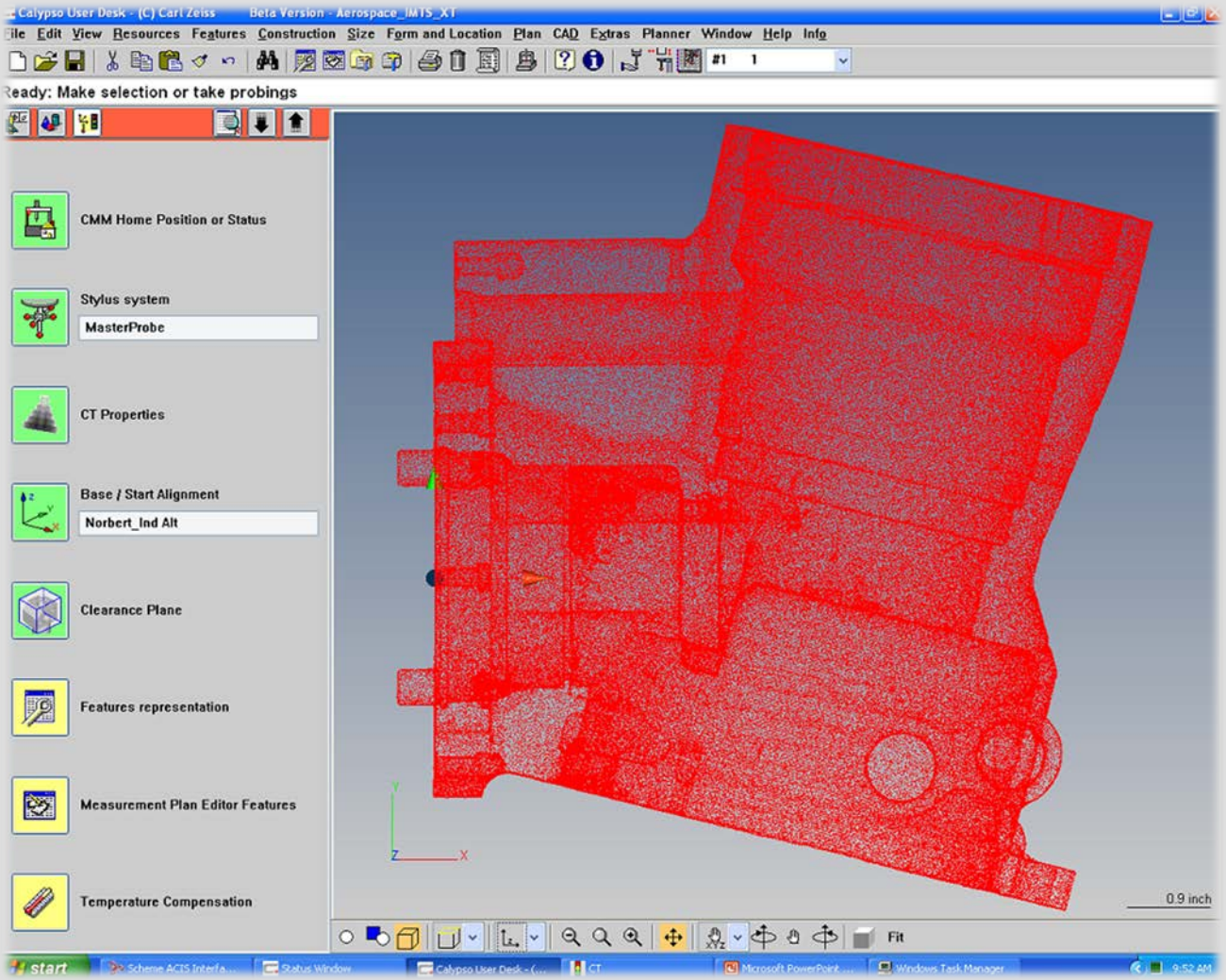
CT Data Analysis

Using Zeiss Metrotom CT-CMM

Metrotom

Part to CAD Surface Report: Step 1 - Import Voxel Data



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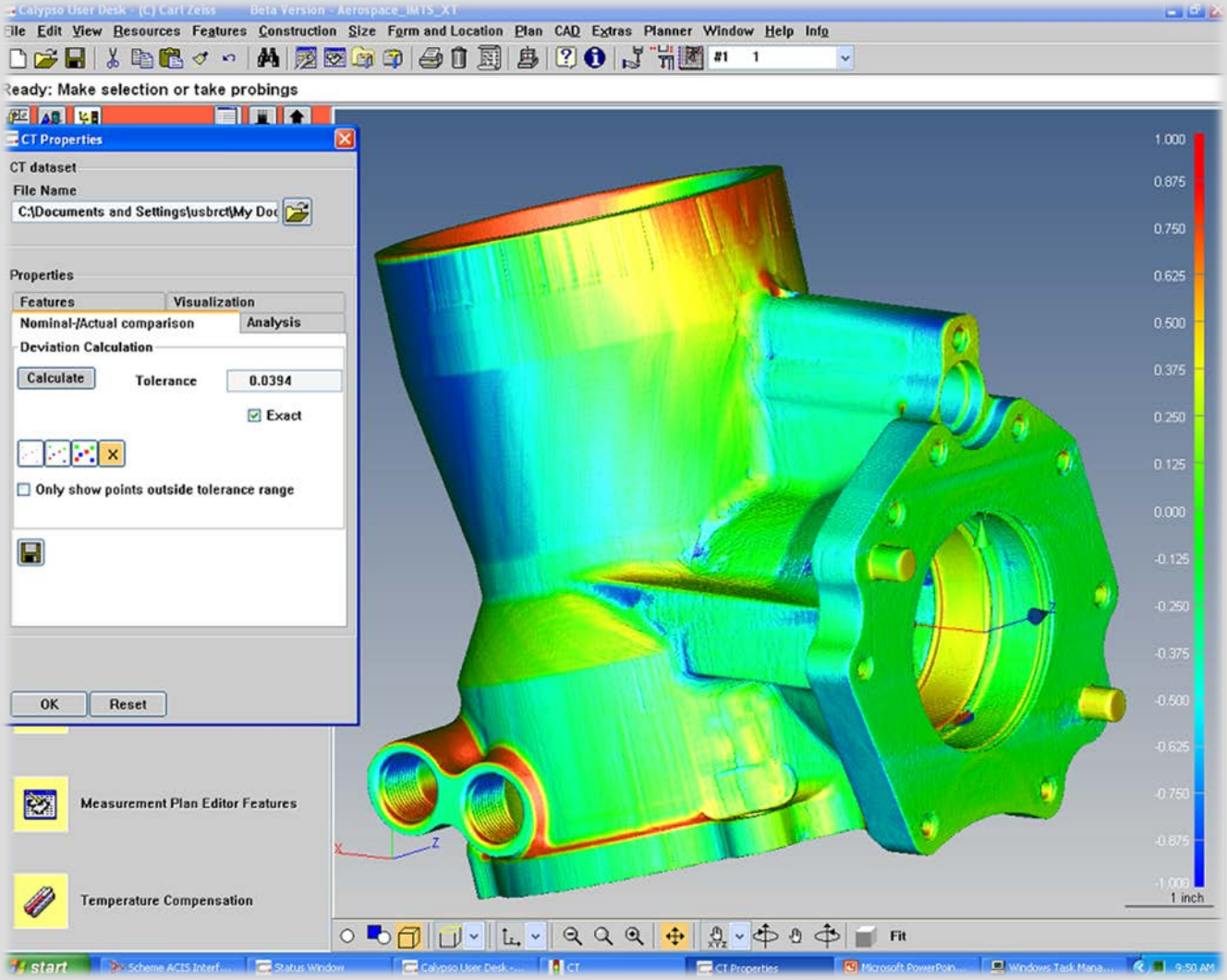
Part to CAD Surface Report: Step 5 – Generate Error Map



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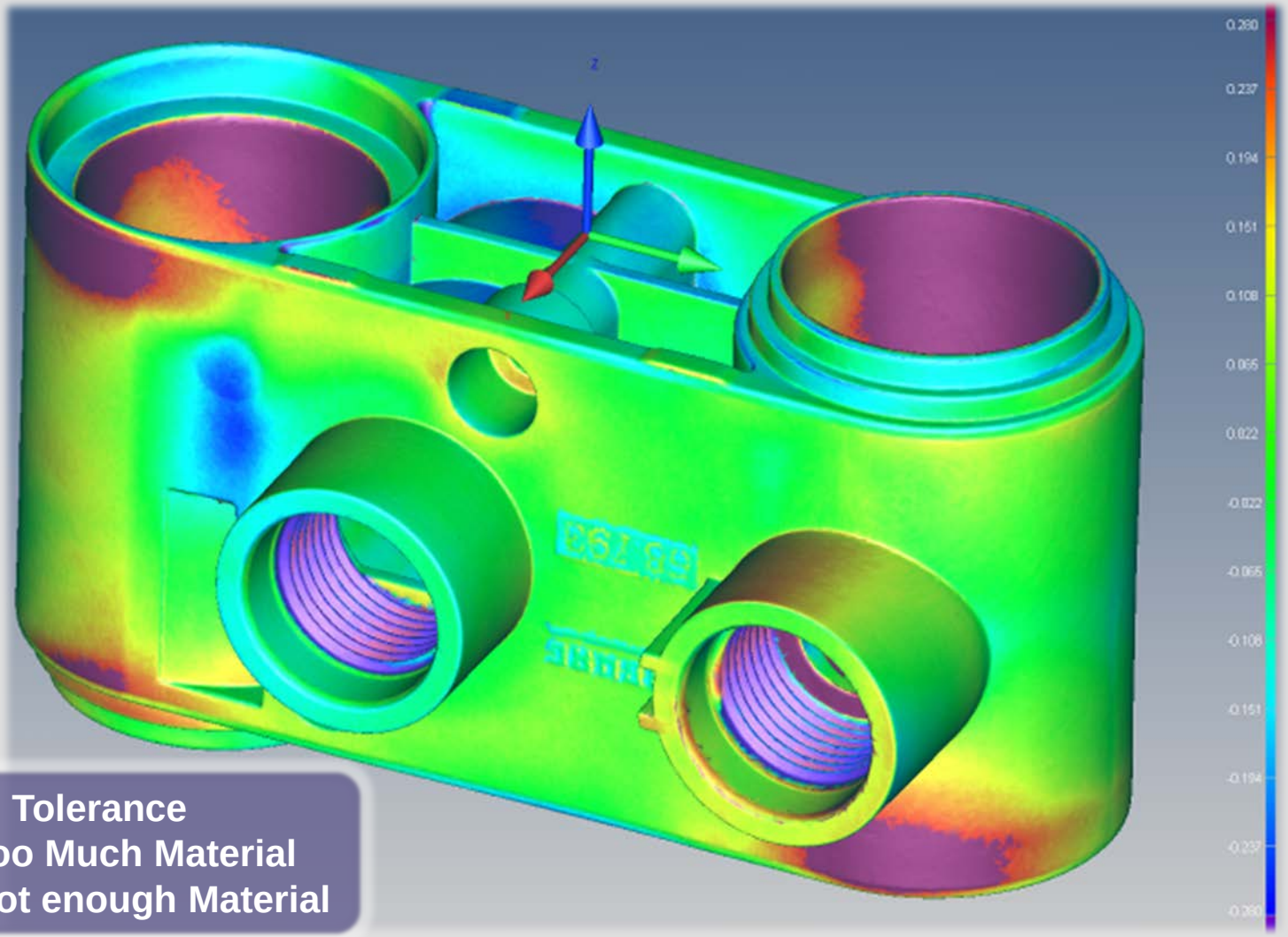
Part to CAD Surface Report: Housing



1. Green: In Tolerance
2. Red: Too Much Material
3. Blue: Not enough Material

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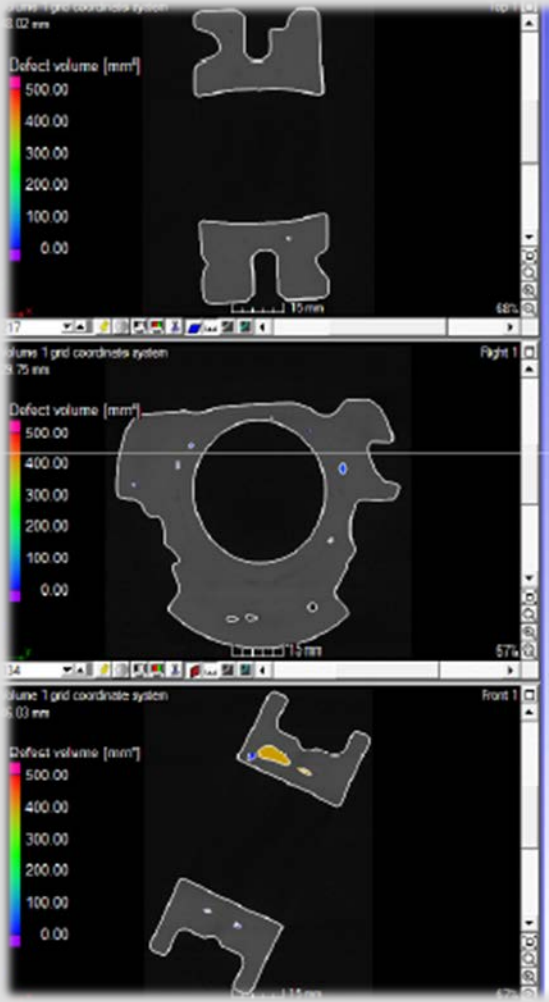
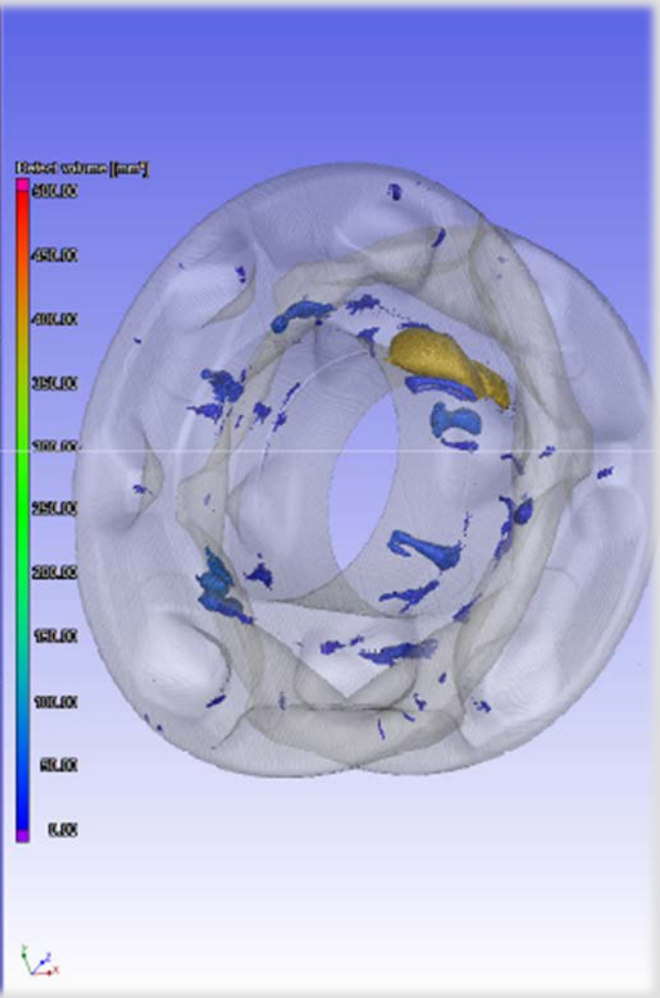
Void Report: Size, Volume and location of air pockets





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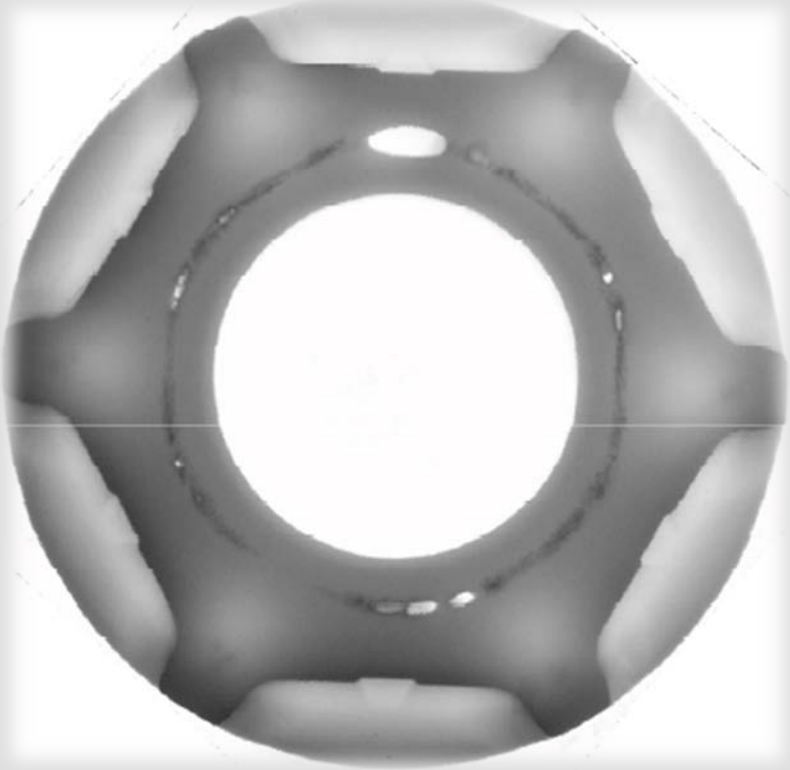
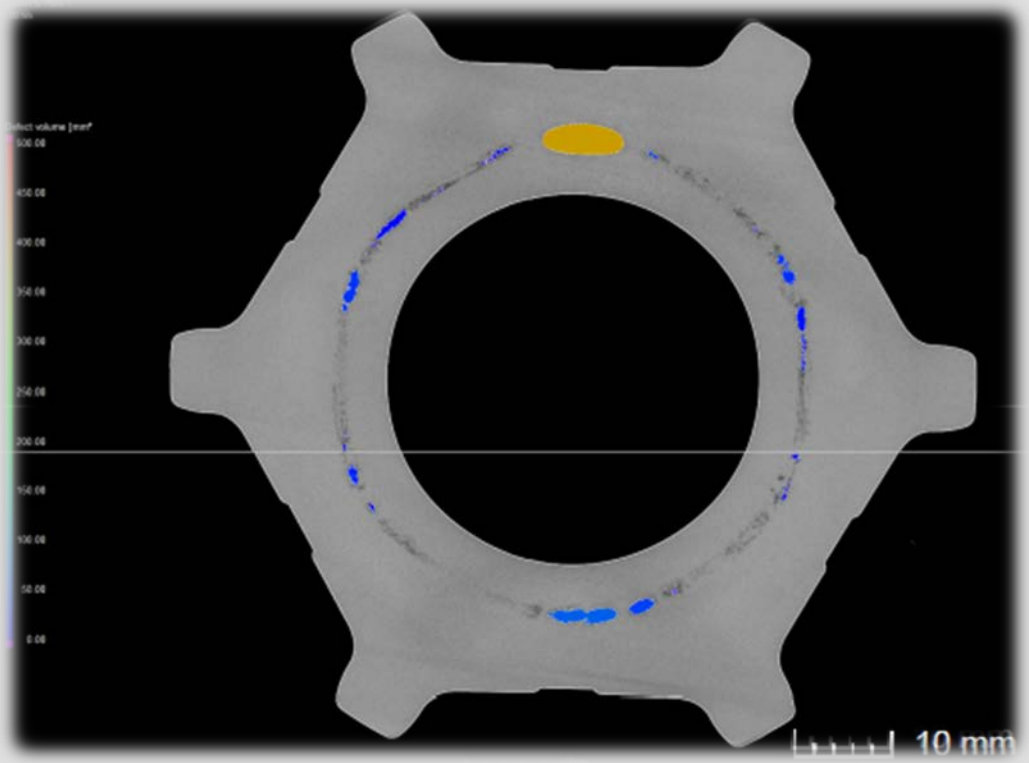
Comparison between a Polished Section and an Intersection through the CT Model

Microscopy Image of the Polished Section
(Destructive Testing)



CT:
(Non-Destructive Testing)



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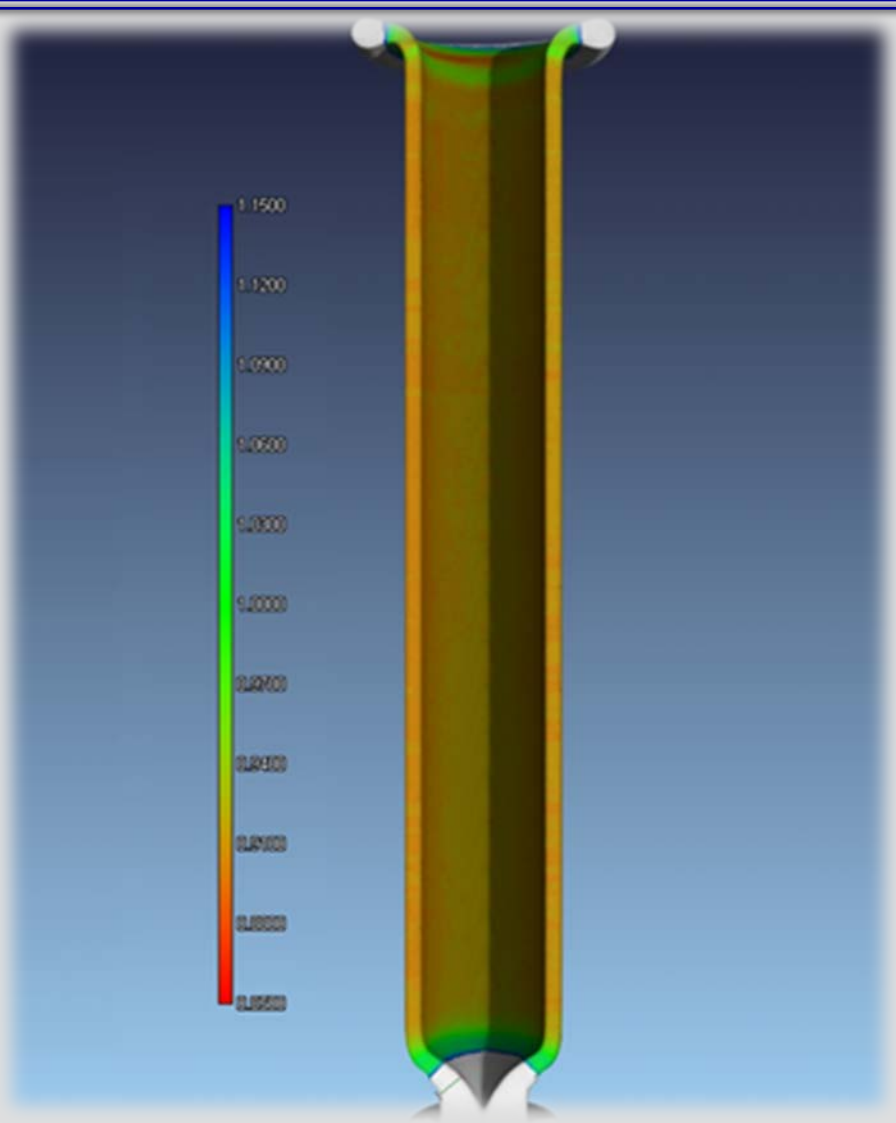
Wall Thickness Report: Syringe



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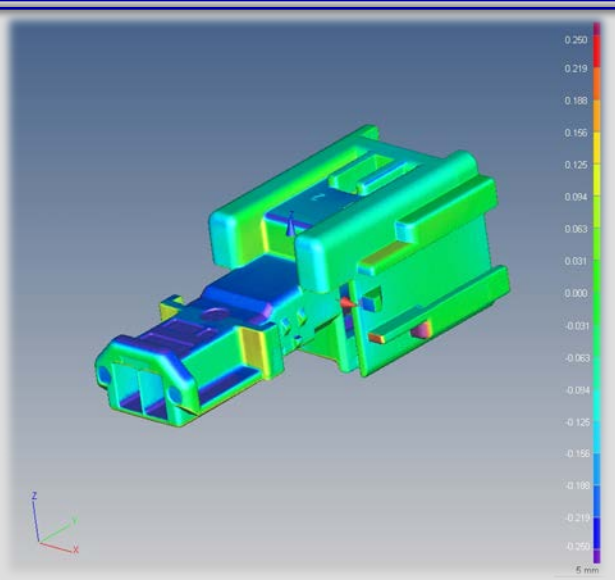
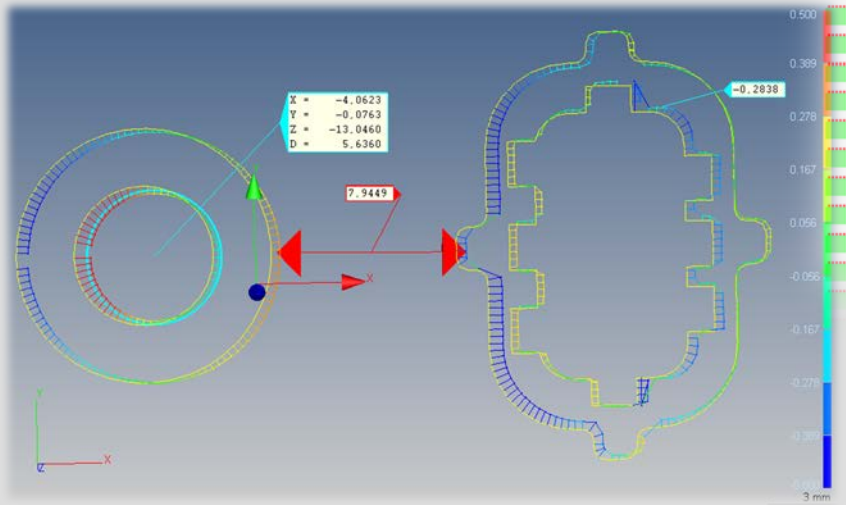
The most complex validation jobs are easily managed

….in a fraction of the time of using conventional tools





CALYPSO.

METROTOM

ZEISS

Plan Name 80527	Date December 5
Drawing No.	Time 10:42:08 am
Operator Master	Revision Date

Run
All Characteristics

Name	Actual	Nominal	pos Tol	neg Tol	Diff	<-|->
1FF 03 Dimension Section F-F	12.541	12.400	0.100	-0.150	0.141	0.041
1FF 17 Dimension 1 Section F-F	6.557	6.700	0.000	-0.200	-0.143	-|
1FF 17 Dimension 2 Section F-F	6.685	6.700	0.000	-0.200	-0.015	|—
1L 22 Dimension View L	10.270	10.200	0.200	0.000	0.070	-|
1EE 16 Dimension Section E-E	41.045	41.000	0.100	-0.200	0.045	|—
2EE 18 Dimension Section E-E	10.387	10.200	0.050	-0.050	0.187	0.137
1EE 27 Dimension Section E-E(1)	2.264	2.300	0.000	-0.100	-0.036	|-
1EE 27 Dimension Section E-E(2)	2.257	2.300	0.000	-0.100	-0.043	|-
RS1-RSD-98822-001 1	1.533	1.600	0.000	-0.100	-0.067	-|
RS1-RSD-98822-001 2	1.541	1.600	0.000	-0.100	-0.059	-|
RS2-RSD-98822-001 1 1	0.591	0.500	0.100	0.000	0.091	|—
RS2-RSD-98822-001 1 2	0.598	0.500	0.100	0.000	0.098	|—
RS2-RSD-98822-001 2 1	0.552	0.500	0.100	0.000	0.052	|-
RS2-RSD-98822-001 2 2	0.551	0.500	0.100	0.000	0.051	|
RS3-RSD-98822-001	41.045	41.000	0.100	-0.200	0.045	|—
RS4-RSD-98822-001 1	19.362	19.500	0.000	-0.200	-0.138	-|
RS4-RSD-98822-001 2	19.326	19.500	0.000	-0.200	-0.174	—|
RS5-RSD-98822-001	0.816	0.800	0.200	0.000	0.016	—|
RS6-RSD-98822-001 1	0.849	0.800	0.100	0.000	0.049	|

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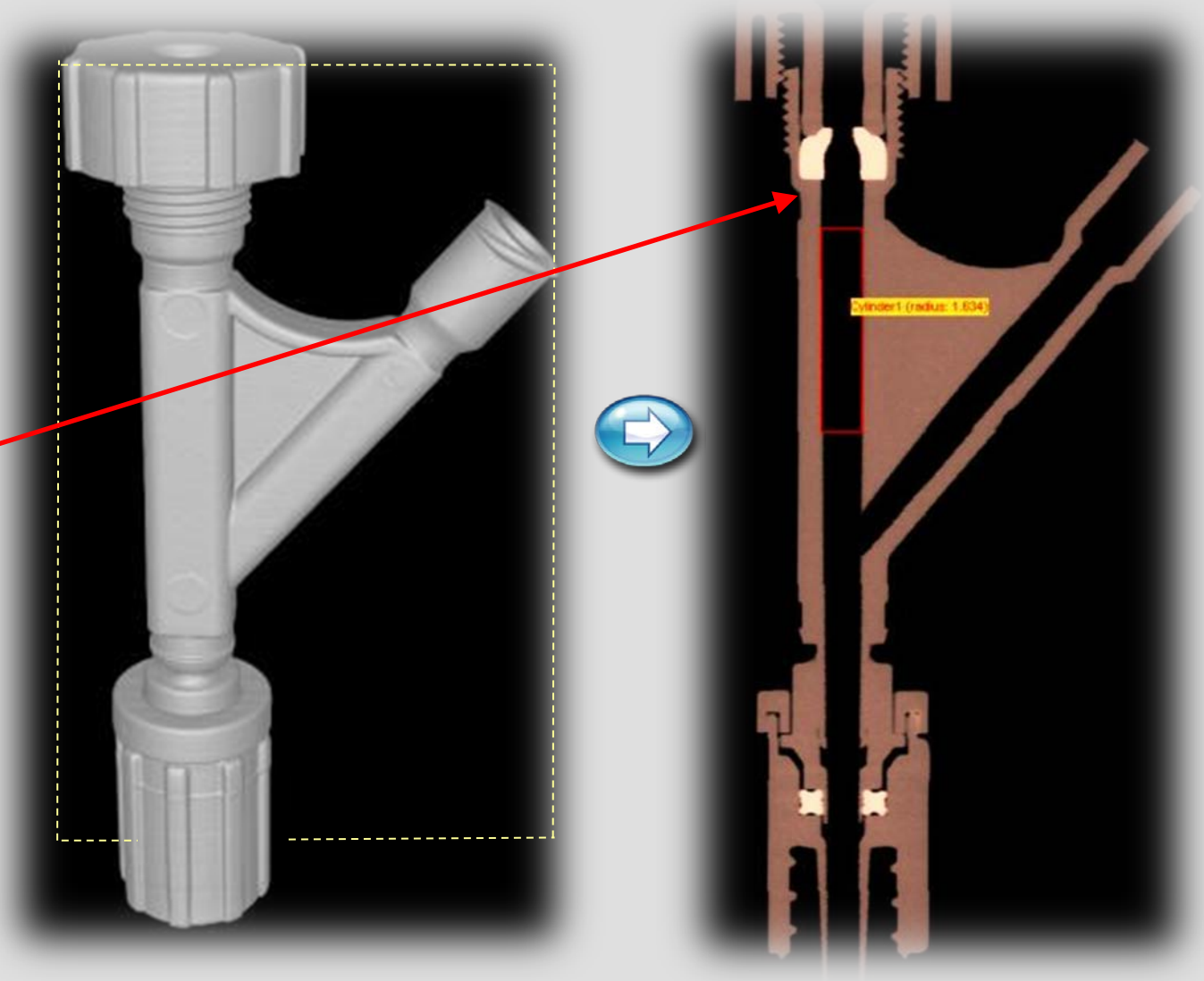
Assembly Analysis: Seal Validation

1. An infinite number of 2-D cross sections can be cut from the 3-D part data.
2. Differnet materials show up as different colors (note how cap compresses rubber seal)
3. Data can be used to confirm assembly fits.
4. Data can also be used to check internal characteristics.



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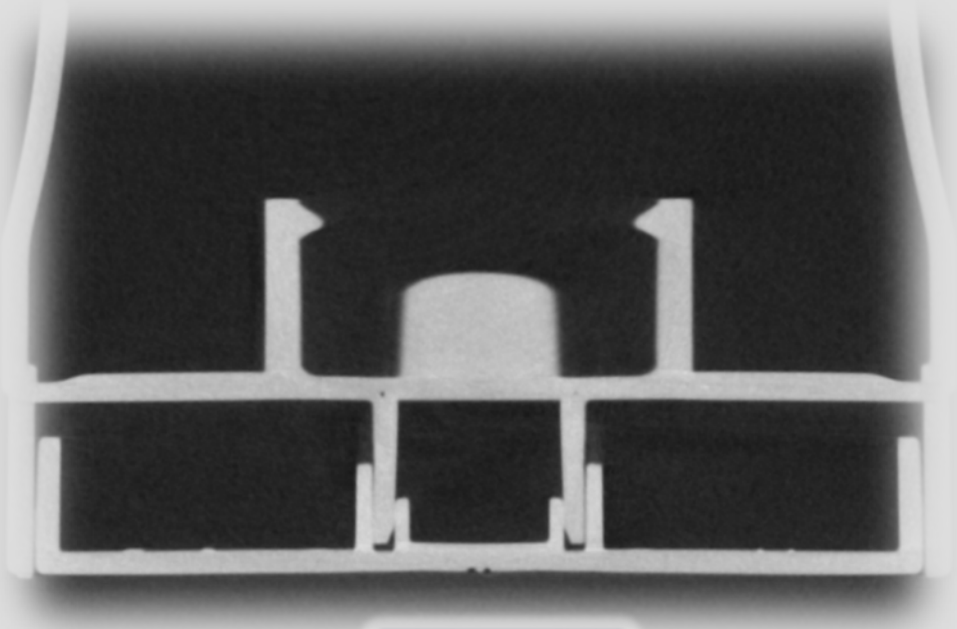
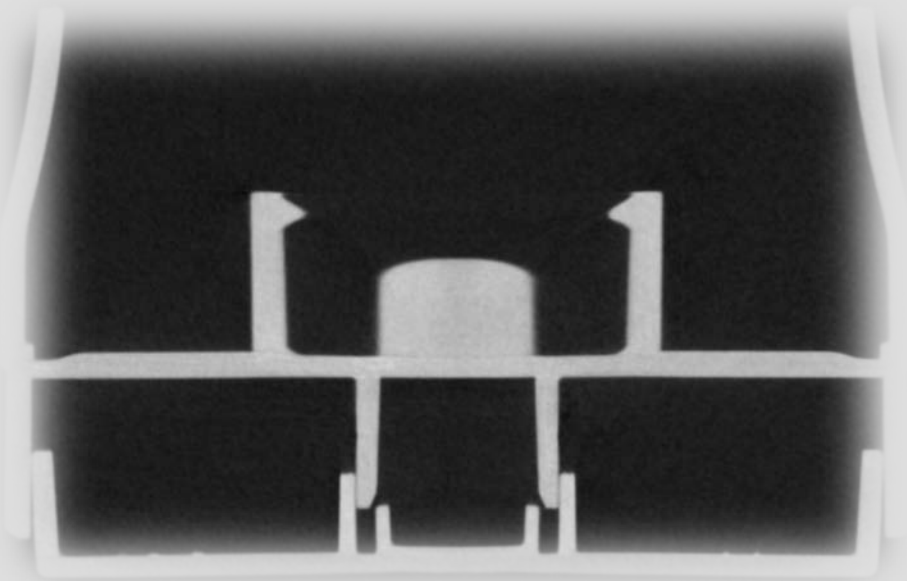
Assembly Analysis – Operational Conditions



Closed



Open

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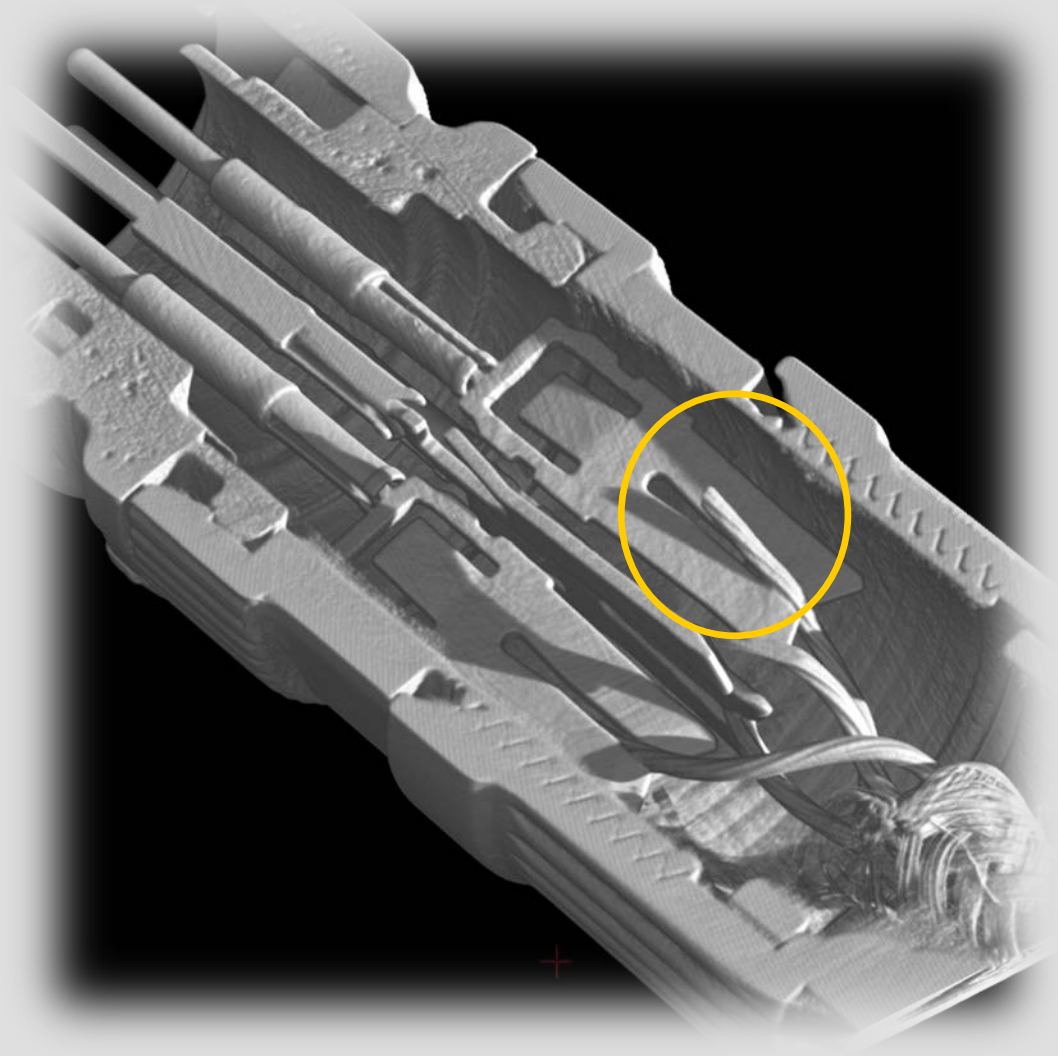
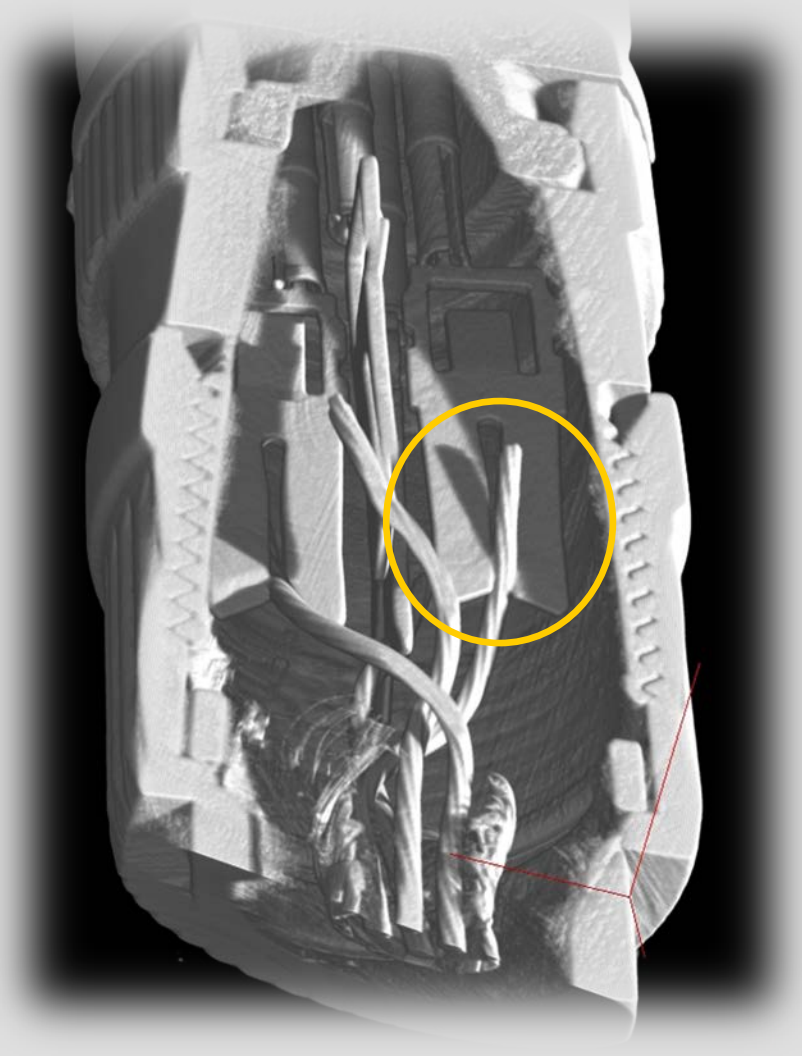
Assembly Analysis: Looking for defects





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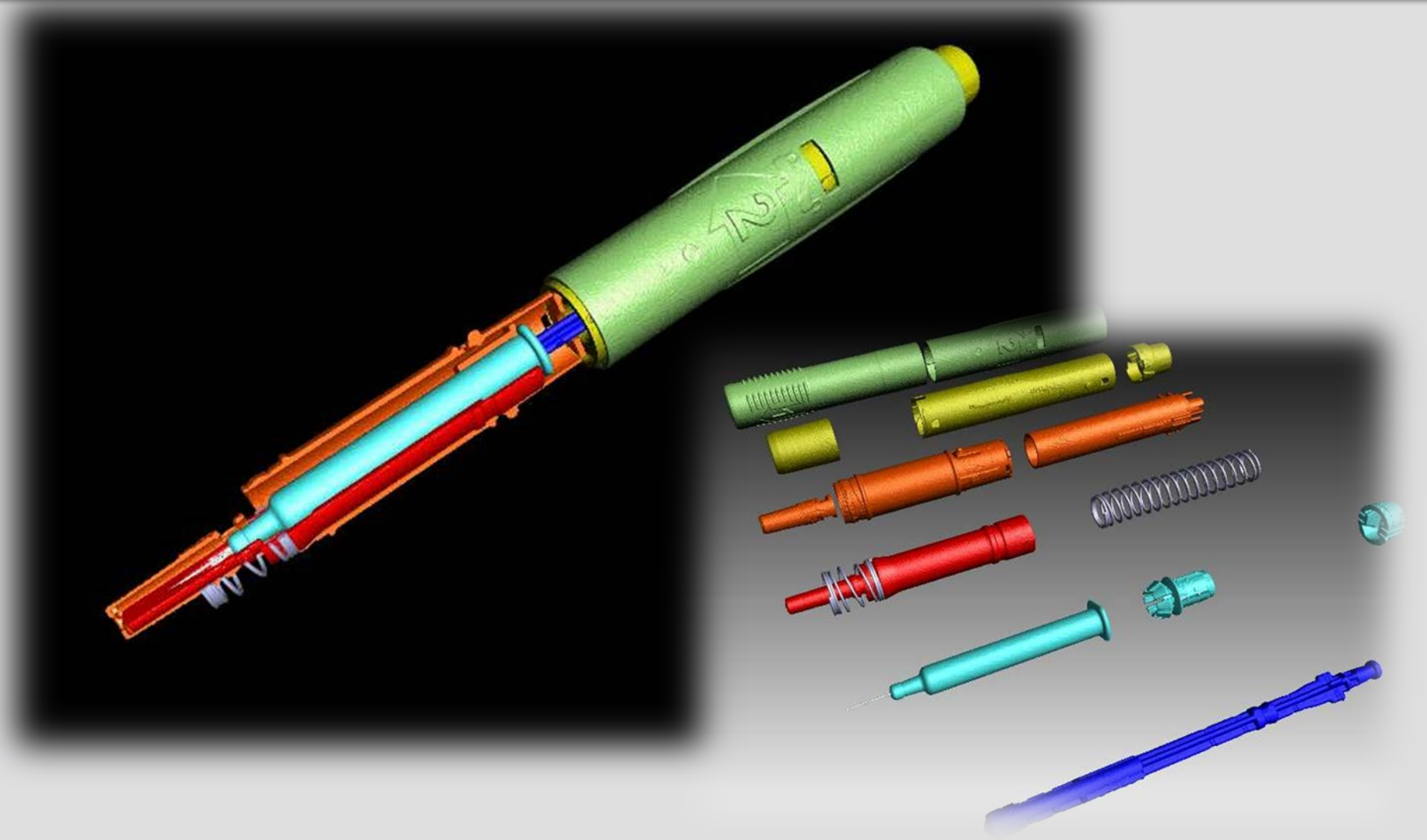
Assembly Analysis: Management Reports



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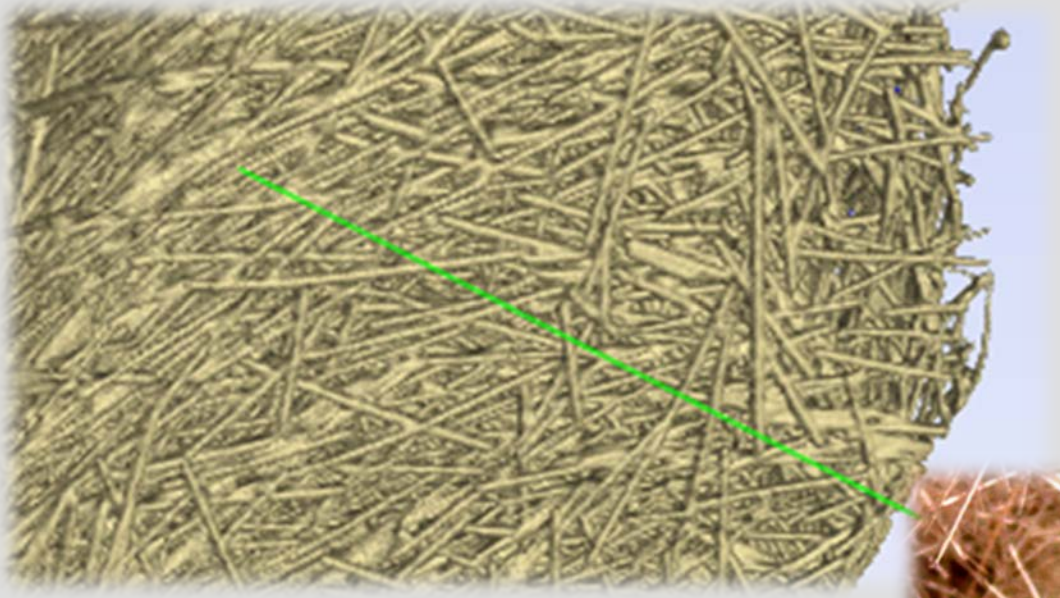
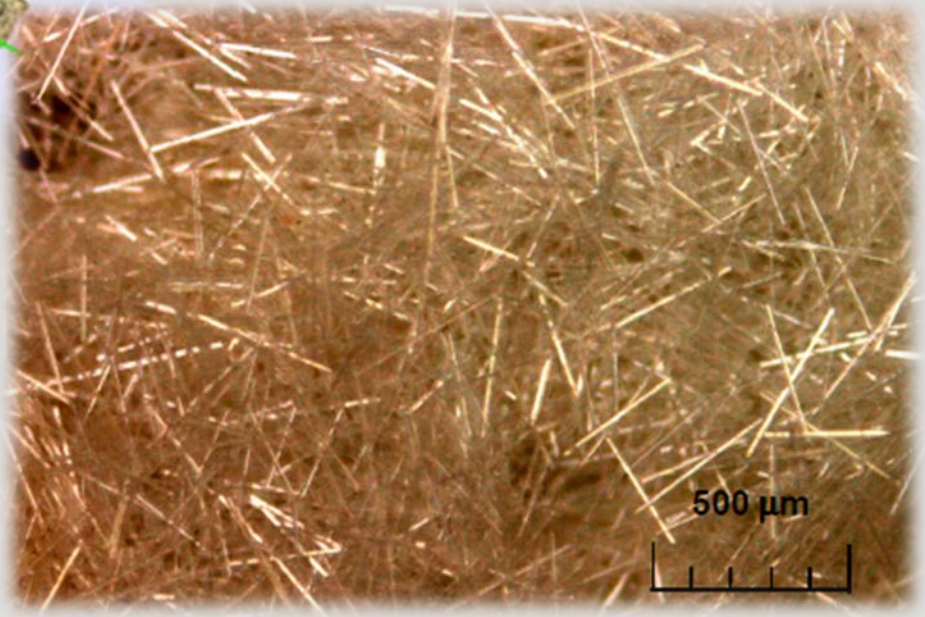
CT versus Microscopy Analysis



CT Scan of Sample



Microscope Image of
Fibers after Ashing
(Burning Out of Plastic)

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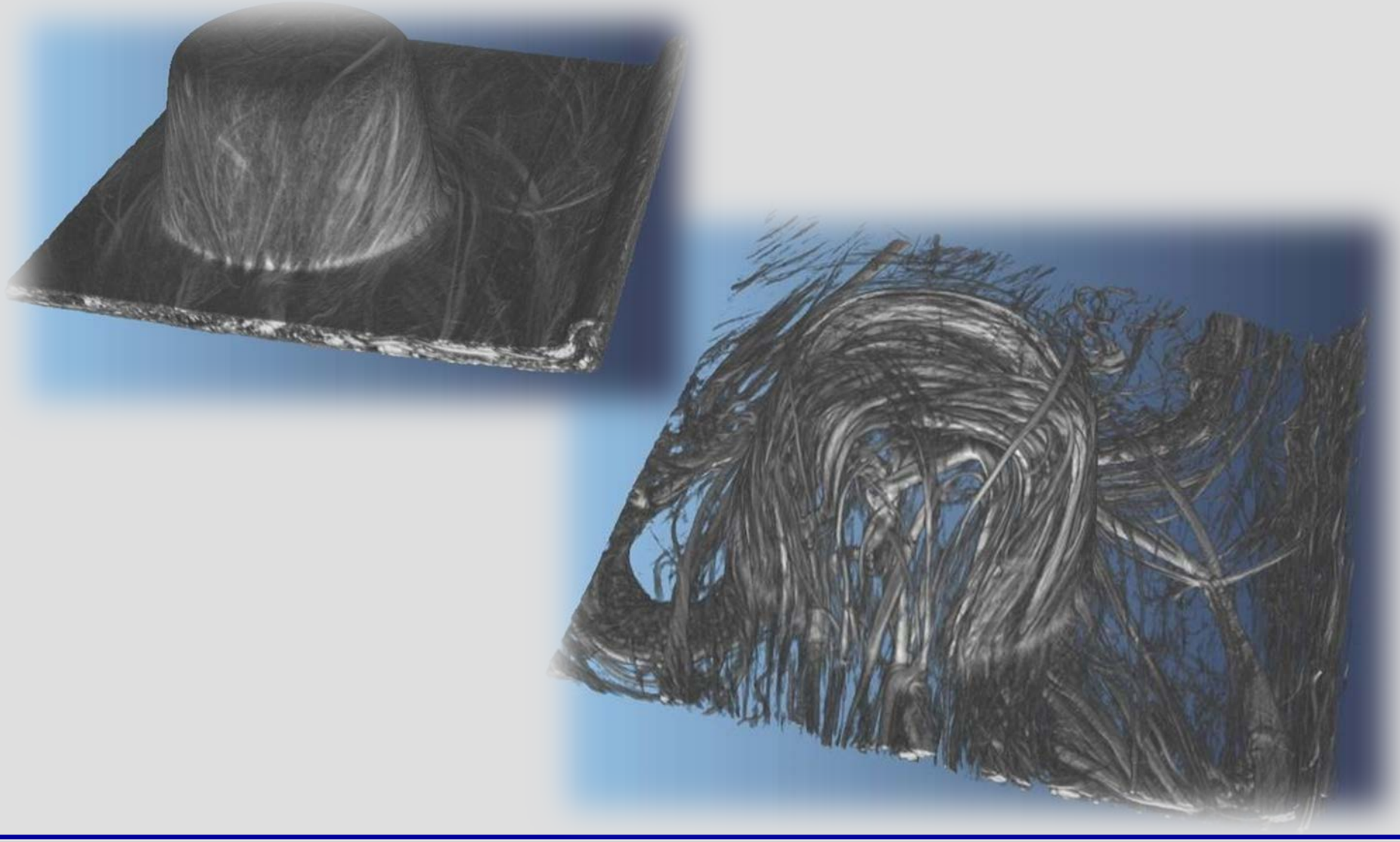
Material Analysis: Fiber reinforced plastics



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