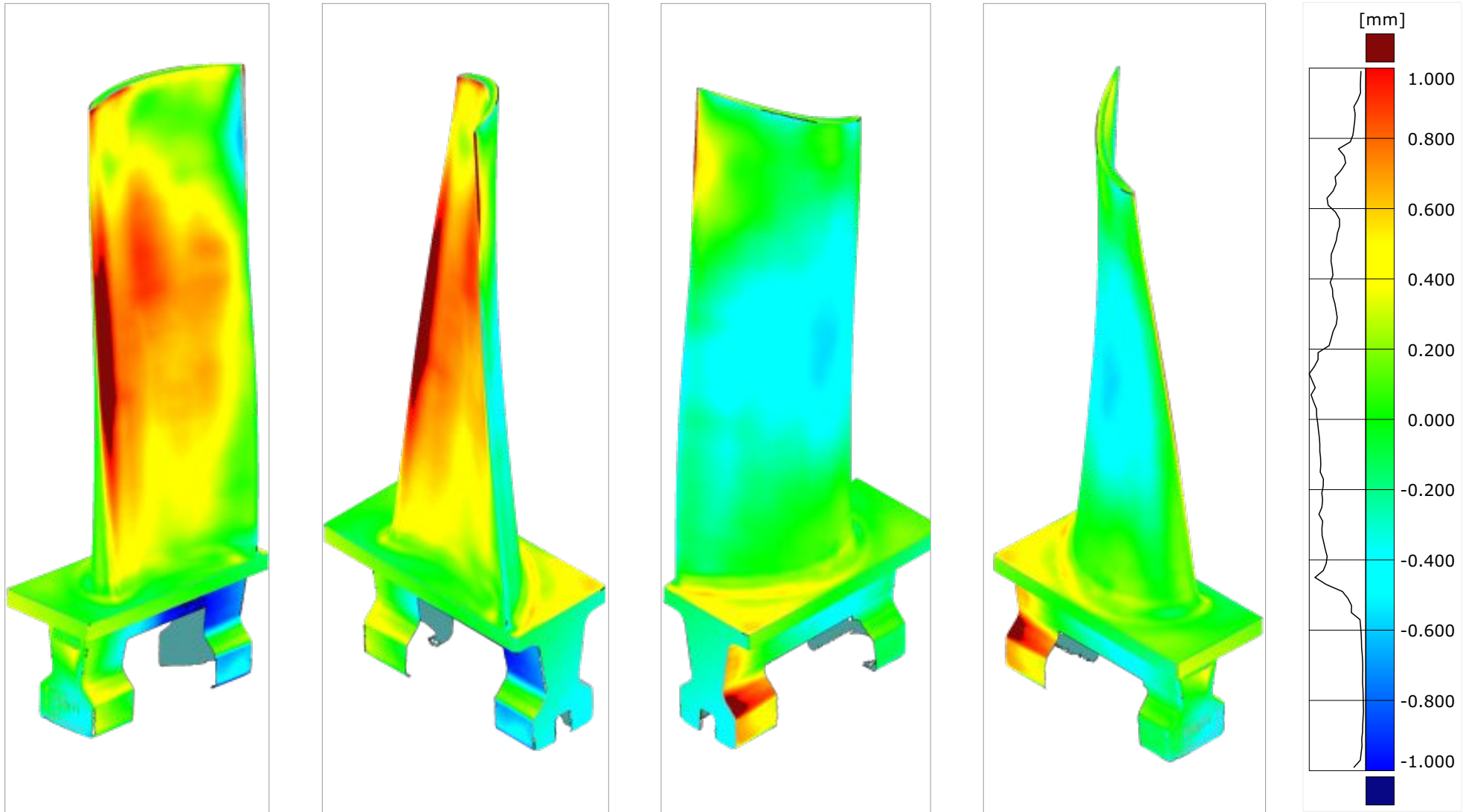


- Actual data is aligned to CAD model
- Available alignments are:
 - Plane - line - point
 - RPS
 - Local best fit
 - By coordinate systems
 - 3-Point
 - and 10 other alignments



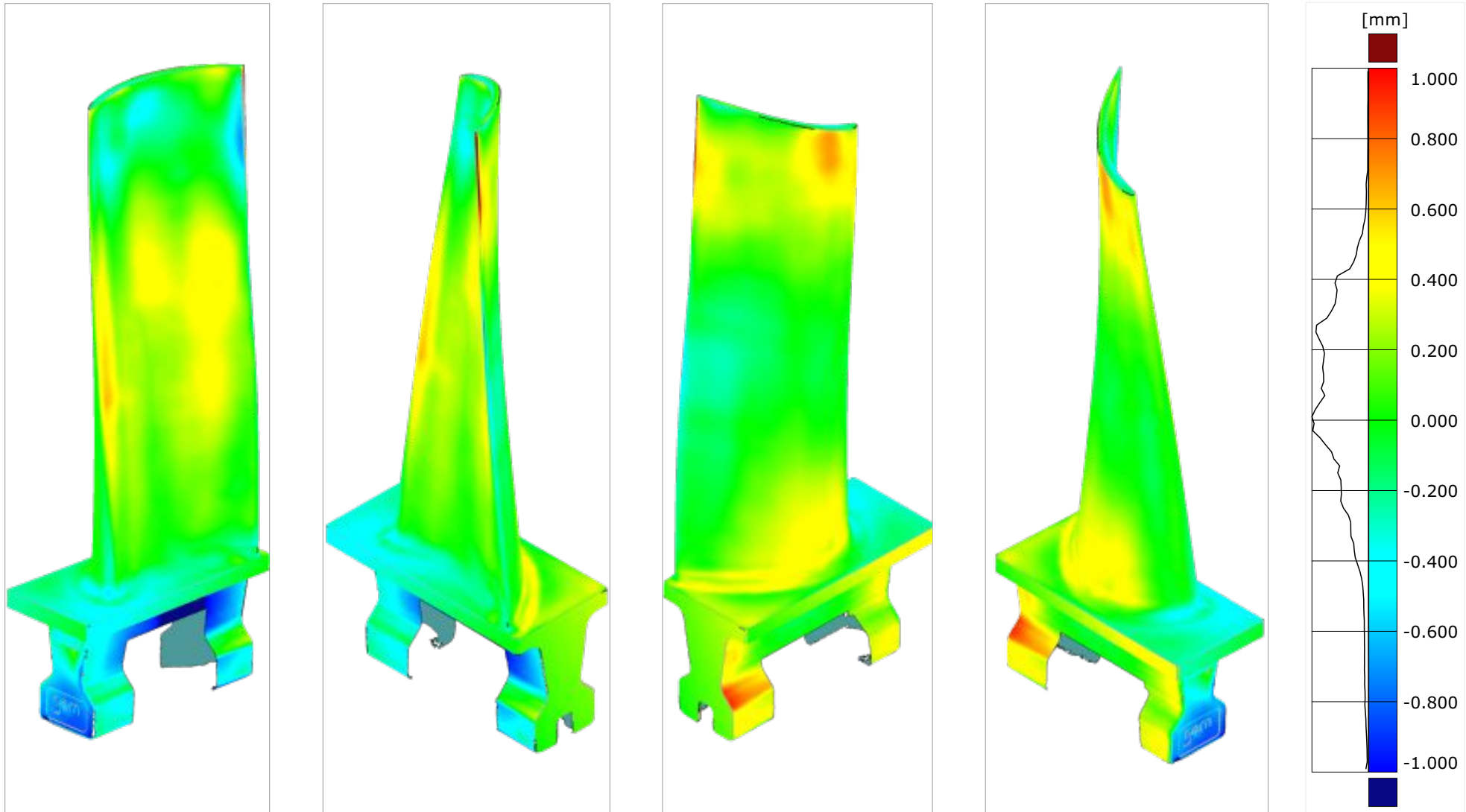
- Surface comparison on CAD - Color Deviation





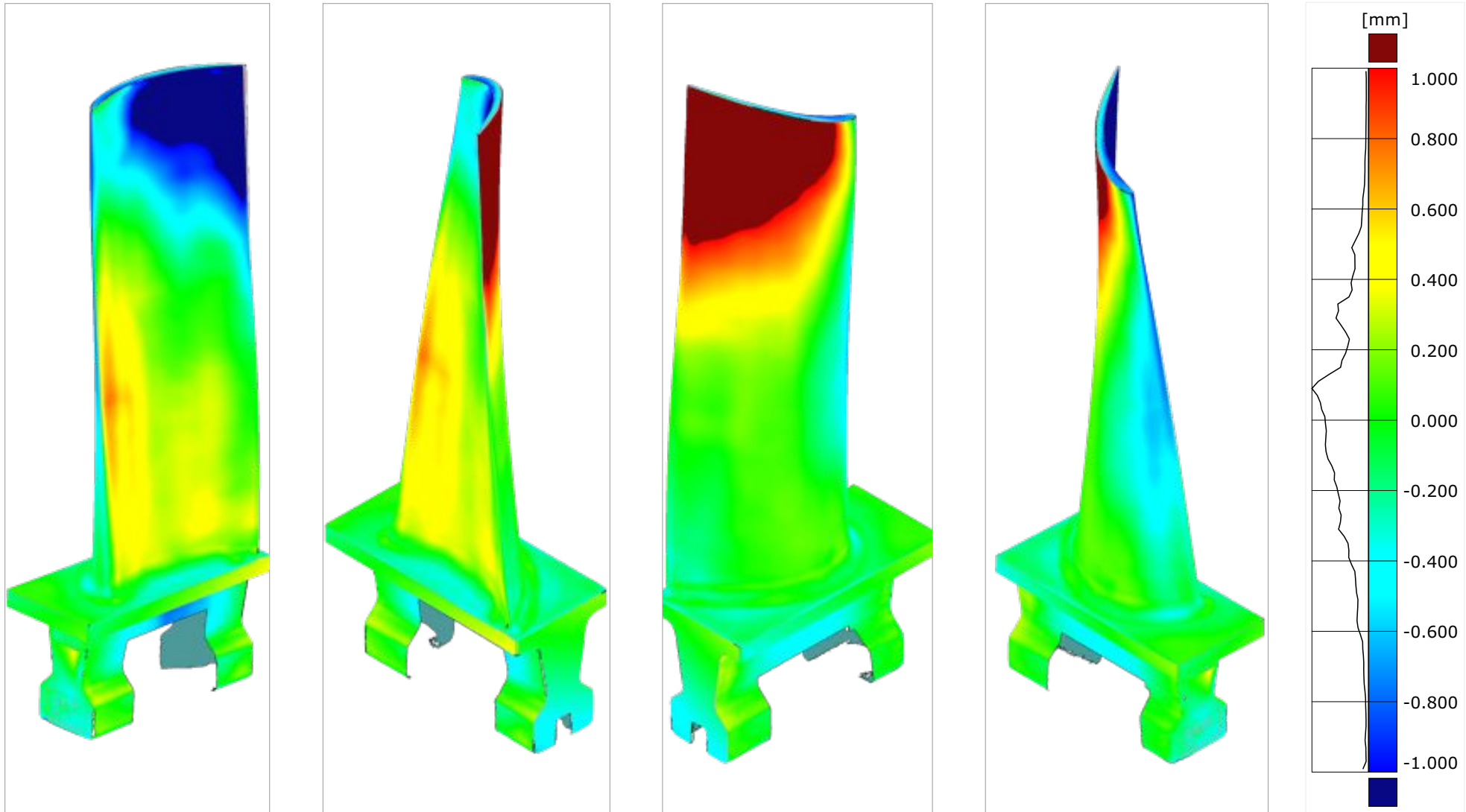
Casting_Alignment_RPS

Length unit: mm



Airfoil_Local best-fit 1

Length unit: mm

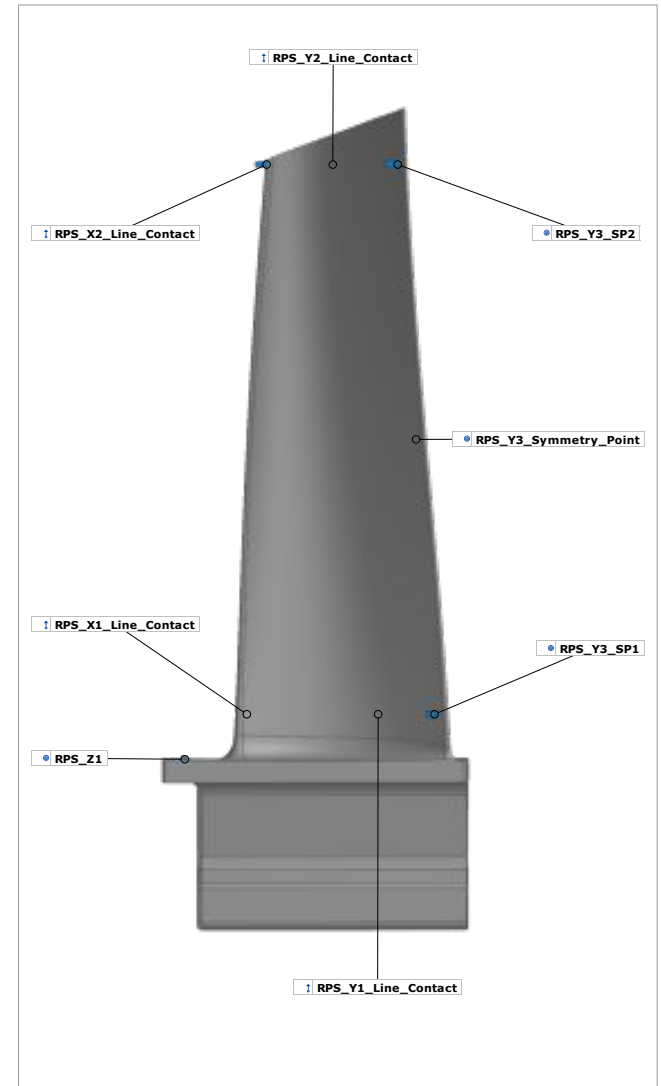
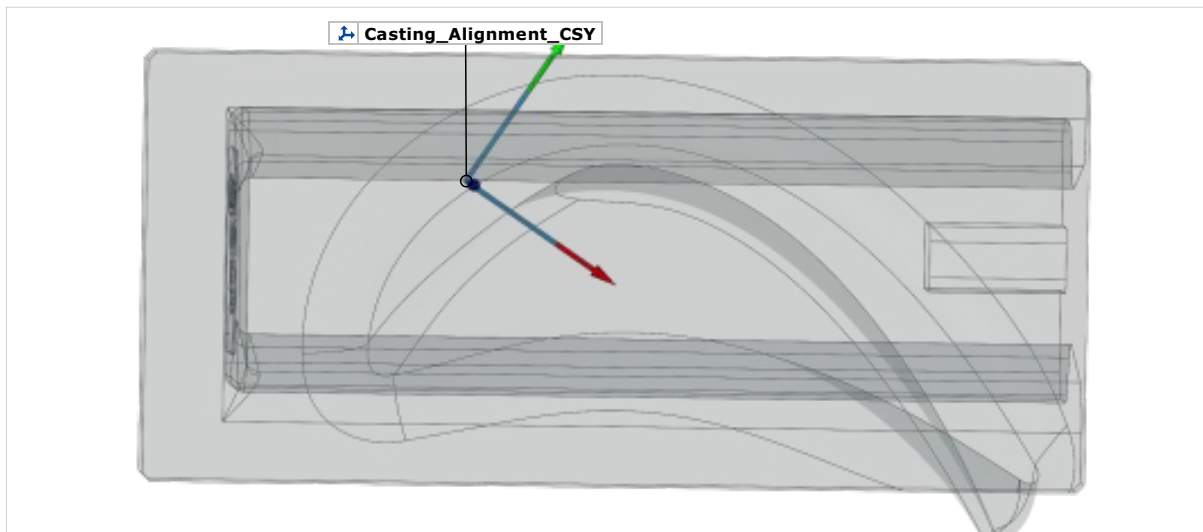


Root_Block_Local best-fit

Length unit: mm

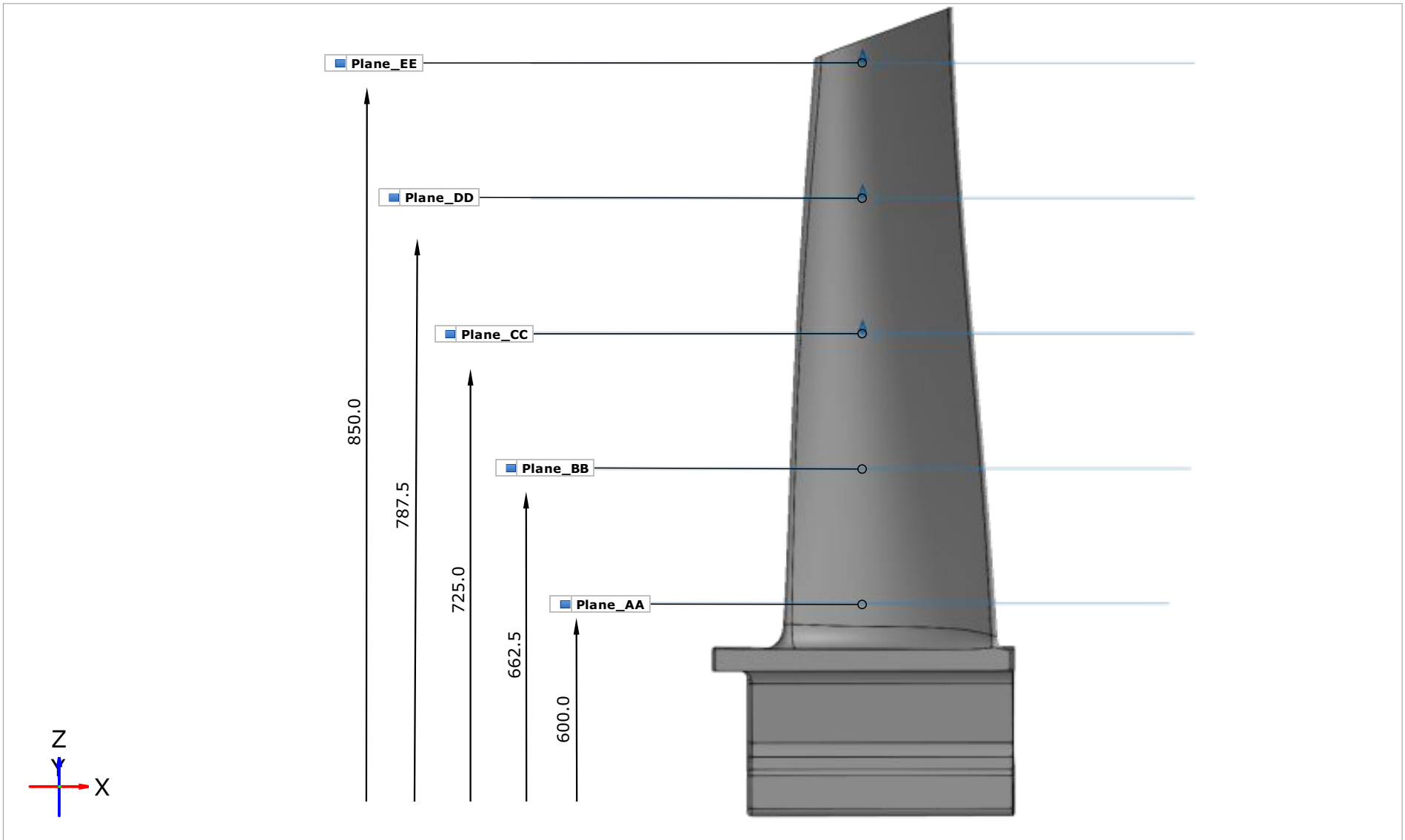
7 Point Nest Casting Alignment (with Symmetry) in Local Coordinate System **CAPTURE 3D**

Ele...	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
• ...	Casting_Alignment_CSX	Y	+4.531	+4.411	-0.300	+0.300	-0.120	<input type="checkbox"/>	
• ...	Casting_Alignment_CSX	Y	-4.447	-4.327	-0.300	+0.300	+0.120	<input type="checkbox"/>	
• ...	Casting_Alignment_CSX	Y	+0.042	+0.042	-0.001	+0.001	+0.000	<input type="checkbox"/>	
• ...	Casting_Alignment_CSX	Z	+579.529	+579.529	-0.001	+0.001	-0.000	<input type="checkbox"/>	
↑ ...	Casting_Alignment_CSX	X	-34.279	-34.279	-0.001	+0.001	-0.000	<input type="checkbox"/>	
↑ ...	Casting_Alignment_CSX	X	-36.294	-36.294	-0.001	+0.001	-0.000	<input type="checkbox"/>	
↑ ...	Casting_Alignment_CSX	Y	+20.075	+20.075	-0.001	+0.001	+0.000	<input type="checkbox"/>	
↑ ...	Casting_Alignment_CSX	Y	+13.058	+13.058	-0.001	+0.001	-0.000	<input type="checkbox"/>	



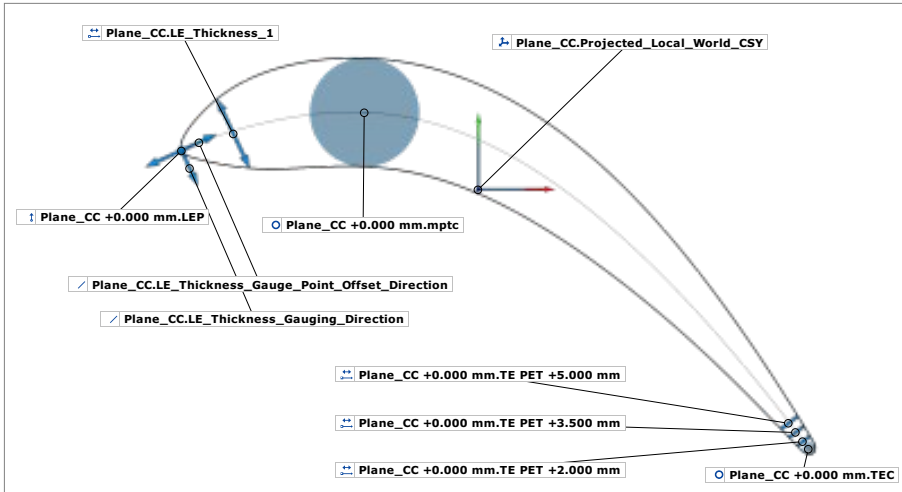
Casting_Alignment_RPS

Length unit: mm

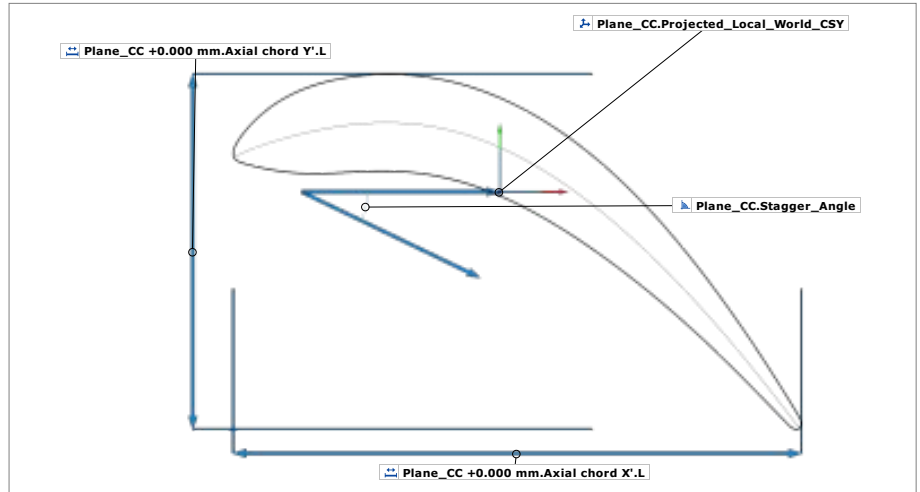


Length unit: mm

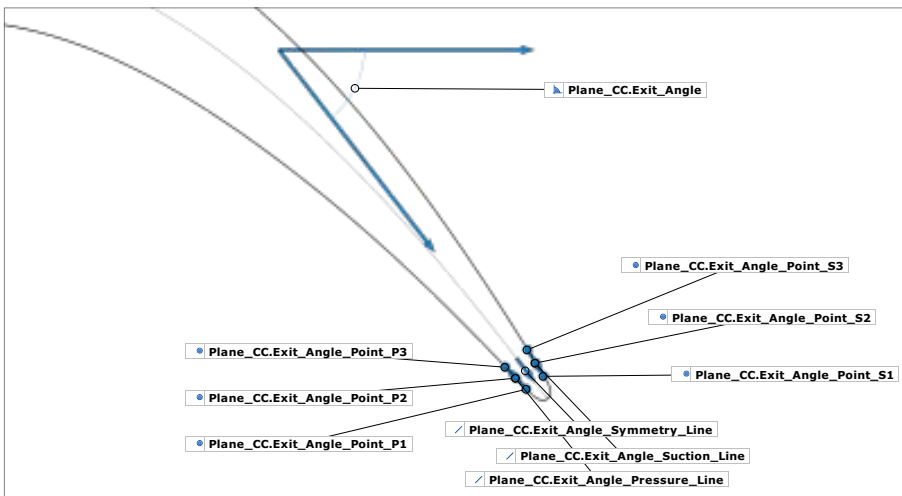
Leading Edge Thickness, Trailing Edge Thickness & Maximum Thickness



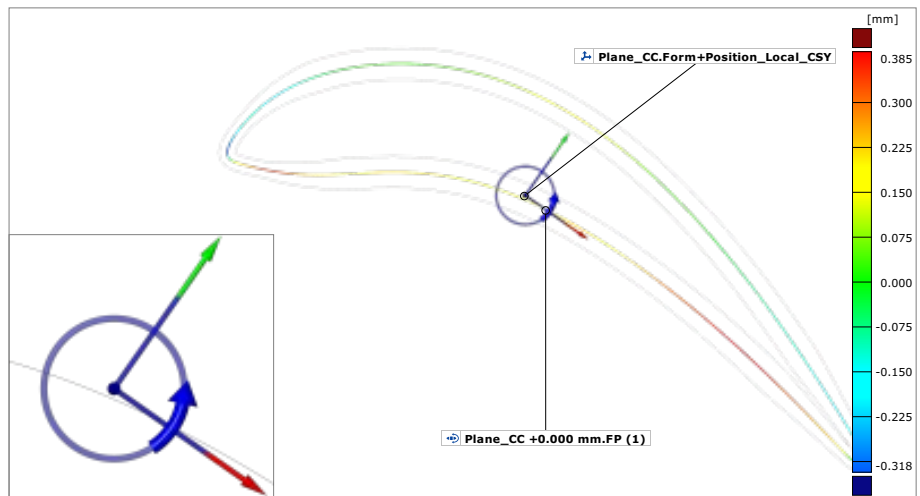
Aerodynamic Chord, Axial Chords & Stagger Angle



Exit Angle



Profile Form and Position



Airfoil Inspection Sections AA, BB & CC - LE, TE & Maximum Thickness + Trailing Edge Radius



Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
○ Plane_AA +0.000 mm.mptc		∅	+26.514	+27.011	-0.500	+0.500	+0.498		
○ Plane_AA +0.000 mm.TEC		R	+1.222	+1.149	-0.250	+0.250	-0.073		
↕ Plane_AA +0.000 mm.TE PET +2.000 mm		L	+2.958	+2.939	-0.500	+0.500	-0.019		
↕ Plane_AA +0.000 mm.TE PET +3.500 mm		L	+3.550	+3.632	-0.500	+0.500	+0.082		
↕ Plane_AA +0.000 mm.TE PET +5.000 mm		L	+4.155	+4.261	-0.500	+0.500	+0.106		
↕ Plane_AA.LE_Thickness_1		L	+12.123	+12.483	-0.500	+0.500	+0.360		

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
○ Plane_BB +0.000 mm.mptc		∅	+20.334	+20.601	-0.500	+0.500	+0.267		
○ Plane_BB +0.000 mm.TEC		R	+0.782	+0.705	-0.250	+0.250	-0.077		
↕ Plane_BB +0.000 mm.TE PET +2.000 mm		L	+2.229	+2.087	-0.500	+0.500	-0.142		
↕ Plane_BB +0.000 mm.TE PET +3.500 mm		L	+2.670	+2.621	-0.500	+0.500	-0.049		
↕ Plane_BB +0.000 mm.TE PET +5.000 mm		L	+3.119	+3.103	-0.500	+0.500	-0.016		
↕ Plane_BB.LE_Thickness_1		L	+11.661	+11.932	-0.500	+0.500	+0.271		

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
○ Plane_CC +0.000 mm.mptc		∅	+14.024	+14.256	-0.500	+0.500	+0.232		
○ Plane_CC +0.000 mm.TEC		R	+0.765	+0.752	-0.250	+0.250	-0.012		
↕ Plane_CC +0.000 mm.TE PET +2.000 mm		L	+2.094	+2.093	-0.500	+0.500	-0.001		
↕ Plane_CC +0.000 mm.TE PET +3.500 mm		L	+2.425	+2.524	-0.500	+0.500	+0.099		
↕ Plane_CC +0.000 mm.TE PET +5.000 mm		L	+2.749	+2.892	-0.500	+0.500	+0.143		
↕ Plane_CC.LE_Thickness_1		L	+9.883	+10.111	-0.500	+0.500	+0.228		

Casting_Alignment_RPS Length unit: mm

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
○ Plane_DD +0.000 mm.mptc		∅	+8.928	+9.130	-0.500	+0.500	+0.202	<input type="checkbox"/>	
○ Plane_DD +0.000 mm.TEC		R	+0.630	+0.757	-0.250	+0.250	+0.127	<input type="checkbox"/>	
↕ Plane_DD +0.000 mm.TE PET +2.000 mm		L	+1.833	+1.879	-0.500	+0.500	+0.047	<input type="checkbox"/>	
↕ Plane_DD +0.000 mm.TE PET +3.500 mm		L	+2.086	+2.203	-0.500	+0.500	+0.117	<input type="checkbox"/>	
↕ Plane_DD +0.000 mm.TE PET +5.000 mm		L	+2.319	+2.501	-0.500	+0.500	+0.182	<input type="checkbox"/>	
↕ Plane_DD.LE_Thickness_1		L	+6.960	+7.316	-0.500	+0.500	+0.356	<input type="checkbox"/>	

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
○ Plane_EE +0.000 mm.mptc		∅	+5.764	+6.101	-0.500	+0.500	+0.337	<input type="checkbox"/>	
○ Plane_EE +0.000 mm.TEC		R	+0.689	+0.558	-0.250	+0.250	-0.131	<input type="checkbox"/>	
↕ Plane_EE +0.000 mm.TE PET +2.000 mm		L	+1.808	+1.509	-0.500	+0.500	-0.299	<input type="checkbox"/>	
↕ Plane_EE +0.000 mm.TE PET +3.500 mm		L	+1.979	+1.717	-0.500	+0.500	-0.263	<input type="checkbox"/>	
↕ Plane_EE +0.000 mm.TE PET +5.000 mm		L	+2.142	+1.935	-0.500	+0.500	-0.207	<input type="checkbox"/>	
↕ Plane_EE.LE_Thickness_1		L	+4.916	+5.057	-0.500	+0.500	+0.141	<input type="checkbox"/>	

Airfoil Inspection Sections AA, BB & CC - Chords, Stagger Angle & Exit Angle

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
↕ Plane_AA +0.000 mm.Axial chord X'		L	+97.100	+96.877	-1.000	+1.000	-0.223	<input type="checkbox"/>	
↕ Plane_AA +0.000 mm.Axial chord Y'		L	+50.445	+50.363	-1.000	+1.000	-0.082	<input type="checkbox"/>	
↕ Plane_AA +0.000 mm.Bitangential chord		L	+99.447	+99.288	-1.500	+1.500	-0.160	<input type="checkbox"/>	
▶ Plane_AA.Exit_Angle	Plane_AA.Projecte..._Local_World_CS...	∠XY	+47.391	+47.477	-0.500	+0.500	+0.086	<input type="checkbox"/>	
▶ Plane_AA.Stagger_Angle	Plane_AA.Projecte..._Local_World_CS...	∠XY	+11.111	+10.841	-0.500	+0.500	-0.271	<input type="checkbox"/>	

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
↕ Plane_BB +0.000 mm.Axial chord X'		L	+89.962	+89.905	-1.000	+1.000	-0.057	<input type="checkbox"/>	
↕ Plane_BB +0.000 mm.Axial chord Y'		L	+50.877	+50.344	-1.000	+1.000	-0.534	<input type="checkbox"/>	
↕ Plane_BB +0.000 mm.Bitangential chord		L	+95.273	+94.970	-1.500	+1.500	-0.303	<input type="checkbox"/>	
▶ Plane_BB.Exit_Angle	Plane_BB.Projecte..._Local_World_CS...	∠XY	+48.573	+48.561	-0.500	+0.500	-0.012	<input type="checkbox"/>	
▶ Plane_BB.Stagger_Angle	Plane_BB.Projecte..._Local_World_CS...	∠XY	+18.536	+17.918	-0.500	+0.500	-0.619	<input type="checkbox"/>	-0.119

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
↕ Plane_CC +0.000 mm.Axial chord X'		L	+81.885	+81.787	-1.000	+1.000	-0.098	<input type="checkbox"/>	
↕ Plane_CC +0.000 mm.Axial chord Y'		L	+51.285	+50.453	-1.000	+1.000	-0.832	<input type="checkbox"/>	
↕ Plane_CC +0.000 mm.Bitangential chord		L	+91.003	+90.387	-1.500	+1.500	-0.615	<input type="checkbox"/>	
▶ Plane_CC.Exit_Angle	Plane_CC.Projecte..._Local_World_CS...	∠XY	+52.389	+51.316	-0.500	+0.500	-1.073	<input type="checkbox"/>	-0.573
▶ Plane_CC.Stagger_Angle	Plane_CC.Projecte..._Local_World_CS...	∠XY	+25.766	+24.967	-0.500	+0.500	-0.799	<input type="checkbox"/>	-0.299

Casting_Alignment_RPS Length unit: mm

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
↕ Plane_DD +0.000 mm.Axial chord X'		L	+73.131	+73.723	-1.000	+1.000	+0.592		
↕ Plane_DD +0.000 mm.Axial chord Y'		L	+52.796	+52.494	-1.000	+1.000	-0.302		
↕ Plane_DD +0.000 mm.Bitangential chord		L	+86.848	+86.985	-1.500	+1.500	+0.137		
▶ Plane_DD.Exit_Angle	Plane_DD.Projected_Local_World_CSYS	∠XY	+56.885	+56.785	-0.500	+0.500	-0.100		
▶ Plane_DD.Stagger_Angle	Plane_DD.Projected_Local_World_CSYS	∠XY	+32.663	+32.150	-0.500	+0.500	-0.512		-0.012

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
↕ Plane_EE +0.000 mm.Axial chord X'		L	+64.757	+66.179	-1.000	+1.000	+1.423		+0.423
↕ Plane_EE +0.000 mm.Axial chord Y'		L	+56.133	+56.759	-1.000	+1.000	+0.626		
↕ Plane_EE +0.000 mm.Bitangential chord		L	+83.365	+84.622	-1.500	+1.500	+1.257		
▶ Plane_EE.Exit_Angle	Plane_EE.Projected_Local_World_CSYS	∠XY	+62.813	+61.142	-0.500	+0.500	-1.672		-1.172
▶ Plane_EE.Stagger_Angle	Plane_EE.Projected_Local_World_CSYS	∠XY	+39.315	+38.608	-0.500	+0.500	-0.707		-0.207

Maximum Profile Thickness

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
○ Plane_AA +0.000 mm.mptc		∅	+26.514	+27.011	-0.500	+0.500	+0.498		
○ Plane_BB +0.000 mm.mptc		∅	+20.334	+20.601	-0.500	+0.500	+0.267		
○ Plane_CC +0.000 mm.mptc		∅	+14.024	+14.256	-0.500	+0.500	+0.232		
○ Plane_DD +0.000 mm.mptc		∅	+8.928	+9.130	-0.500	+0.500	+0.202		
○ Plane_EE +0.000 mm.mptc		∅	+5.764	+6.101	-0.500	+0.500	+0.337		

Leading Edge Thickness 1

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
↕ Plane_AA.LE_Thickness_1		L	+12.123	+12.483	-0.500	+0.500	+0.360		
↕ Plane_BB.LE_Thickness_1		L	+11.661	+11.932	-0.500	+0.500	+0.271		
↕ Plane_CC.LE_Thickness_1		L	+9.883	+10.111	-0.500	+0.500	+0.228		
↕ Plane_DD.LE_Thickness_1		L	+6.960	+7.316	-0.500	+0.500	+0.356		
↕ Plane_EE.LE_Thickness_1		L	+4.916	+5.057	-0.500	+0.500	+0.141		

Trailing Edge Radius

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
○ Plane_AA +0.000 mm.TEC		R	+1.222	+1.149	-0.250	+0.250	-0.073		
○ Plane_BB +0.000 mm.TEC		R	+0.782	+0.705	-0.250	+0.250	-0.077		
○ Plane_CC +0.000 mm.TEC		R	+0.765	+0.752	-0.250	+0.250	-0.012		
○ Plane_DD +0.000 mm.TEC		R	+0.630	+0.757	-0.250	+0.250	+0.127		
○ Plane_EE +0.000 mm.TEC		R	+0.689	+0.558	-0.250	+0.250	-0.131		

Trailing Edge Thickness +2,000 mm

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
↕ Plane_AA +0.000 mm.TE PET +2.000 mm		L	+2.958	+2.939	-0.500	+0.500	-0.019	<input type="checkbox"/>	
↕ Plane_BB +0.000 mm.TE PET +2.000 mm		L	+2.229	+2.087	-0.500	+0.500	-0.142	<input type="checkbox"/>	
↕ Plane_CC +0.000 mm.TE PET +2.000 mm		L	+2.094	+2.093	-0.500	+0.500	-0.001	<input type="checkbox"/>	
↕ Plane_DD +0.000 mm.TE PET +2.000 mm		L	+1.833	+1.879	-0.500	+0.500	+0.047	<input type="checkbox"/>	
↕ Plane_EE +0.000 mm.TE PET +2.000 mm		L	+1.808	+1.509	-0.500	+0.500	-0.299	<input type="checkbox"/>	

Trailing Edge Thickness 3,500 mm

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
↕ Plane_AA +0.000 mm.TE PET +3.500 mm		L	+3.550	+3.632	-0.500	+0.500	+0.082	<input type="checkbox"/>	
↕ Plane_BB +0.000 mm.TE PET +3.500 mm		L	+2.670	+2.621	-0.500	+0.500	-0.049	<input type="checkbox"/>	
↕ Plane_CC +0.000 mm.TE PET +3.500 mm		L	+2.425	+2.524	-0.500	+0.500	+0.099	<input type="checkbox"/>	
↕ Plane_DD +0.000 mm.TE PET +3.500 mm		L	+2.086	+2.203	-0.500	+0.500	+0.117	<input type="checkbox"/>	
↕ Plane_EE +0.000 mm.TE PET +3.500 mm		L	+1.979	+1.717	-0.500	+0.500	-0.263	<input type="checkbox"/>	

Trailing Edge Thickness +5,000 mm

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
↕ Plane_AA +0.000 mm.TE PET +5.000 mm		L	+4.155	+4.261	-0.500	+0.500	+0.106	<input type="checkbox"/>	
↕ Plane_BB +0.000 mm.TE PET +5.000 mm		L	+3.119	+3.103	-0.500	+0.500	-0.016	<input type="checkbox"/>	
↕ Plane_CC +0.000 mm.TE PET +5.000 mm		L	+2.749	+2.892	-0.500	+0.500	+0.143	<input type="checkbox"/>	
↕ Plane_DD +0.000 mm.TE PET +5.000 mm		L	+2.319	+2.501	-0.500	+0.500	+0.182	<input type="checkbox"/>	
↕ Plane_EE +0.000 mm.TE PET +5.000 mm		L	+2.142	+1.935	-0.500	+0.500	-0.207	<input type="checkbox"/>	

Aerodynamic Chord

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
↕ Plane_AA +0.000 mm.Bitangential chord		L	+99.447	+99.288	-1.500	+1.500	-0.160	<input type="checkbox"/>	
↕ Plane_BB +0.000 mm.Bitangential chord		L	+95.273	+94.970	-1.500	+1.500	-0.303	<input type="checkbox"/>	
↕ Plane_CC +0.000 mm.Bitangential chord		L	+91.003	+90.387	-1.500	+1.500	-0.615	<input type="checkbox"/>	
↕ Plane_DD +0.000 mm.Bitangential chord		L	+86.848	+86.985	-1.500	+1.500	+0.137	<input type="checkbox"/>	
↕ Plane_EE +0.000 mm.Bitangential chord		L	+83.365	+84.622	-1.500	+1.500	+1.257	<input type="checkbox"/>	

Axial Chord in X

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
↕ Plane_AA +0.000 mm.Axial chord X'		L	+97.100	+96.877	-1.000	+1.000	-0.223	<input type="checkbox"/>	
↕ Plane_BB +0.000 mm.Axial chord X'		L	+89.962	+89.905	-1.000	+1.000	-0.057	<input type="checkbox"/>	
↕ Plane_CC +0.000 mm.Axial chord X'		L	+81.885	+81.787	-1.000	+1.000	-0.098	<input type="checkbox"/>	
↕ Plane_DD +0.000 mm.Axial chord X'		L	+73.131	+73.723	-1.000	+1.000	+0.592	<input type="checkbox"/>	
↕ Plane_EE +0.000 mm.Axial chord X'		L	+64.757	+66.179	-1.000	+1.000	+1.423	<input type="checkbox"/>	+0.423

Axial Chord in Y

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
↕ Plane_AA +0.000 mm.Axial chord Y'		L	+50.445	+50.363	-1.000	+1.000	-0.082	<input type="checkbox"/>	
↕ Plane_BB +0.000 mm.Axial chord Y'		L	+50.877	+50.344	-1.000	+1.000	-0.534	<input type="checkbox"/>	
↕ Plane_CC +0.000 mm.Axial chord Y'		L	+51.285	+50.453	-1.000	+1.000	-0.832	<input type="checkbox"/>	
↕ Plane_DD +0.000 mm.Axial chord Y'		L	+52.796	+52.494	-1.000	+1.000	-0.302	<input type="checkbox"/>	
↕ Plane_EE +0.000 mm.Axial chord Y'		L	+56.133	+56.759	-1.000	+1.000	+0.626	<input type="checkbox"/>	

Stagger Angle

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
▶ Plane_AA.Stagger_Angle	Plane_AA.Projecte..._Local_World_CS...	∠XY	+11.111	+10.841	-0.500	+0.500	-0.271		
▶ Plane_BB.Stagger_Angle	Plane_BB.Projecte..._Local_World_CS...	∠XY	+18.536	+17.918	-0.500	+0.500	-0.619		-0.119
▶ Plane_CC.Stagger_Angle	Plane_CC.Projecte..._Local_World_CS...	∠XY	+25.766	+24.967	-0.500	+0.500	-0.799		-0.299
▶ Plane_DD.Stagger_Angle	Plane_DD.Projecte..._Local_World_CS...	∠XY	+32.663	+32.150	-0.500	+0.500	-0.512		-0.012
▶ Plane_EE.Stagger_Angle	Plane_EE.Projecte..._Local_World_CS...	∠XY	+39.315	+38.608	-0.500	+0.500	-0.707		-0.207

Exit Angle

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
▶ Plane_AA.Exit_Angle	Plane_AA.Projecte..._Local_World_CS...	∠XY	+47.391	+47.477	-0.500	+0.500	+0.086		
▶ Plane_BB.Exit_Angle	Plane_BB.Projecte..._Local_World_CS...	∠XY	+48.573	+48.561	-0.500	+0.500	-0.012		
▶ Plane_CC.Exit_Angle	Plane_CC.Projecte..._Local_World_CS...	∠XY	+52.389	+51.316	-0.500	+0.500	-1.073		-0.573
▶ Plane_DD.Exit_Angle	Plane_DD.Projecte..._Local_World_CS...	∠XY	+56.885	+56.785	-0.500	+0.500	-0.100		
▶ Plane_EE.Exit_Angle	Plane_EE.Projecte..._Local_World_CS...	∠XY	+62.813	+61.142	-0.500	+0.500	-1.672		-1.172

Displacement in X (Local CSY)

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
Plane_AA.Form+Position_Local_CSY	Plane_AA.Form+Position_Local_CSY	X	+0.000	-0.123	-0.400	+0.400	-0.123		
Plane_BB.Form+Position_Local_CSY	Plane_BB.Form+Position_Local_CSY	X	+0.000	-0.134	-0.400	+0.400	-0.134		
Plane_CC.Form+Position_Local_CSY	Plane_CC.Form+Position_Local_CSY	X	+0.000	-0.267	-0.400	+0.400	-0.267		
Plane_DD.Form+Position_Local_CSY	Plane_DD.Form+Position_Local_CSY	X	+0.000	-0.104	-0.400	+0.400	-0.104		
Plane_EE.Form+Position_Local_CSY	Plane_EE.Form+Position_Local_CSY	X	+0.000	+0.617	-0.400	+0.400	+0.617		+0.217

Displacement in Y (Local CSY)

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
Plane_AA.Form+Position_Local_CSY	Plane_AA.Form+Position_Local_CSY	Y	+0.000	-0.343	-0.400	+0.400	-0.343		
Plane_BB.Form+Position_Local_CSY	Plane_BB.Form+Position_Local_CSY	Y	+0.000	-0.643	-0.400	+0.400	-0.643		-0.243
Plane_CC.Form+Position_Local_CSY	Plane_CC.Form+Position_Local_CSY	Y	+0.000	-0.632	-0.400	+0.400	-0.632		-0.232
Plane_DD.Form+Position_Local_CSY	Plane_DD.Form+Position_Local_CSY	Y	+0.000	-0.420	-0.400	+0.400	-0.420		-0.020
Plane_EE.Form+Position_Local_CSY	Plane_EE.Form+Position_Local_CSY	Y	+0.000	-0.498	-0.400	+0.400	-0.498		-0.098

Rotation about Z (Local CSY)

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
Plane_AA.Form+Position_Local_CSY	Plane_AA.Form+Position_Local_CSY	Psi(Z)	+0.000	+0.271	-0.600	+0.600	+0.271		
Plane_BB.Form+Position_Local_CSY	Plane_BB.Form+Position_Local_CSY	Psi(Z)	+0.000	+0.544	-0.600	+0.600	+0.544		
Plane_CC.Form+Position_Local_CSY	Plane_CC.Form+Position_Local_CSY	Psi(Z)	+0.000	+0.697	-0.600	+0.600	+0.697		+0.097
Plane_DD.Form+Position_Local_CSY	Plane_DD.Form+Position_Local_CSY	Psi(Z)	+0.000	+0.588	-0.600	+0.600	+0.588		
Plane_EE.Form+Position_Local_CSY	Plane_EE.Form+Position_Local_CSY	Psi(Z)	+0.000	+0.362	-0.600	+0.600	+0.362		

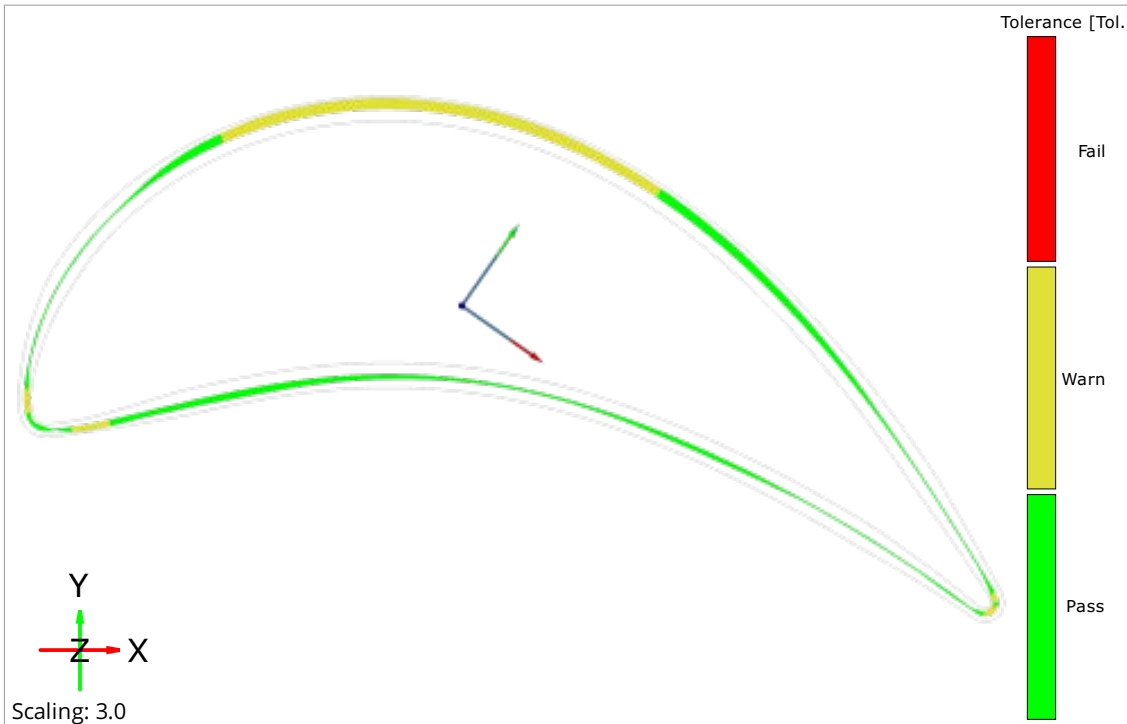
Average Deviation

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
Plane_AA +0.000 mm.FP (1).avg	Plane_AA.Form+Position_Local_CSY	avg(dN)					+0.129		
Plane_BB +0.000 mm.FP (1).avg	Plane_BB.Form+Position_Local_CSY	avg(dN)					+0.084		
Plane_CC +0.000 mm.FP (1).avg	Plane_CC.Form+Position_Local_CSY	avg(dN)					+0.081		
Plane_DD +0.000 mm.FP (1).avg	Plane_DD.Form+Position_Local_CSY	avg(dN)					+0.158		
Plane_EE +0.000 mm.FP (1).avg	Plane_EE.Form+Position_Local_CSY	avg(dN)					+0.132		

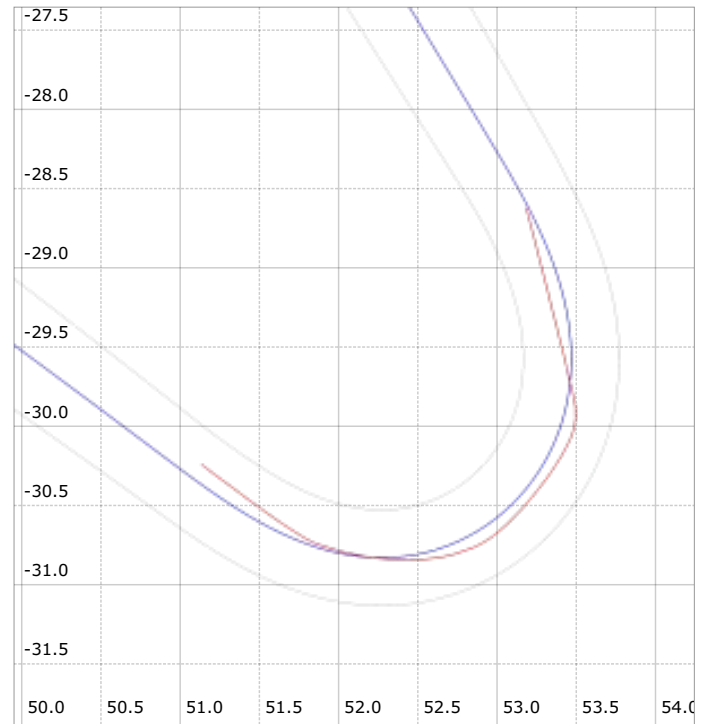
Percentage of Point Out of Tolerance

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
Plane_AA +0.000 mm.FP (1)		%_Pts_Out-of-Tol	+0.00	+0.00	+0.00	+0.00	+0.00		
Plane_BB +0.000 mm.FP (1)		%_Pts_Out-of-Tol	+0.00	+1.24	+0.00	+0.00	+1.24		+1.24
Plane_CC +0.000 mm.FP (1)		%_Pts_Out-of-Tol	+0.00	+6.74	+0.00	+0.00	+6.74		+6.74
Plane_DD +0.000 mm.FP (1)		%_Pts_Out-of-Tol	+0.00	+0.00	+0.00	+0.00	+0.00		
Plane_EE +0.000 mm.FP (1)		%_Pts_Out-of-Tol	+0.00	+35.25	+0.00	+0.00	+35.25		+35.25

Complete Airfoil - Best-Fit to Tolerances

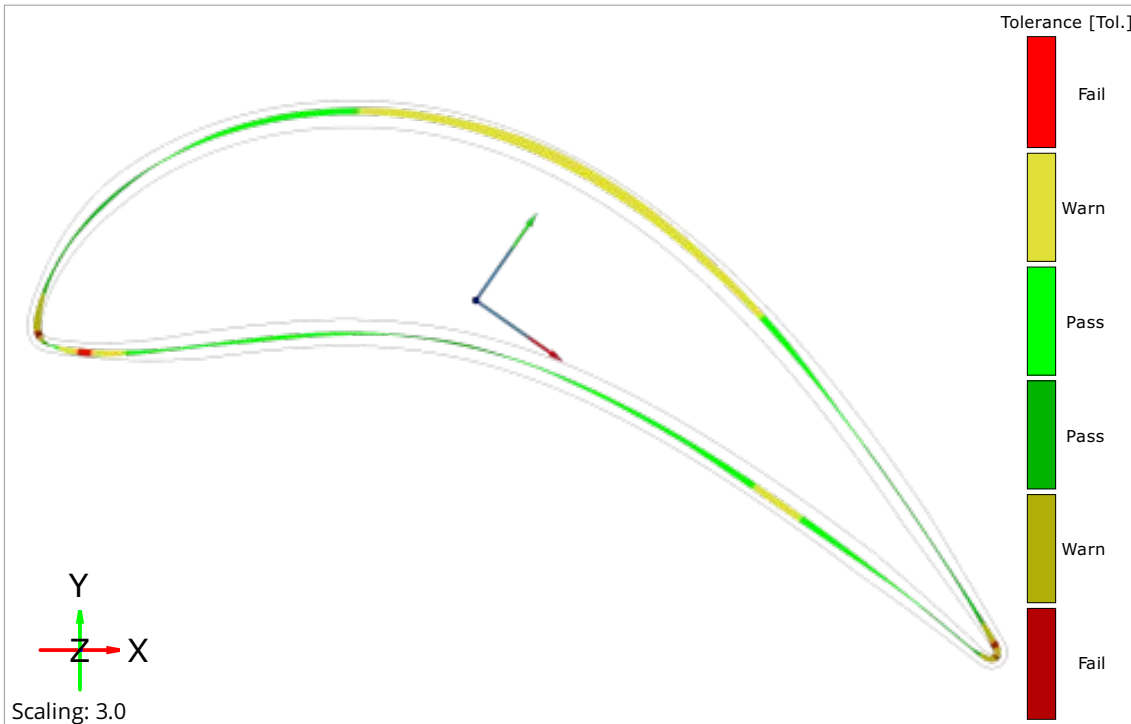


Trailing Edge Form Only - Local Best-Fit

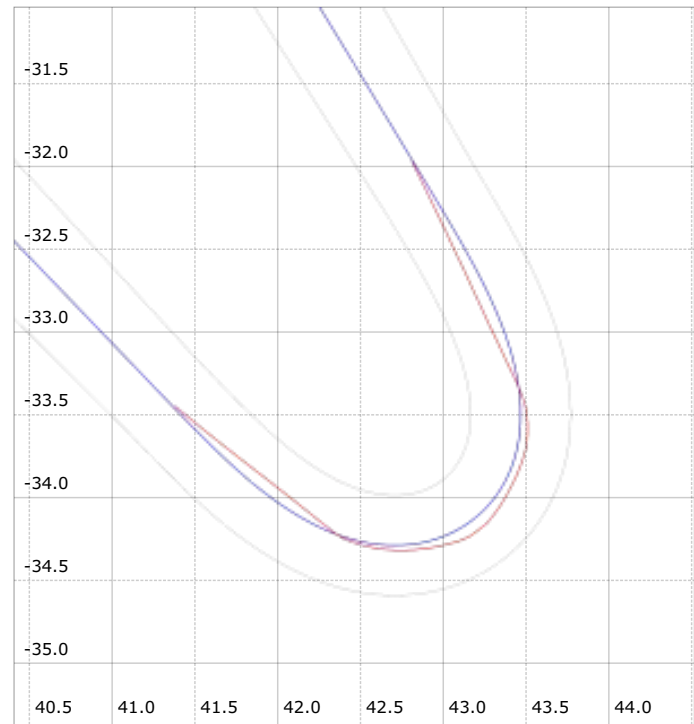


Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
Plane_AA +0.000 mm.FP (1)		%_Pts_Out-of-Tol	+0.00	+0.00	+0.00	+0.00	+0.00	<input checked="" type="checkbox"/>	
Plane_AA +0.000 mm.FP (1).avg	Plane_AA.Form+Position_Local_CSX	avg(dN)					+0.129		
Plane_AA.Form+Position_Local_CSX	Plane_AA.Form+Position_Local_CSX	X	+0.000	-0.123	-0.400	+0.400	-0.123	<input checked="" type="checkbox"/>	
Plane_AA.Form+Position_Local_CSX	Plane_AA.Form+Position_Local_CSX	Y	+0.000	-0.343	-0.400	+0.400	-0.343	<input type="checkbox"/>	
Plane_AA.Form+Position_Local_CSX	Plane_AA.Form+Position_Local_CSX	Psi(Z)	+0.000	+0.271	-0.600	+0.600	+0.271	<input checked="" type="checkbox"/>	

Complete Airfoil - Best-Fit to Tolerances

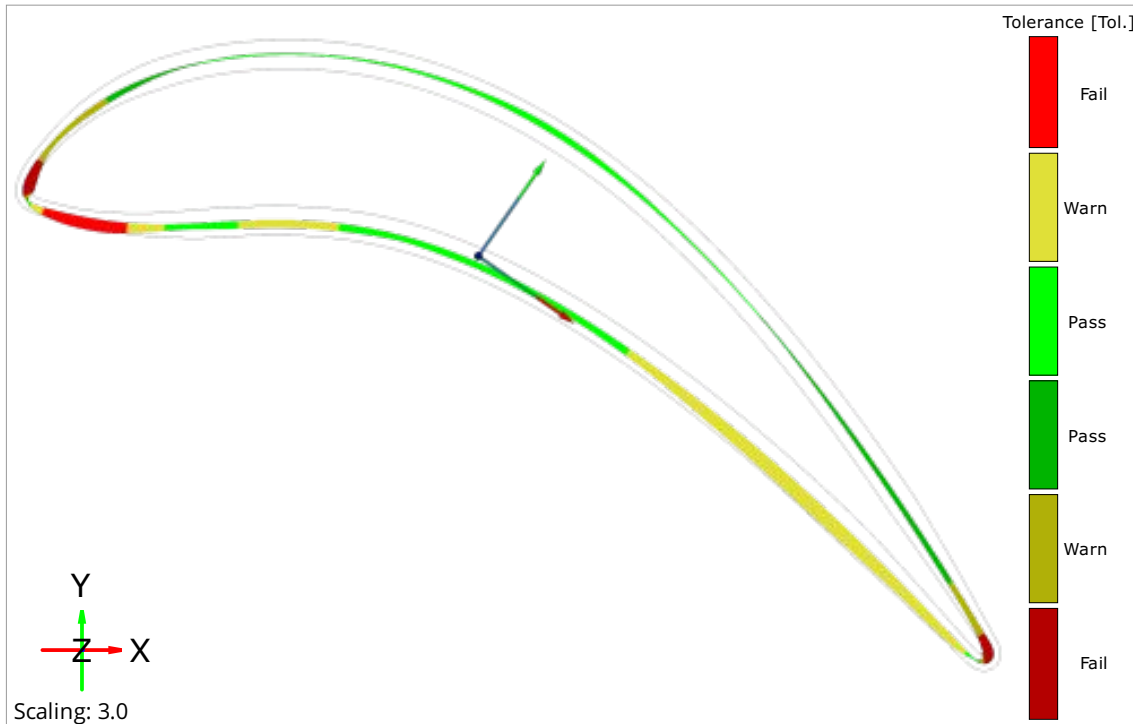


Trailing Edge Form Only - Local Best-Fit

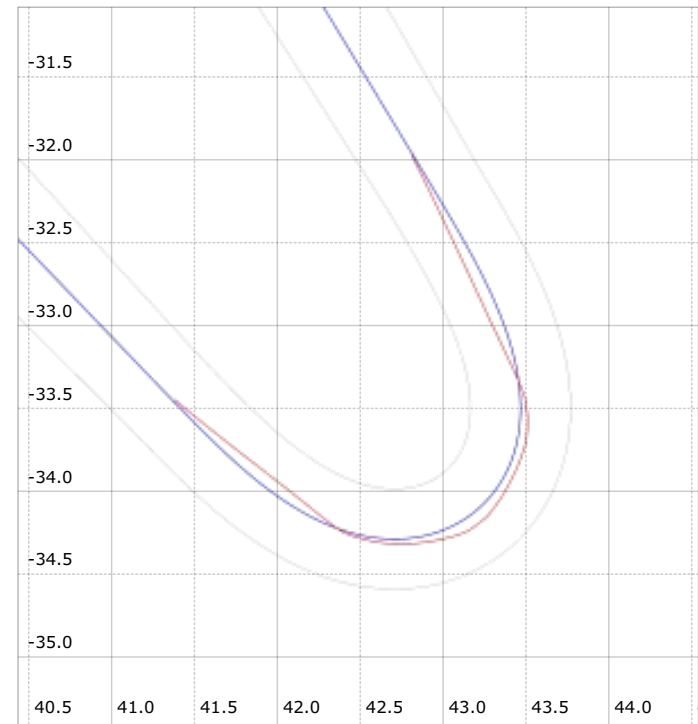


Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
Plane_BB +0.000 mm.FP (1)		%_Pts_Out-of-Tol	+0.00	+1.24	+0.00	+0.00	+1.24	<input type="checkbox"/>	+1.24
Plane_BB +0.000 mm.FP (1).avg	Plane_BB.Form+Position_Local_CSX	avg(dN)					+0.084		
Plane_BB.Form+Position_Local_CSX	Plane_BB.Form+Position_Local_CSX	X	+0.000	-0.134	-0.400	+0.400	-0.134	<input type="checkbox"/>	
Plane_BB.Form+Position_Local_CSX	Plane_BB.Form+Position_Local_CSX	Y	+0.000	-0.643	-0.400	+0.400	-0.643	<input type="checkbox"/>	-0.243
Plane_BB.Form+Position_Local_CSX	Plane_BB.Form+Position_Local_CSX	Psi(Z)	+0.000	+0.544	-0.600	+0.600	+0.544	<input type="checkbox"/>	

Complete Airfoil - Best-Fit to Tolerances

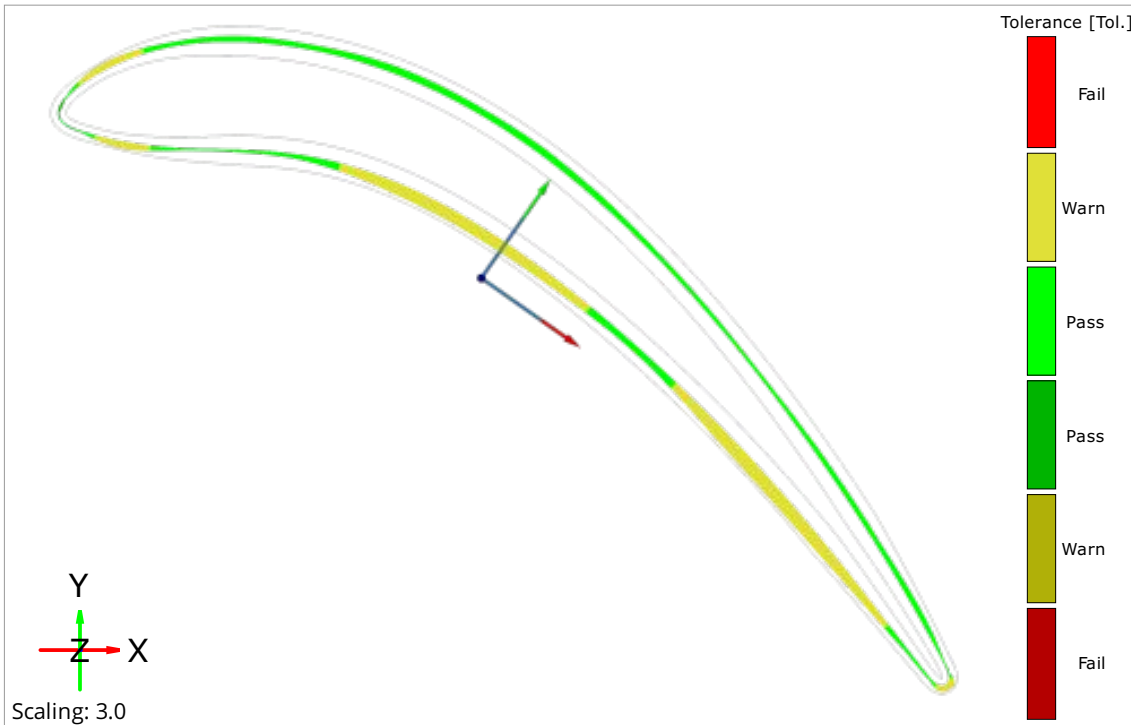


Trailing Edge Form Only - Local Best-Fit

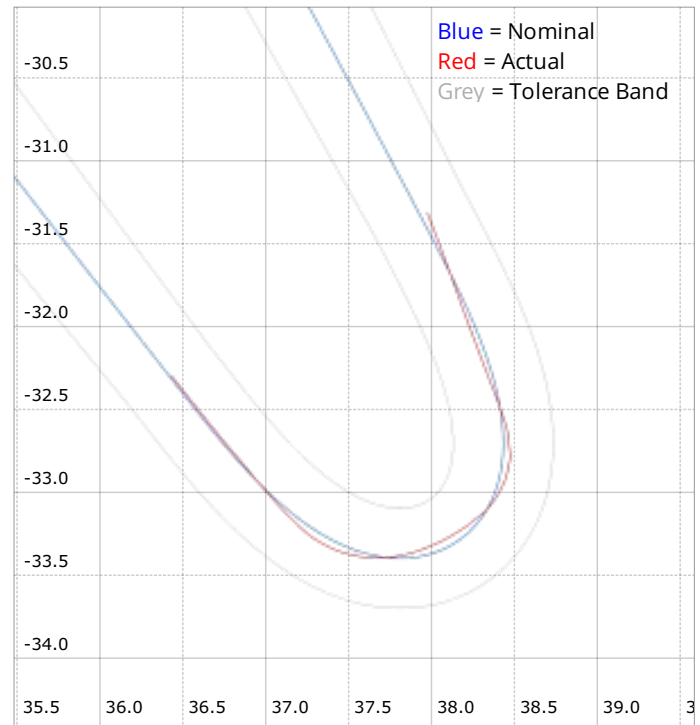


Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
Plane_CC +0.000 mm.FP (1)		%_Pts_Out-of-Tol	+0.00	+6.74	+0.00	+0.00	+6.74	<input type="checkbox"/>	+6.74
Plane_CC +0.000 mm.FP (1).avg	Plane_CC.Form+Position_Local_CSX	avg(dN)					+0.081		
Plane_CC.Form+Position_Local_CSX	Plane_CC.Form+Position_Local_CSX	X	+0.000	-0.267	-0.400	+0.400	-0.267	<input type="checkbox"/>	
Plane_CC.Form+Position_Local_CSX	Plane_CC.Form+Position_Local_CSX	Y	+0.000	-0.632	-0.400	+0.400	-0.632	<input type="checkbox"/>	-0.232
Plane_CC.Form+Position_Local_CSX	Plane_CC.Form+Position_Local_CSX	Psi(Z)	+0.000	+0.697	-0.600	+0.600	+0.697	<input type="checkbox"/>	+0.097

Complete Airfoil - Best-Fit to Tolerances

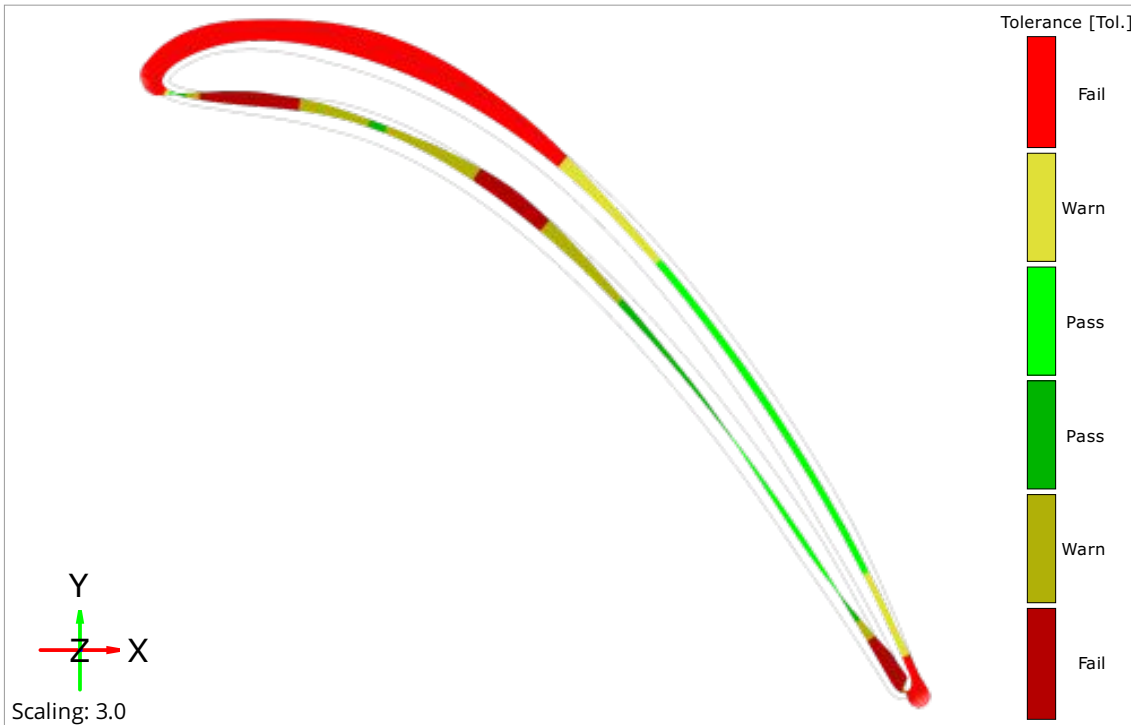


Trailing Edge Form Only - Local Best-Fit

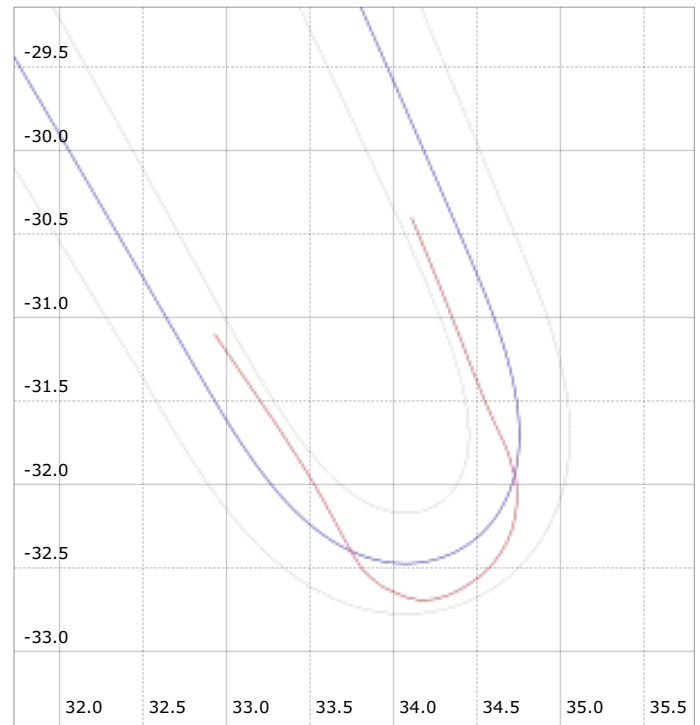


Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
Plane_DD +0.000 mm.FP (1)		%_Pts_Out-of-Tol	+0.00	+0.00	+0.00	+0.00	+0.00	<input type="checkbox"/>	
Plane_DD +0.000 mm.FP (1).avg	Plane_DD.Form+Position_Local_CS_Y	avg(dN)					+0.158		
Plane_DD.Form+Position_Local_CS_Y	Plane_DD.Form+Position_Local_CS_Y	X	+0.000	-0.104	-0.400	+0.400	-0.104	<input type="checkbox"/>	
Plane_DD.Form+Position_Local_CS_Y	Plane_DD.Form+Position_Local_CS_Y	Y	+0.000	-0.420	-0.400	+0.400	-0.420	<input type="checkbox"/>	-0.020
Plane_DD.Form+Position_Local_CS_Y	Plane_DD.Form+Position_Local_CS_Y	Psi(Z)	+0.000	+0.588	-0.600	+0.600	+0.588	<input type="checkbox"/>	

Complete Airfoil - Best-Fit to Tolerances

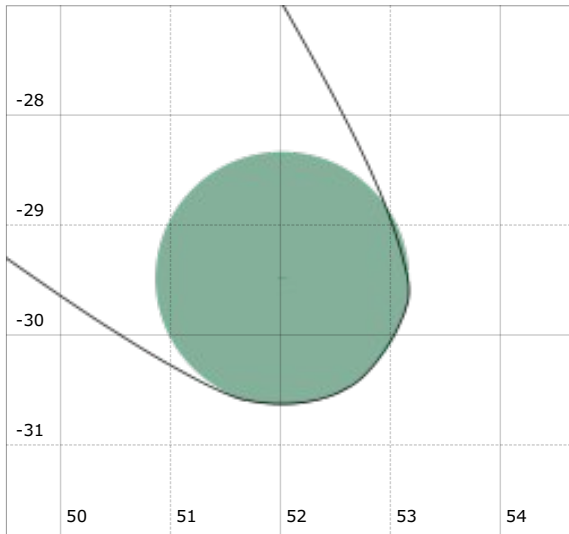


Trailing Edge Form Only - Local Best-Fit

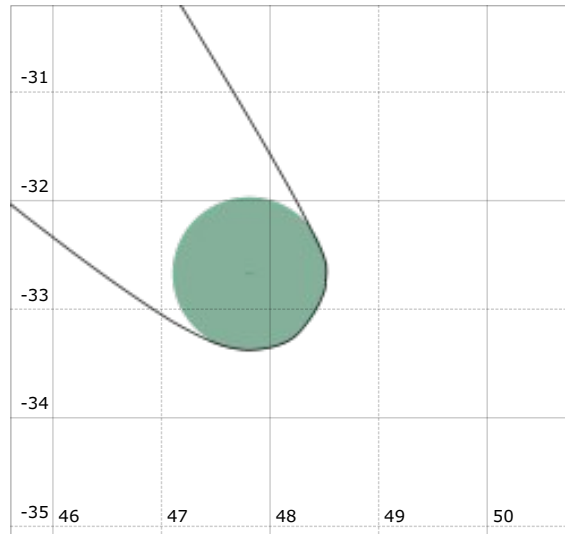


Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
Plane_EE +0.000 mm.FP (1)		%_Pts_Out-of-Tol	+0.00	+35.25	+0.00	+0.00	+35.25	<input type="checkbox"/>	+35.25
Plane_EE +0.000 mm.FP (1).avg	Plane_EE.Form+Position_Local_CSX	avg(dN)					+0.132		
Plane_EE.Form+Position_Local_CSX	Plane_EE.Form+Position_Local_CSX	X	+0.000	+0.617	-0.400	+0.400	+0.617	<input type="checkbox"/>	+0.217
Plane_EE.Form+Position_Local_CSX	Plane_EE.Form+Position_Local_CSX	Y	+0.000	-0.498	-0.400	+0.400	-0.498	<input type="checkbox"/>	-0.098
Plane_EE.Form+Position_Local_CSX	Plane_EE.Form+Position_Local_CSX	Psi(Z)	+0.000	+0.362	-0.600	+0.600	+0.362	<input type="checkbox"/>	

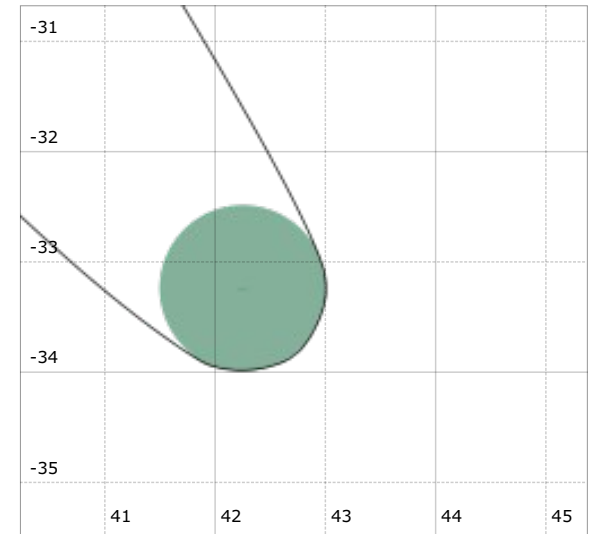
Length unit: mm



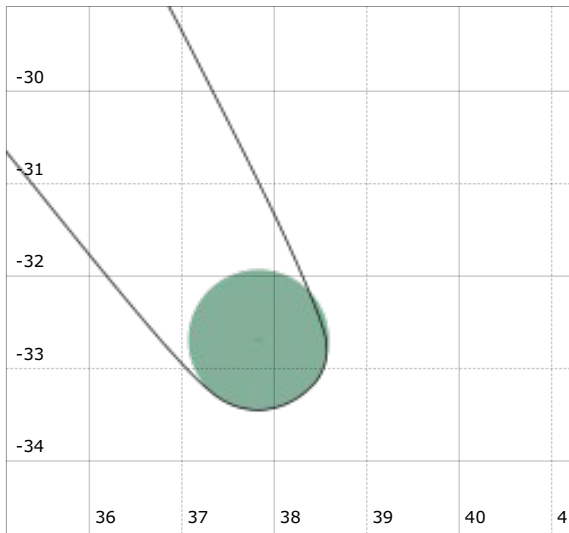
Section AA Trailing Edge Form



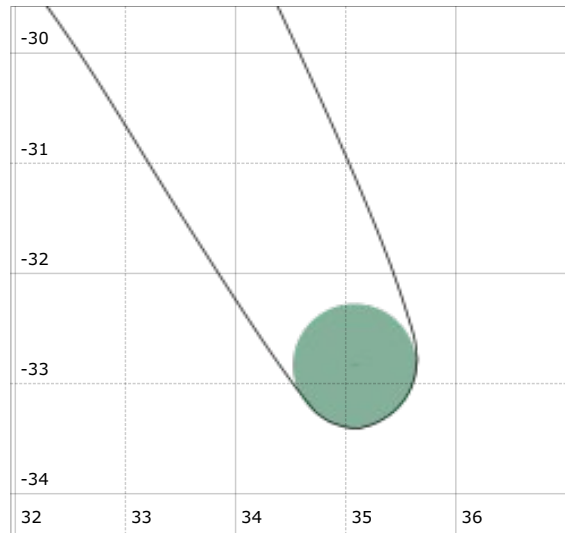
Section BB Trailing Edge Form



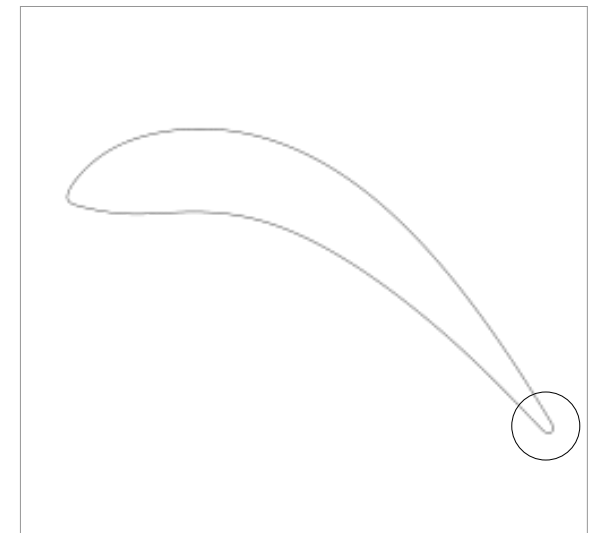
Section CC Trailing Edge Form



Section DD Trailing Edge Form



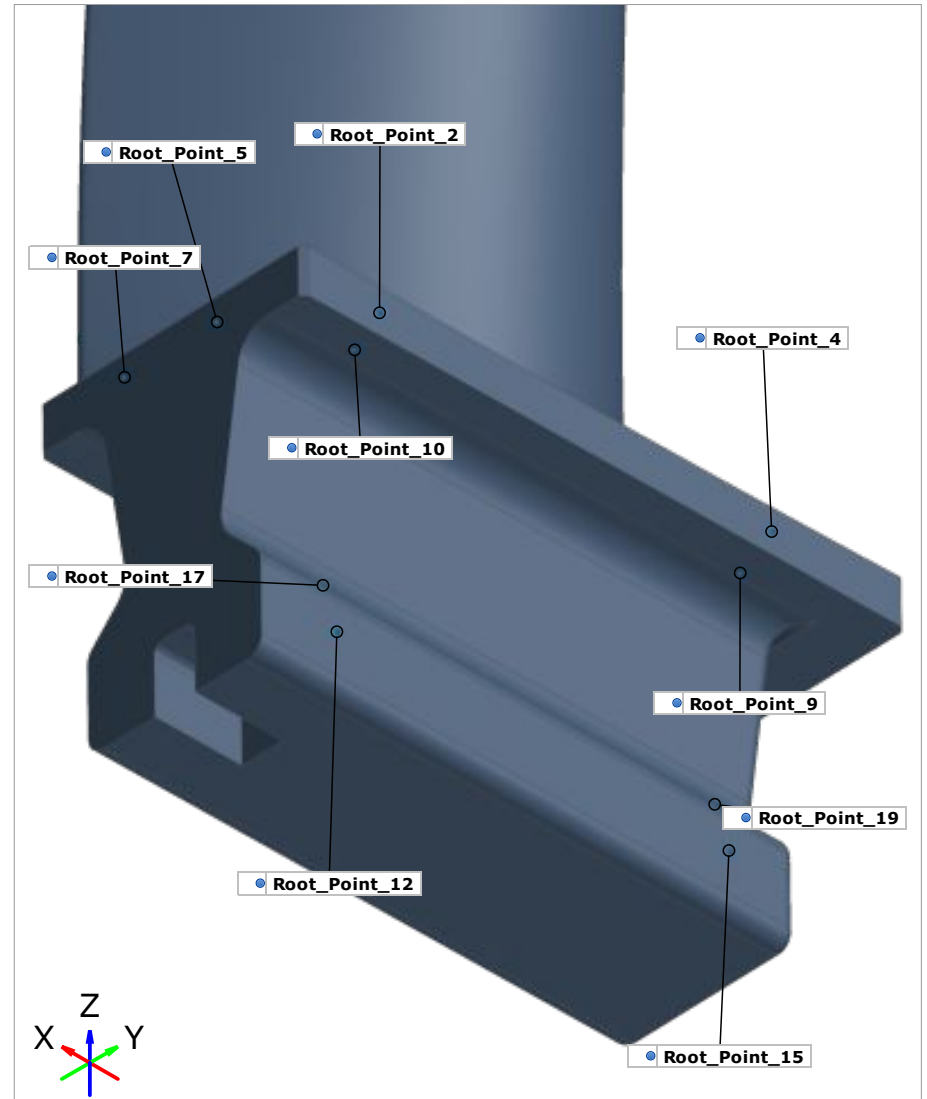
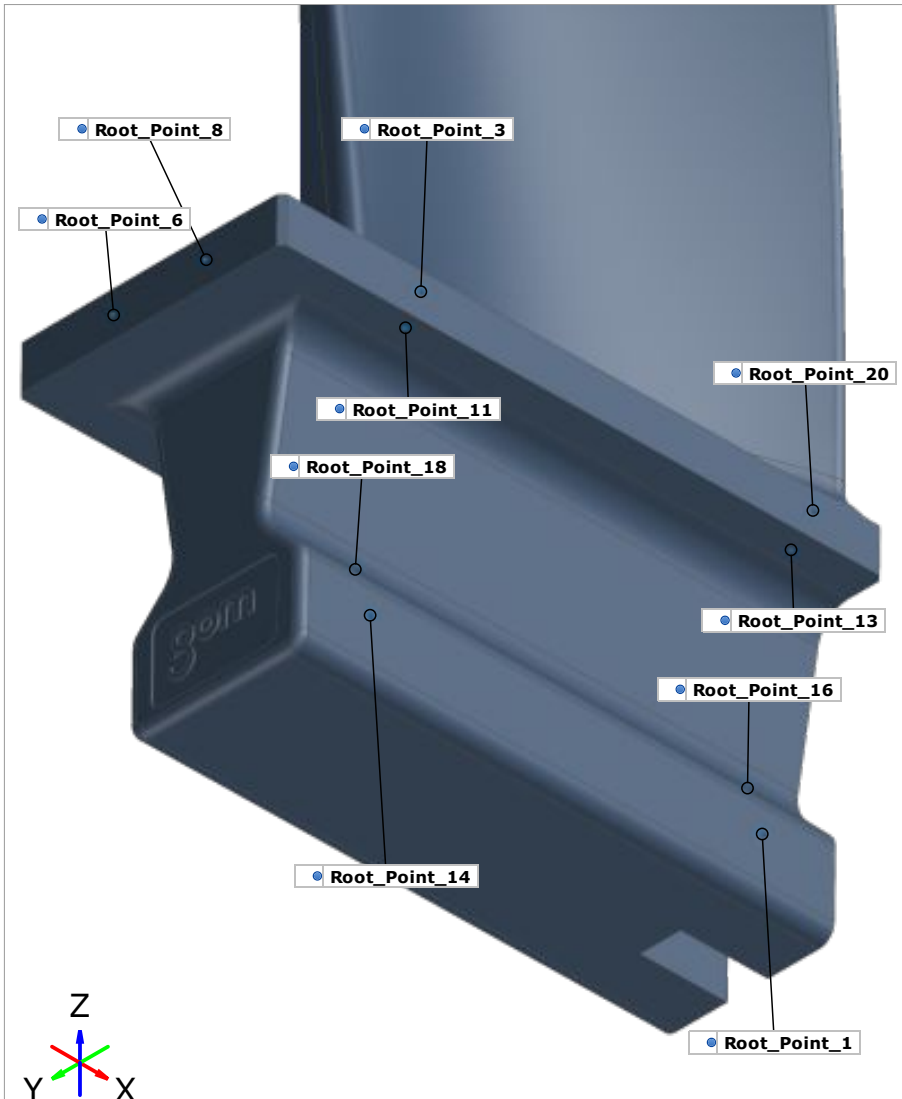
Section EE Trailing Edge Form



Detail Trailing Edge

Trailing Edge Form - Sections AA-EE - Fitting Circle Deviations - Range

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
○ Plane_AA +0.000 mm.TEC		Range	+0.021	+0.034	-0.050	+0.050	+0.013	<input type="checkbox"/>	
○ Plane_BB +0.000 mm.TEC		Range	+0.014	+0.023	-0.050	+0.050	+0.009	<input type="checkbox"/>	
○ Plane_CC +0.000 mm.TEC		Range	+0.014	+0.023	-0.050	+0.050	+0.009	<input type="checkbox"/>	
○ Plane_DD +0.000 mm.TEC		Range	+0.014	+0.020	-0.050	+0.050	+0.006	<input type="checkbox"/>	
○ Plane_EE +0.000 mm.TEC		Range	+0.014	+0.024	-0.050	+0.050	+0.010	<input type="checkbox"/>	



Casting_Alignment_RPS Length unit: mm

Casting_Alignment_RPS Length unit: mm

Root Block Gauge Points - Form & Position (Casting Alignment)

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
• Root_Point_1		dXYZ			-0.750	+4.000	+0.584	<input checked="" type="checkbox"/>	
• Root_Point_2		dXYZ			-0.750	+4.000	+0.112	<input type="checkbox"/>	
• Root_Point_3		dXYZ			-0.750	+4.000	+0.174	<input type="checkbox"/>	
• Root_Point_4		dXYZ			-0.750	+4.000	+0.140	<input type="checkbox"/>	
• Root_Point_5		dXYZ			-0.750	+4.000	+0.227	<input type="checkbox"/>	
• Root_Point_6		dXYZ			-0.750	+4.000	+0.260	<input type="checkbox"/>	
• Root_Point_7		dXYZ			-0.750	+4.000	+0.167	<input type="checkbox"/>	
• Root_Point_8		dXYZ			-0.750	+4.000	+0.200	<input type="checkbox"/>	
• Root_Point_9		dXYZ			-0.750	+4.000	+0.210	<input type="checkbox"/>	
• Root_Point_10		dXYZ			-0.750	+4.000	+0.637	<input checked="" type="checkbox"/>	
• Root_Point_11		dXYZ			-0.750	+4.000	+0.110	<input type="checkbox"/>	
• Root_Point_12		dXYZ			-0.750	+4.000	+0.467	<input checked="" type="checkbox"/>	
• Root_Point_13		dXYZ			-0.750	+4.000	+0.531	<input checked="" type="checkbox"/>	
• Root_Point_14		dXYZ			-0.750	+4.000	+0.117	<input type="checkbox"/>	
• Root_Point_15		dXYZ			-0.750	+4.000	+0.117	<input type="checkbox"/>	
• Root_Point_16		dXYZ			-0.750	+4.000	+0.155	<input type="checkbox"/>	
• Root_Point_17		dXYZ			-0.750	+4.000	+0.903	<input checked="" type="checkbox"/>	
• Root_Point_18		dXYZ			-0.750	+4.000	+0.297	<input type="checkbox"/>	
• Root_Point_19		dXYZ			-0.750	+4.000	+0.108	<input type="checkbox"/>	
• Root_Point_20		dXYZ			-0.750	+4.000	+0.094	<input type="checkbox"/>	

Casting_Alignment_RPS

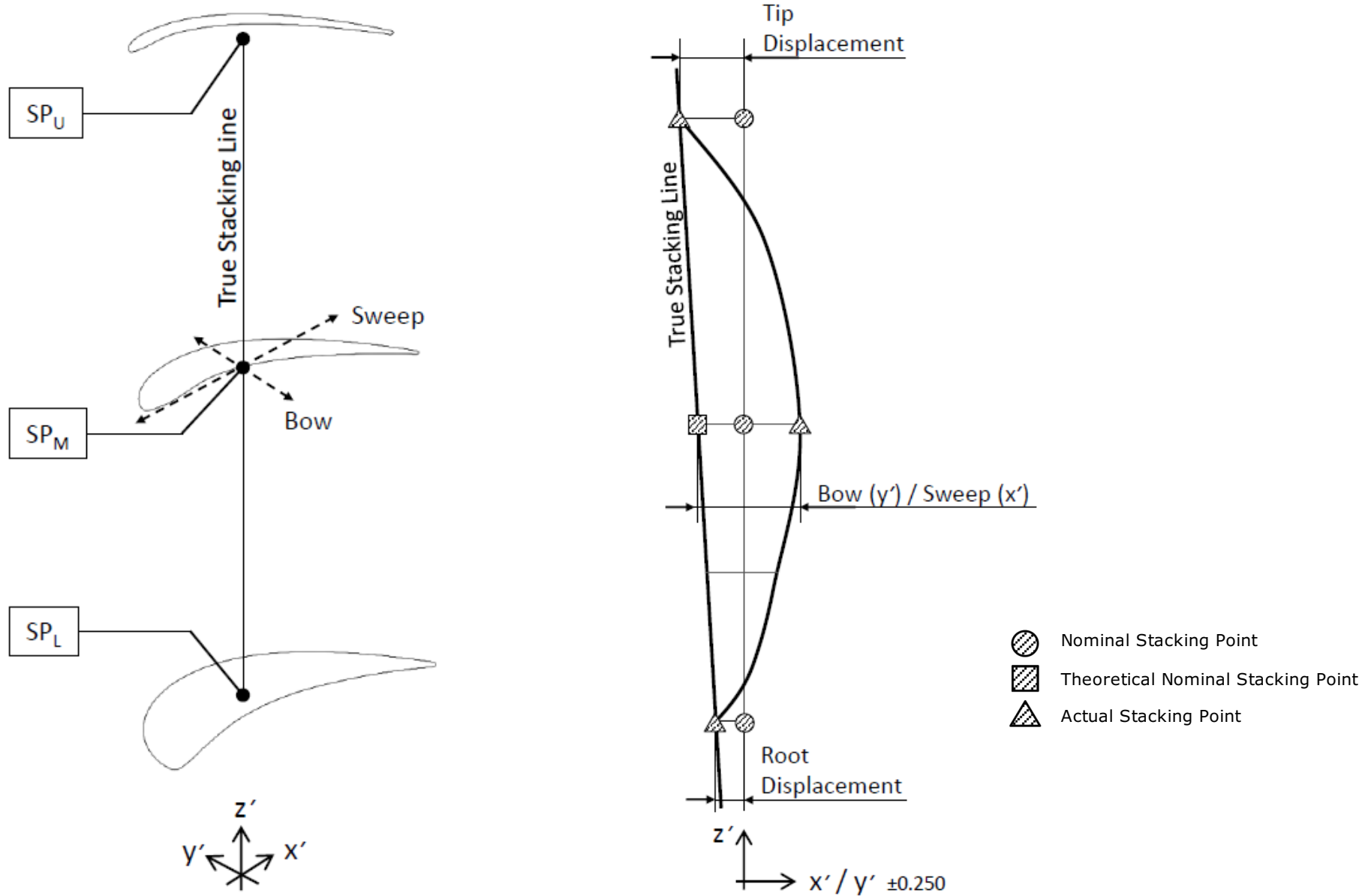
Length unit: mm

Root Block Gauge Points - Form - Root Block Local Best-fit

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
• Root_Point_1		dXYZ			-0.750	+4.000	+0.080	<input type="checkbox"/>	
• Root_Point_2		dXYZ			-0.750	+4.000	+0.274	<input type="checkbox"/>	
• Root_Point_3		dXYZ			-0.750	+4.000	+0.036	<input type="checkbox"/>	
• Root_Point_4		dXYZ			-0.750	+4.000	+0.077	<input type="checkbox"/>	
• Root_Point_5		dXYZ			-0.750	+4.000	+0.105	<input type="checkbox"/>	
• Root_Point_6		dXYZ			-0.750	+4.000	+0.053	<input type="checkbox"/>	
• Root_Point_7		dXYZ			-0.750	+4.000	+0.020	<input type="checkbox"/>	
• Root_Point_8		dXYZ			-0.750	+4.000	+0.033	<input type="checkbox"/>	
• Root_Point_9		dXYZ			-0.750	+4.000	+0.003	<input type="checkbox"/>	
• Root_Point_10		dXYZ			-0.750	+4.000	+0.015	<input type="checkbox"/>	
• Root_Point_11		dXYZ			-0.750	+4.000	+0.218	<input type="checkbox"/>	
• Root_Point_12		dXYZ			-0.750	+4.000	+0.054	<input type="checkbox"/>	
• Root_Point_13		dXYZ			-0.750	+4.000	+0.033	<input type="checkbox"/>	
• Root_Point_14		dXYZ			-0.750	+4.000	+0.028	<input type="checkbox"/>	
• Root_Point_15		dXYZ			-0.750	+4.000	+0.027	<input type="checkbox"/>	
• Root_Point_16		dXYZ			-0.750	+4.000	+0.099	<input type="checkbox"/>	
• Root_Point_17		dXYZ			-0.750	+4.000	+0.130	<input type="checkbox"/>	
• Root_Point_18		dXYZ			-0.750	+4.000	+0.131	<input type="checkbox"/>	
• Root_Point_19		dXYZ			-0.750	+4.000	+0.047	<input type="checkbox"/>	
• Root_Point_20		dXYZ			-0.750	+4.000	+0.298	<input type="checkbox"/>	

Root_Block_Local best-fit

Length unit: mm



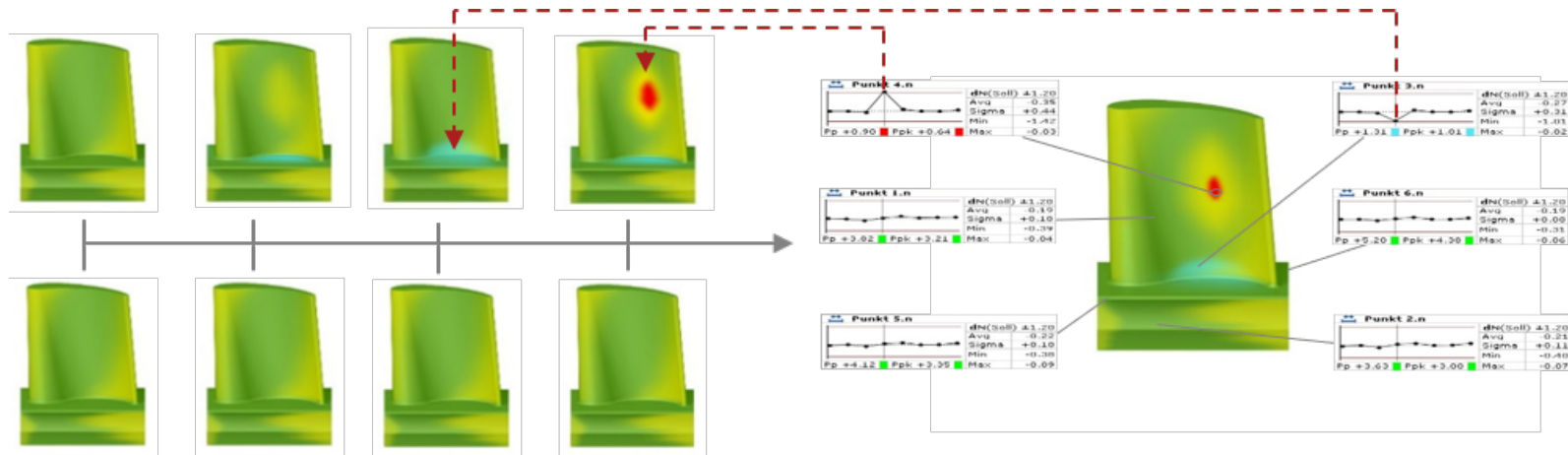
Bow

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
Plane_CC.Form+Position_Local_CSX	Plane_CC_Bow+Sweep_CSX	Y	+0.000	-0.212	-0.500	+0.500	-0.212		

Sweep

Element	Datum	Property	Nominal	Actual	Tol -	Tol +	Dev	Check	Out
Plane_CC.Form+Position_Local_CSX	Plane_CC_Bow+Sweep_CSX	X	+0.000	-0.514	-0.500	+0.500	-0.514		-0.014

- Trend Analysis - analyze multiple parts to provide both graphical and numeric statistics
 - If multiple parts are scanned, "Trend-inspection" can be done
 - Anything inspected (points, circles, whole surface,...), on one part is automatically applied to other parts



Please contact us for more information

Name: Capture 3D

E-mail: info@capture3d.com

Tel: 714-546-7278

Fax: 714-546-7279



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CAPTURE 3D, Inc.

CA (714) 546-7278 | CT (860) 640-0661 | MI (248) 426-9001 | NC (980) 888-1050 | WA (206) 317-7778

info@capture3d.com | www.capture3d.com

	 GOM Inspect	 GOM Inspect Professional	 GOM Inspect Enterprise
Polygonize Scanner Data	■	■	■
Mesh Processing	■	■	■
CAD Import Basis	■	■	■
CAD Import Native	—	■	■
Import/Export Measurement Data	■	■	■
Import of Volume Data (New features)	■	■	■
Parametric Inspection	—	■	■
Traceability	■	■	■
Teaching by Doing	—	■	■
Alignments	■	■	■
CAD Comparison	■	■	■
GD&T Analysis	■	■	■
Trend Analysis	■	■	■
Creating Trend Projects	—	■	■
Airfoil Inspection	■	■	■
Surface Defect Map (New features)	■	■	■
Curve-Based Inspection	■	■	■
Point-Based Inspection	■	■	■
Scripting	—	■	■
Templates	—	■	■
Reporting	■	■	■
Virtual Measuring Room (Additional Modules) (New features)	—	■	■
Flexible Solution for Network Licenses	—	—	■