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1. Introduction

1.1 Scope

The test methods and results described in this document are intended to provide basic additively manufactured material properties essential to most methods of analysis and are consistent with CMH-17-1G—Composite Materials Handbook for Polymer Matrix Composites. This report contains material property data of common usefulness to wide range of projects. The material property data have been generated with NCAMP oversight in accordance with NCAMP Standard Operating Procedures NSP 100; the test specimens have been inspected by NCAMP Authorized Inspection Representatives (AIR) and the testing has been witnessed by NCAMP Authorized Engineering Representatives (AER). However, the data may not fulfill all the needs of any specific company's program; specific properties, environments, build orientation, and loading situations may require additional testing.

The use of NCAMP material and process specifications does not guarantee material or structural performance. Material users should be actively involved in evaluating material performance and quality including, but not limited to, performing regular purchaser quality control tests, performing periodic equivalency or additional testing, participating in material change management activities, conducting statistical process control, and conducting regular supplier audits.

The applicability of NCAMP material property data, material allowables, and specifications must be evaluated on a case-by-case basis by aircraft companies and certifying agencies. NCAMP assumes no liability whatsoever, expressed or implied, related to the use of the material property data, material allowables, and specifications.

This report contains material property data only. Statistical analysis of the data including the calculations of b-basis values is given in a separate report, Additively Manufactured Polymer ULTEM™ 9085 Qualification Statistical Analysis Report NCP-RP-2018-007 Rev A. The qualification material was procured to NCAMP Material Specification NMS 085/1 Rev IR dated April 12, 2019. The qualification test coupons were manufactured in accordance with NCAMP Process Specification NPS 89085 Rev C dated April 12, 2019. The NCAMP Test Plan NTP AM-P-001 was used for this qualification program. Newer revisions of the material and process specification may contain more current information and process parameters but any variation from the qualification program should be carefully considered.

Part fabricators that wish to utilize the material property data, allowables, and specifications may be able to do so by demonstrating the capability to reproduce the original material properties; a process known as equivalency. More information about this equivalency process including the test statistics and its limitations can be found in Section 6 of DOT/FAA/AR-03/19 and Section 8.4.1 of CMH-17-1G. The applicability of equivalency process must be evaluated on program-by-program basis by the applicant and certifying agency. The applicant and certifying agency must agree that the equivalency test plan along with the equivalency process described in Section 6 of DOT/FAA/AR-03/19 and Section 8.4.1 of CMH-17-1G are adequate for the given program.

Aircraft companies should not use the data published in this report without specifying NCAMP Material Specification NMS 085/1. NMS 085/1 may have additional requirements that are listed in its material process control document (PCD) and other raw material specifications and PCDs which impose essential quality controls on the raw materials and raw material manufacturing equipment and processes. *Aircraft companies and certifying agencies should assume that the material property data published in this report is not applicable when the material is not procured to NMS 085/1.* NMS 085/1 is a free, publicly available, non-proprietary aerospace industry material specification.

The data in this report is intended for general distribution to the public, either freely or at a price that does not exceed the cost of reproduction (e.g. printing) and distribution (e.g. postage).

1.2 Symbols Used

F_{12}^{su}	in-plane shear ultimate strength
$F_{12}^{s5\% \text{ strain}}$	in-plane shear strength at 5% strain
$F_{12}^{s0.2\%}$	in-plane shear strength at 0.2% offset
G_{12}^s	in-plane shear modulus

Superscripts

s	shear
su	shear ultimate

Subscripts

12	in-plane
----	----------

Acronyms and Definitions

AM	Additive Manufacturing / Additively Manufactured
ASTM	American Society for Testing and Materials
B – Basis	95% lower confidence limit on the tenth population percentile
CV	Coefficient of variation
CTD	cold temperature dry
ETD	elevated temperature dry
ETW	elevated temperature wet
RTD	room temperature dry
RTW	room temperature wet
wet	specimen with an “equilibrium” moisture content
T, RH	temperature, relative humidity

1.3 References

ASTM Standards

All testing was in accordance with nationally recognized standards, methods and procedures. Specific mechanical property test methods applicable to the test program in this document include:

- ASTM D256-10 – Standard Test Methods for Determining the IZOD Pendulum Impact Resistance of Plastics
- ASTM D638-14 – Standard Test Method for Tensile Properties of Plastics
- ASTM D695-15 – Standard Test Method for Compressive Properties of Rigid Plastics
- ASTM D790-17 – Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- ASTM D3418-15 - Standard Test Method for Transition Temperatures and Enthalpies of Fusion and Crystallization of Polymers by Differential Scanning Calorimetry (DSC)
- ASTM D5379-12 – Standard Test Method for Shear Properties of Composite Materials by V-notched Beam Method.
- ASTM D5766/D5766M-11 – Standard Test Method for Open Hole Tensile Strength of Polymer Matrix Composite Laminates
- ASTM D5961/D5961M-17 – Standard Test Method for Bearing Response of Polymer Matrix Composite Laminates
- ASTM D6484/D6484M-14 – Standard Test Method for Open-Hole Compressive Strength of Polymer Matrix Composite Laminates
- ASTM D6742/D6742M-12 – Standard Practice for Filled-Hole Tension and Compression Testing of Polymer Matrix Composite Laminates
- ASTM D7028-07(2015) – Standard Test Method for Glass Transition Temperature (DMA T_g) of Polymer Matrix Composites by Dynamic Mechanical Analysis (DMA)

1.4 Methodology

1.4.1 Process Definition

For each combination of test, batch and condition, the specimens were selected from a minimum of two separate machine runs as shown in Figure 1-1 unless otherwise specified. A single “machine” run is defined as a single AM machine running a designed and specific process with a selected AM raw material through which mechanical test coupons were built with a ± 45 raster patterns.

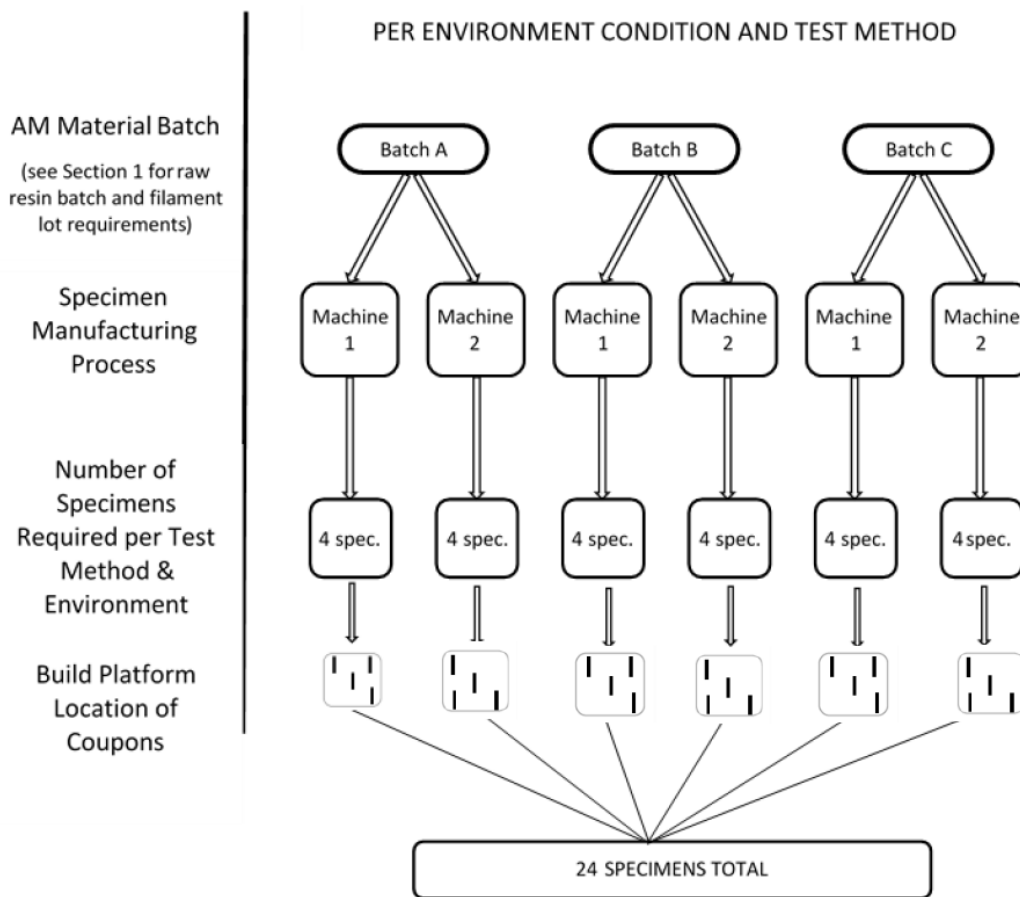


Figure 1-1: Specimen Selection Methodology

All specimens were fabricated in accordance with NCAMP Process Specification NPS 89085.

In order to facilitate individual specimen traceability, specimens carry a positional identifier that tie them to the build platform location illustrated in Figure 1-1. The following was used: 11- Top Left Corner, 12- Top Right Corner, 13- Bottom Right Corner, 14- Bottom Left Corner, 15 Middle.

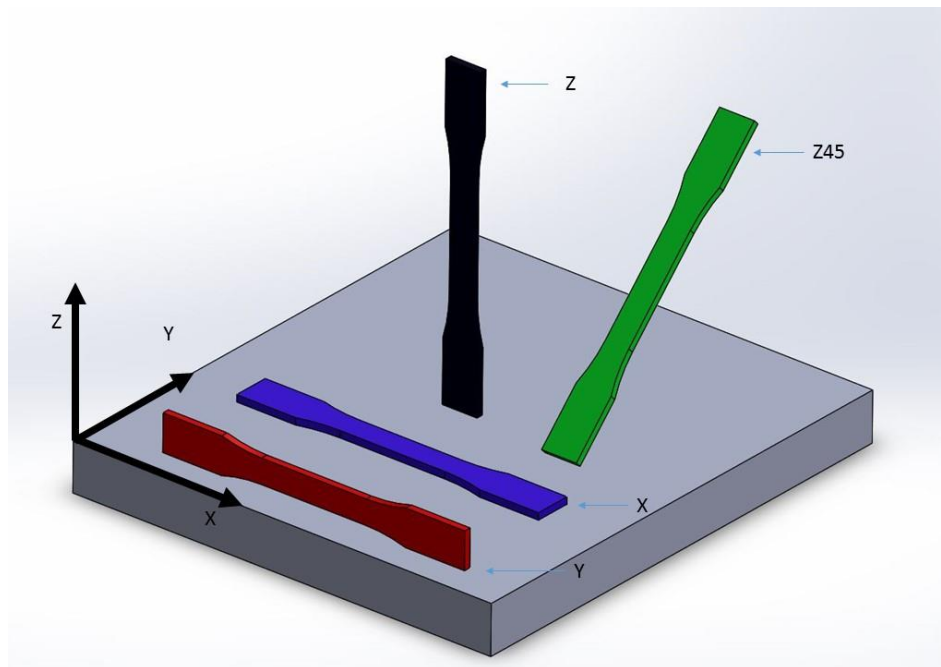
1.4.2 NIAR-Specimen Naming Format

All specimens were uniquely identified using the following reference system: The Test Plan Document Number-AM Material Manufacturer ID-Material Code-Fabricator ID-Batch ID-Machine ID-Actual Test Type-Specimen Location -Test Condition- Specimen Number. For example, [NTPAMP001-SY-UM9085-RPM-A-M1-XT-13-RTD-3] denotes AM Material Manufacturer: SY, AM Material Name: UM9085, Fabricator: RPM, AM Material Batch: A, Machine ID: M1: Test Direction: X Tension, Test Specimen Location: Bottom Right Corner, Test Condition: Room Temperature Dry, and Specimen Number: 3.

Test Directions, as illustrated in Figure 1-2, are the various axes the coupons were printed on with the raster direction printing a ± 45 pattern relative to the print axis.

Some coupons were printed to replace data points that have been omitted due to test anomalies. These specimens are distinguished with an (R) at the end of their string name; ie. following the specimen number.

For the purpose of plotting graphs and data analysis, an assigned Batch ID is referenced (i.e.: AM Batch A as # 1, AM Batch B as # 2, etc). This is used in section 4 of this report.



(Note that: X = XY, Y = XZ, Z = ZX, Z45 = ZX-45, in the two letter nomenclature for AM)

Figure 1-2: Print orientation of the specimens with a ± 45 raster pattern.

1.4.3 Specimen & Testing Details

1.4.3.1 Tabbings

No tabs were used for this program.

1.4.3.2 Specimen Strain Device Used

Corresponding Gage ID can be obtained from Appendix 1 of NTP AM-P-001.

Uniaxial gages were used on:

Two of RTD Open-Hole Compression specimens from each build direction and machine to detect buckling.

Biaxial gages were used on:

All conditions of V-Notch In-Plane Shear specimens.

Uniaxial Extensometers were used on:

All conditions of Compression, Tension, Single-Shear Bearing, and Open-Hole Compression specimens.

Deflectometers were used on:

All conditions of Flex specimens

1.4.3.3 Specimen Dimensions & Test Configuration

For filled-hole tension (FHT) tests, the fasteners were installed to 85 ± 5 in-lb above the prevailing torque. For filled-hole compression (FHC) and single-shear bearing (SSB) tests, the fasteners were installed to 30 ± 5 in-lb above the prevailing torque. Fasteners were installed after moisture conditioning. Unless otherwise specified, a tolerance of $\pm 5^\circ\text{F}$ applied to all temperature conditions specified in this document. For filled-hole and bearing tests, the hole diameter was 0.25 in -0.000 +0.003 in. The following fasteners were used:

NASM 21297-04004 bolts with MS 21084 nuts and MS 21206 washers for FHT, and FHC.

NASM 21297-04016 bolts with MS 21084 nuts and MS 21206 washers for SSB.

Open and Filled-Hole Tension specimens were machined to 8.0" in length instead of 12.0".

A modified test fixture was used for open and filled-hole compression tests. The modified fixture had a 2" gage length and 2" extensometers with single point knife-edges and was used in lieu of strain gages for improved accuracy. The fixture had slots machined into the side to allow less interference between the fixture and the extensometer springs. Testing was done to obtain 0.2% offset and 1.0% offset strength values using a strain range of $2000 \mu\epsilon - 6000 \mu\epsilon$.

For D695 dogbone compression, an NCAMP AER approved modified fixture was used. With a specimen length of $3.620'' \pm 0.005''$. The fixture was torqued to 1-in lb. A mounted extensometer was used to obtain the 0.2% offset and 1.0% offset strength. Testing was done to obtain modulus, 0.2% offset and 1.0% offset strength values using a strain range of $2000\mu\epsilon$ - $6000\mu\epsilon$. Fixture drawing is shown in section 1.4.3.4, Figures 1-3 through 1-6.

1.4.3.4 ASTM D695 Modified Fixture

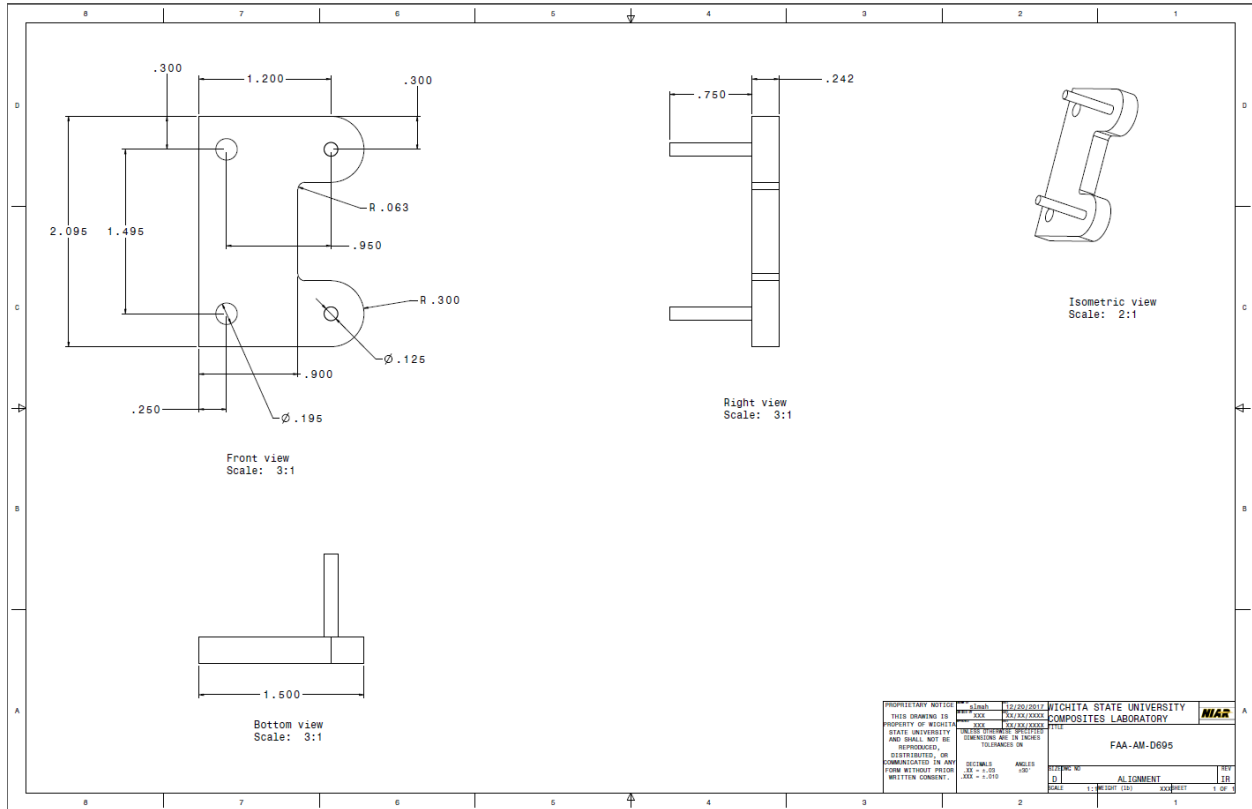


Figure 1-3: Alignment

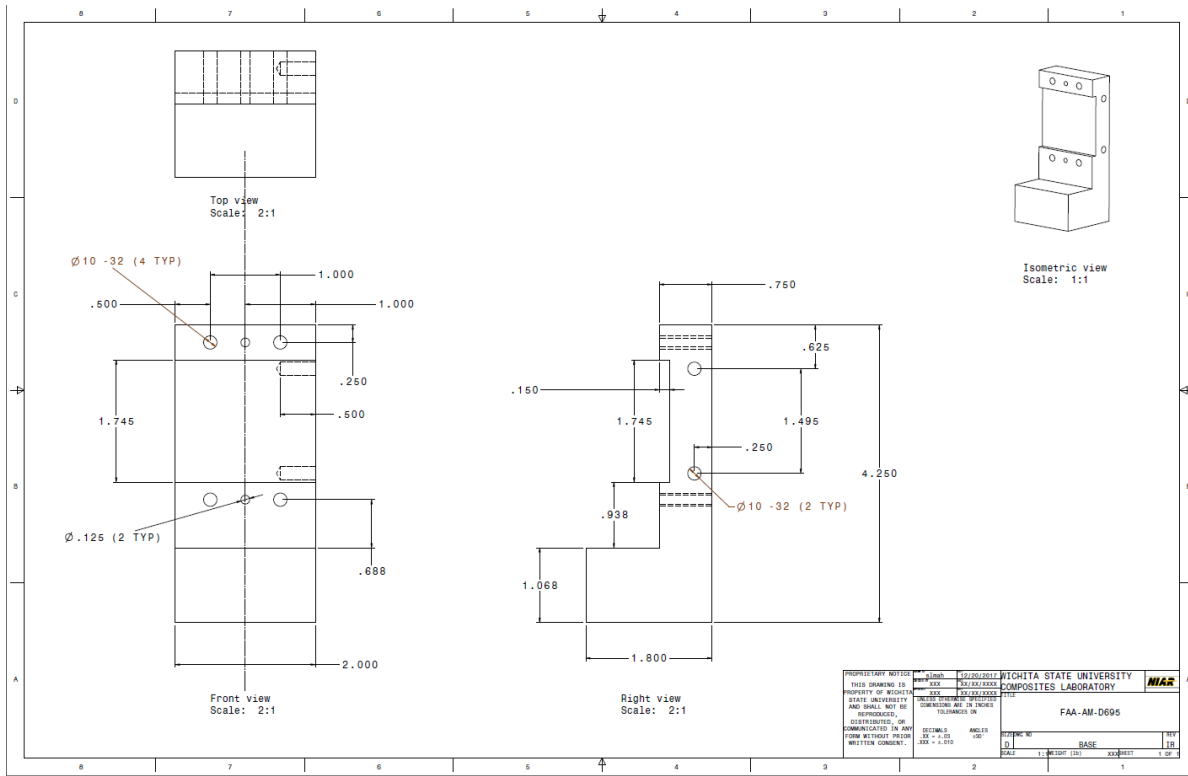


Figure 1-4: Base

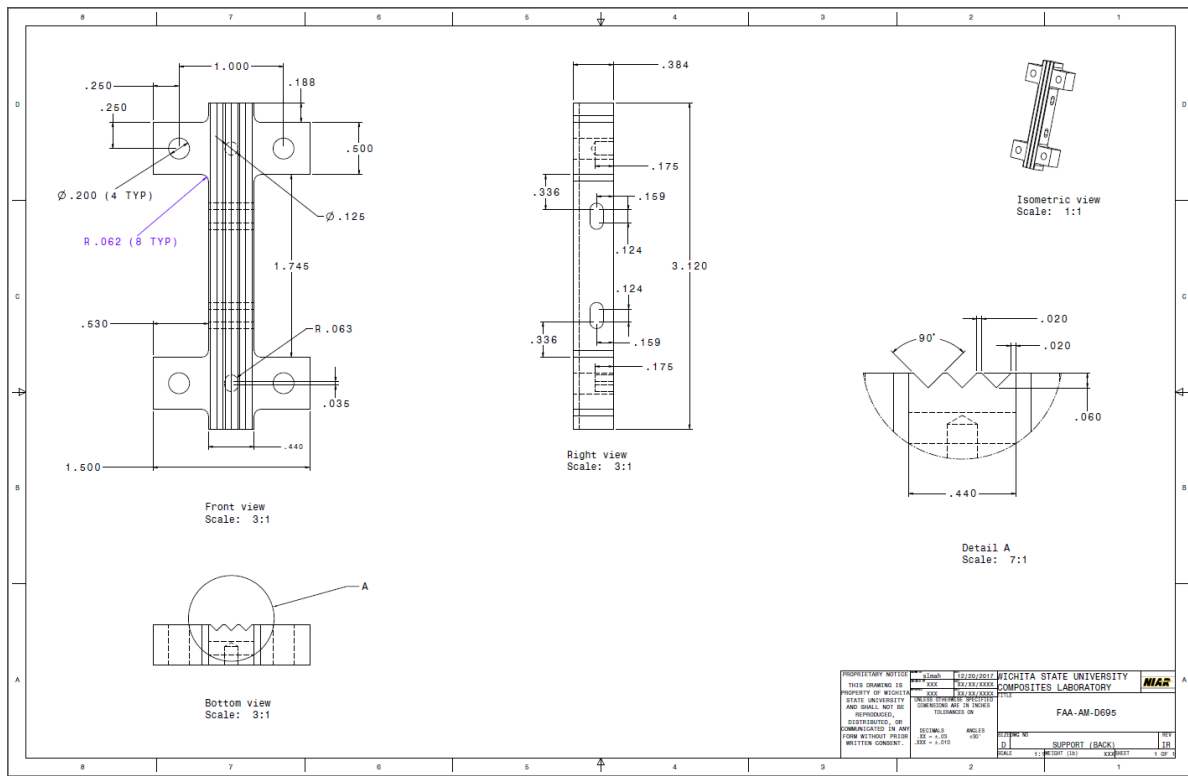


Figure 1-5: Support (Back)

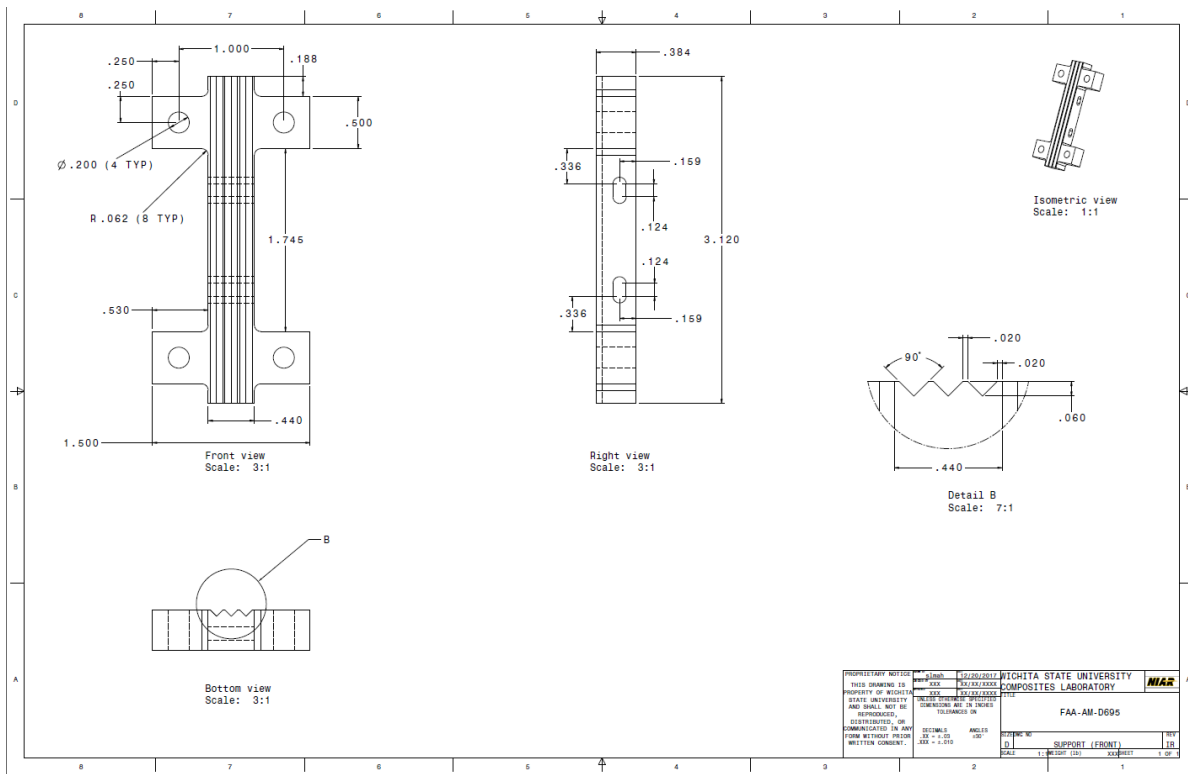


Figure 1-6: Support (Front)

1.4.4 Test Matrix

The tables below show the test matrices for each combination of test type and build orientation.

Test Type and Direction	Property	Number of Batches x Number of Machines x Number of Coupons				
		Test Temperature/Moisture Condition				
		CTD	RTD	ETD1	RTW	ETW1
ASTM D638 (type 1) Tension X (2)	Strength and Modulus	3x2x4	3x2x4		1x2x4 (5)	3x2x4
ASTM D638 (type 1) Tension Y (2)	Strength and Modulus	3x2x4	3x2x4		1x2x4 (5)	3x2x4
ASTM D638 (type 1) Tension Z (2)	Strength and Modulus	3x2x4	3x2x4		1x2x4 (5)	3x2x4
ASTM D638 (type 1) Tension Z (45) (2)	Strength and Modulus	3x2x4	3x2x4		1x2x4 (5)	3x2x4
ASTM D695 modified (type 6.7.2) Compression X (1,2)	Strength and Modulus	3x2x4	3x2x4	1x2x4	1x2x4 (5)	3x2x4
ASTM D695 modified (type 6.7.2) Compression Y (1,2)	Strength and Modulus	3x2x4	3x2x4	1x2x4	1x2x4 (5)	3x2x4
ASTM D695 modified (type 6.7.2) Compression Z (1,2)	Strength and Modulus	3x2x4	3x2x4	1x2x4	1x2x4 (5)	3x2x4
ASTM D695 modified (type 6.7.2) Compression Z (45) (1,2)	Strength and Modulus	3x2x4	3x2x4	1x2x4	1x2x4 (5)	3x2x4
ASTM D790 Flex X (2,6)	Strength and Modulus	3x2x4	3x2x4			3x2x4
ASTM D790 Flex Y (2,6)	Strength and Modulus	3x2x4	3x2x4			3x2x4
ASTM D790 Flex Z (2,6)	Strength and Modulus	3x2x4	3x2x4			3x2x4
ASTM D790 Flex Z (45) (2,6)	Strength and Modulus	3x2x4	3x2x4			3x2x4
ASTM D5379 V-notch In-Plane Shear X (3,4)	Strength and Modulus	3x2x4	3x2x4		1x2x4 (5)	3x2x4

Table 1-1: Mechanical Test Matrix

Note 1: Back-to-back strain gauges may be used on the first two specimens. If no buckling is observed, the remaining modulus specimens will require a strain gauge on one side of the specimens only. An appropriate extensometer may be used in place of the strain gauges if fixturing does not allow strain gauge use. Buckling may not be identifiable when using extensometer. Strength offset values at 0.2% and 1.0% shall be reported. Strain range of 2000 $\mu\epsilon$ -6000 $\mu\epsilon$ will be used for all data including modulus.

Note 2: The build orientations to be tested are X, Y, Z, and Z (45). This represents the 4 build orientations seen in the matrix.

Note 3: Notches/holes will be machined, reamed, or dreamed.

Note 4: V-Notch in Y, Z, and Z(45) removed; test not applicable to these orientations. Strain range of 2000 $\mu\epsilon$ – 6000 $\mu\epsilon$ shall be used. Should failure occur outside of the notched region, it shall be reported, however, the ultimate shear strength may not be representative of actual coupon strength.

Note 5: Coupons to be produced out of material Batch C.

Note 6: Strain range 5000 $\mu\epsilon$ -20000 $\mu\epsilon$ shall be used to calculate modulus.

Table 1-2 below summarizes the design guidance properties tests that were carried out. The four build orientations are X, Y, Z, and Z (45). The build orientations in this program are not specific to any design. Therefore, careful consideration should be given to the validity of properties derived from this program based on the design specific orientations in a structure to be certified.

Table 1-2 also emphasizes those properties and test condition combinations believed to constitute the worst case, which in general is hot wet for polymer matrix material properties.

Test Type	Test Type (6)	Property	Number of Batches x Number of Machines x Number of Coupons		
			Test Temperature/Moisture Condition		
			CTD	RTD	ETW1
OHT	ASTM D5766 Open Hole Tension X (1)	Strength	3x2x4	3x2x4	3x2x4
OHT	ASTM D5766 Open Hole Tension Y (1)	Strength	3x2x4	3x2x4	3x2x4
OHT	ASTM D5766 Open Hole Tension Z (1)	Strength	3x2x4	3x2x4	3x2x4
OHT	ASTM D5766 Open Hole Tension Z (45) (1)	Strength	3x2x4	3x2x4	3x2x4
FHT	ASTM D6742 Filled Hole Tension X (2)	Strength	3x2x4	3x2x4	3x2x4
FHT	ASTM D6742 Filled Hole Tension Y (2)	Strength	3x2x4	3x2x4	3x2x4
FHT	ASTM D6742 Filled Hole Tension Z (2)	Strength	3x2x4	3x2x4	3x2x4
FHT	ASTM D6742 Filled Hole Tension Z (45) (2)	Strength	3x2x4	3x2x4	3x2x4
OHC	ASTM D6484 Open Hole Compression X (1,3)	Strength		3x2x4 (5)	3x2x4
OHC	ASTM D6484 Open Hole Compression Y (1,3)	Strength		3x2x4 (5)	3x2x4
OHC	ASTM D6484 Open Hole Compression Z (1,3)	Strength		3x2x4 (5)	3x2x4
OHC	ASTM D6484 Open Hole Compression Z (45) (1,3)	Strength		3x2x4 (5)	3x2x4
FHC	ASTM D6742 Filled Hole Compression X (2,3)	Strength		3x2x4	3x2x4
FHC	ASTM D6742 Filled Hole Compression Y (2,3)	Strength		3x2x4	3x2x4
FHC	ASTM D6742 Filled Hole Compression Z (2,3)	Strength		3x2x4	3x2x4
FHC	ASTM D6742 Filled Hole Compression Z (45) (2,3)	Strength		3x2x4	3x2x4
SSB	ASTM D5961 Single Shear Bearing X (4)	Strength & Deformation		3x2x4	3x2x4
SSB	ASTM D5961 Single Shear Bearing Y (4)	Strength & Deformation		3x2x4	3x2x4
SSB	ASTM D5961 Single Shear Bearing Z (4)	Strength & Deformation		3x2x4	3x2x4
SSB	ASTM D5961 Single Shear Bearing Z (45) (4)	Strength & Deformation		3x2x4	3x2x4
IZOD Impact	ASTM D256 IZOD Pendulum Impact X	Impact Resistance		3x2x4	
IZOD Impact	ASTM D256 IZOD Pendulum Impact Y	Impact Resistance		3x2x4	
IZOD Impact	ASTM D256 IZOD Pendulum Impact Z	Impact Resistance		3x2x4	
IZOD Impact	ASTM D256 IZOD Pendulum Impact Z (45)	Impact Resistance		3x2x4	

Table 1-2: Mechanical Test Matrix (Design Guidance Properties)

Note 1: Open-hole test configuration: 0.25” hole diameter, 1.5” width.

Note 2: Filled-hole test configuration: 0.25” hole diameter, see section 1.4.3.3 for fastener callout, 1.5” width.

Note 3: Strength offset values at 0.2% and 1.0% shall be reported. Strain range of $2000\mu\epsilon$ - $6000\mu\epsilon$ will be used for all data including modulus.

Note 4: Single shear bearing test configuration: 0.25” hole diameter, 1.5” width, see section 2 for fastener callout, $e/D=3$, ASTM D5961 Procedure C.

Note 5: Back-to-back strain gages may be used on the first two specimens. If no buckling is observed, the remaining modulus specimens will require strain gage on one side of the specimens only. Appropriate extensometer may be used in place of or in conjunction with the strain gage. If only extensometers are used buckling may not be identifiable.

Note 6: All holes will be drilled/reamed/dreamed by machine.

1.4.5 Physical Testing

The properties in Table 1-3 were determined for each test type and build orientation. The tests were performed by the National Institute for Aviation Research (NIAR) Composites Laboratory or an approved laboratory under the supervision of NCAMP.

Property	Condition/Method (Note 1)	Min Replicates per Test Type and Build Orientation
Thickness	ASTM D3171-15/or applicable mechanical test method.	All data from mechanical test specimens
Density	ASTM D792-13	Per Note 3
Photomicrograph	CP6101 and CP6102	Per Note 3
CTE by TMA	ASTM E228/E831	Per Note 4
Glass Transition Temperature, T _g by DMA flexural loading	Dry and Wet – ASTM D7028	1 Dry, 1 Wet (Note 2 & 3)
Flammability Drip Time	FAR 25.853 (D) Appendix F, Part IV	Per Note 5
Flammability Extinguishing Time	FAR 25.853 (A), Appendix F, Part I, (a), 1, (i): 60 sec	Per Note 5
Flammability Burn Length	FAR 25.853 (A), Appendix F, Part I, (a), 1, (i): 60 sec	Per Note 5
NBS Smoke and Density	FAR 25.853 (D), Appendix F, PART V	Per Note 5
Heat Release Peak	FAR 25.853 (D) Appendix F, Part IV	Per Note 5

Table 1-3: Physical Testing Matrix

Note 1: Where the applicable standard allows variations in specimen form or test method, the specific parameters to be used will be specified in the test work instructions and reported in the final test report.

Note 2: Minimum total of 24 dry and 24 wet for each material system.

Note 3: Test first coupon of each batch, machine, and build orientation. Example: Test first coupon of the X direction for Batch A, machine 1. Then test the first coupon of the X direction, Batch A, machine 2. Continue in this manner through all orientation, machine, and batch combinations.

Note 4: Minimum of 1 coupon per batch and build orientation. Only one build location is required.

Note 5: Minimum of 3 coupons per build orientation. Only one build location is required.

1.4.6 Environmental Conditioning

The following tests were performed by the NIAR Composites Laboratory under the supervision of NCAMP.

CTD = $-65 \pm 5^\circ\text{F}$, dry
 RTD = $70 \pm 10^\circ\text{F}$, dry
 RTW = $70 \pm 10^\circ\text{F}$, wet
 ETD1 = $180 \pm 5^\circ\text{F}$, dry
 ETW1 = $180 \pm 5^\circ\text{F}$, wet

Within each test method and test environment, the failure mode was evaluated immediately after each test by an NCAMP staff engineer or NCAMP AER. In cases where excessive deformation occurred (such as compression), an appropriate failure mode may not have been obtained. All tested specimens were digitally photographed after each test in order to pictorially document failure modes.

For dry testing, specimens were dried at $250^\circ\text{F} \pm 5^\circ\text{F}$ for at least 24 hours. After drying, specimens were kept in a desiccator until mechanical testing. Alternatively, the specimens may have been left ambient laboratory condition for a maximum of 14 days until mechanical testing (no drying was required if specimens were tested within 14 days from the date they were cured). Ambient laboratory condition is defined as $70^\circ\text{F} \pm 10^\circ\text{F}$. Since moisture absorption and desorption rate for polymer is very slow at ambient temperature, there was no requirement to maintain relative humidity levels.

For wet conditioning, specimens were dried at $250^\circ\text{F} \pm 5^\circ\text{F}$ for a minimum of 24 hours before being conditioned to equilibrium at $160^\circ\text{F} \pm 5^\circ\text{F}$ and $85\% \pm 5\%$. Effective moisture equilibrium was achieved when the average moisture content of the traveler specimen changed by less than 0.02% for two consecutive readings which are 7 ± 0.5 days apart and may be expressed by:

$$\frac{W_i - W_{i-1}}{W_b} < 0.0002$$

Where:

W_i = weight at current time
 W_{i-1} = weight at previous time
 W_b = baseline weight prior to conditioning

When representative specimens could not be measured to determine the moisture content (due to size, fastener and tab effects), traveler coupons of at least 1" by 1" by specimen thickness and weighing at least 15 grams were used to establish weight gain measurements. If the specimens or traveler coupons pass the criteria for two consecutive readings which are 7 ± 0.5 days apart, the specimens were kept in the environmental chamber for up to an additional 60 days.

Alternatively, the specimens may have been removed from the environmental chamber and placed in a sealed plastic bag along with a moist cotton towel for a maximum of 14 days until mechanical testing. Strain-gaged specimens were removed from the controlled environment for a maximum of 2 hours for application of gages in ambient laboratory conditions.

1.4.7 Non-ambient Testing

The chamber was of adequate size so that all test fixtures and load frame grips were contained within the chamber. For elevated temperature testing, the temperature chamber, test fixture, and grips were preheated to the specified temperature. Each specimen was heated to the required test temperature as verified by a thermocouple in direct contact with and taped to the specimen gage section. The heat-up time of the specimen did not exceed 5 minutes, unless otherwise specified in individual test summary sheets. The test was started 5^{+1}_{-0} minutes after the specimen reached the test temperature. During the test, the temperature, as measured on the specimen, was within $\pm 5^{\circ}\text{F}$ of the required test temperature.

For subzero temperature testing, each specimen was cooled to the required test temperature as verified by a thermocouple in direct contact with and taped to the specimen gage section. The test started 5^{+1}_{-0} minutes after the specimen reached the test temperature. During the test, the temperature, as measured on the specimen, was within $\pm 5^{\circ}\text{F}$ of the required test temperature.

For wet specimens, the moisture loss was determined by subjecting representative specimens to the same amount of time required to heat-up and fail the specimens. For filled-hole or bearing specimens, fasteners were removed prior to conducting moisture loss measurements. A minimum of one specimen or representative coupon was used to measure the moisture loss for every combination of test temperature and print orientation.

1.4.8 Fluid Sensitivity Screening

Table 1-4 lists the requirements for fluid sensitivity screening, which requires ASTM D638 type I tension testing on specimens dried at $250^{\circ}\text{F}\pm 5^{\circ}\text{F}$ for a minimum of 24 hours before being subjected to the conditions indicated. Five replicates per fluid from one AM material batch and only one machine was subjected to this test. Specimens were cleaned with a dry towel prior to the tests. In addition to tension strength, load versus displacement curves were plotted to aid in the identification of polymer softening. Since load versus displacement curves are influenced by test machine and fixture compliance, all the tests were performed with the identical machine and fixture, through a single setup. Experience suggests that each AM material may have different solutions that are detrimental to its mechanical property capability. Should screening tests for fluid sensitivity indicate this to be the case, further testing of a particular solution may or may not be needed to confirm the detrimental effect.

However, users must evaluate the applicability of the exposure conditions and time on case-by-case basis. For example, the exposure condition for jet fuel may not fully represent the condition of integral fuel tanks.

<u>Extended Contact:</u>	Exposure	Test Condition	Code
100 Low Lead Aviation Fuel (ASTM D910)	90 days min. @ 70°F±10°F	70°F	TFS11RT
	90 days min. @ 70°F±10°F	180°F	TFS11ET
ASTM D1655 Jet A Fuel (other jet fuel may be used but its type must be reported)	90 days min. @ 70°F±10°F	70°F	TFS12RT
	90 days min. @ 70°F±10°F	180°F	TFS12ET
MIL-PRF-5606 Hydraulic Oil	90 days min. @ 70°F±10°F	70°F	TFS13RT
	90 days min. @ 70°F±10°F	180°F	TFS13ET
MIL-PRF-83282 Hydraulic Oil	90 days min. @ 70°F±10°F	70°F	TFS14RT
	90 days min. @ 70°F±10°F	180°F	TFS14ET
MIL-PRF-7808 Engine Oil	90 days min. @ 70°F±10°F	70°F	TFS15RT
	90 days min. @ 70°F±10°F	180°F	TFS15ET
MIL-PRF-23699, Class STD Engine Oil	90 days min. @ 70°F±10°F	70°F	TFS16RT
	90 days min. @ 70°F±10°F	180°F	TFS16ET
Sea Water (ASTM D1141 or equiv.)	90 days min. @ 70°F±10°F	70°F	TFS17RT
	90 days min. @ 70°F±10°F	180°F	TFS17ET
Skydrol LD-4 (SAE AS1241, Type IV, Class 1)	90 days min. @ 70°F±10°F	70°F	TFS18RT
	90 days min. @ 70°F±10°F	180°F	TFS18ET
50% Water with 50% Skydrol LD-4 (SAE AS1241, Type IV, Class 1)	90 days min. @ 70°F±10°F	70°F	TFS19RT
	90 days min. @ 70°F±10°F	180°F	TFS19ET
<u>Short Duration Contact:</u>			
MEK washing fluid. ASTM D740	90 minutes min. @ 70°F±10°F	70°F	TFS21RT
	90 minutes min. @ 70°F±10°F	180°F	TFS21ET
Polypropylene Glycol Deicer (Type I) SAE AMS 1424	90 minutes min. @ 70°F±10°F	70°F	TFS22RT
	90 minutes min. @ 70°F±10°F	180°F	TFS22ET
Isopropyl Alcohol Deicing Agent (TT-I-735)	48±4 hours @70°F±10°F	70°F	TFS23RT
	48±4 hours @70°F±10°F	180°F	TFS23ET
<u>Control Tests:</u>			
Distilled Water	90 days min. at 70°F±10°F	70°F	TFS31RT
	90 days min. at 70°F±10°F	180°F	TFS31ET
Dry	Dry per section 6.1	70°F	TFS32RT
	Dry per section 6.1	180°F	TFS32ET
85% Relative Humidity	Per section 6.1	70°F	TFS33RT
	Per section 6.1	180°F	TFS33ET

Table 1-4: Fluid Sensitivity Matrix

1.4.9 Inspection Verification

The qualification specimens have been fabricated according to the requirements of the test plan and conformed by an NCAMP AIR. The test specimens and test setup have also been conformed by an NCAMP AIR.

Testing was witnessed by NCAMP. Test setup and witnessing was delegated to an NCAMP AER. Mechanical testing was carried out at the National Institute for Aviation Research, Wichita State University. The inspection documentation, with required approval signatures are stored in hard copy as well as electronically.

1.4.10 Material Pedigree Information

The AMC Data Collection Template includes the material pedigree information required, such as material and batch/lot information, as well as specimen fabrication record, environmental conditioning, test equipment, and test procedures. This template is in Microsoft Excel file format.

2. Test Results for Additively Manufactured Polymer Material

2.1 Test Summary

Additively Manufactured Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc Material Specification: NMS 085/1 Process Specification: NPS 89085		Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45 Properties Summary																		
Tg(dry): 353.51°F		Tg(wet): 349.41°F										Tg METHOD: ASTM D7028								
Date of raw material manufacture Aug 2015, Mar 2016, Sept 2016 Date of filament manufacture Mar 2016, Dec 2016, Feb 2017 Date of Coupon manufacture Mar 2017 - Aug 2018		Date of testing Aug 2017 - Feb 2019 Date of data submittal Feb 2019																		
Mean Values of Mechanical Property Summary Data Data was not normalized and reported as-measured only																				
	X Direction					Y Direction					Z Direction					Z45 Direction				
	CTD	RTD	RTW	ETD1	ETW1	CTD	RTD	RTW	ETD1	ETW1	CTD	RTD	RTW	ETD1	ETW1	CTD	RTD	RTW	ETD1	ETW1
Tension 0.2% Offset Yield Strength [ksi]	6.714	5.544	5.461	--	4.675	7.792	6.561	6.739	--	5.698	6.804	5.540	6.270	--	4.612	6.606	5.367	5.692	--	4.513
Tension Strength [ksi]	12.965	9.728	9.406	--	6.754	13.594	11.183	10.937	--	7.707	10.720	8.550	7.876	--	5.416	9.768	7.957	8.307	--	5.795
Tension Modulus [Msi]	0.388	0.337	0.330	--	0.302	0.433	0.377	0.376	--	0.339	0.394	0.347	0.359	--	0.307	0.387	0.341	0.349	--	0.311
Compression 0.2% Offset Strength [ksi]	10.022	8.048	7.560	7.952	8.721	11.827	11.343	9.532	10.866	9.884	11.357	9.183	8.910	8.573	9.582	11.035	8.935	8.030	7.478	8.168
Compression 1.0% Offset Strength [ksi]	15.472	12.253	12.237	10.520	11.816	18.647	16.695	13.904	14.113	12.925	17.862	13.515	12.775	11.210	11.989	16.611	13.015	12.185	9.941	11.010
Compression Modulus [Msi]	0.398	0.385	0.428	0.355	0.426	0.443	0.430	0.407	0.400	0.418	0.421	0.377	0.373	0.349	0.380	0.392	0.364	0.373	0.331	0.373
Flex Strength [ksi]	21.693	16.725	--	--	12.955	24.300	18.943	--	--	14.575	15.695	13.133	--	--	9.545	14.321	12.452	--	--	9.951
Flex Modulus [Msi]	0.406	0.353	--	--	0.326	0.421	0.382	--	--	0.360	0.374	0.333	--	--	0.302	0.360	0.314	--	--	0.282
V-Notch 0.2% Offset Strain Strength [ksi]	4.710	3.506	2.994	--	2.841	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
V-Notch 5% Strain Strength [ksi]	6.693	5.629	5.485	--	4.743	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
V-Notch Ultimate Strength [ksi]	5.679	4.820	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
V-Notch Modulus [Msi]	0.152	0.136	0.140	--	0.126	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
OHT Strength [ksi]	8.327	6.556	--	--	4.638	8.399	8.877	--	--	6.236	4.487	4.199	--	--	2.842	5.737	5.075	--	--	3.946
FHT Strength [ksi]	10.075	7.413	--	--	5.277	13.179	10.052	--	--	6.818	8.772	7.298	--	--	4.595	8.194	6.629	--	--	5.054
OHC 0.2% Offset Strength [ksi]	--	6.362	--	--	4.902	--	9.167	--	--	7.155	--	8.491	--	--	6.605	--	8.336	--	--	6.284
OHC 1.0% Offset Strength [ksi]	--	8.971	--	--	6.268	--	12.339	--	--	8.865	--	11.781	--	--	8.449	--	11.244	--	--	7.818
FHC 0.2% Offset Strength [ksi]	--	6.861	--	--	5.178	--	10.279	--	--	8.021	--	9.568	--	--	7.171	--	8.958	--	--	6.490
FHC 1.0% Offset Strength [ksi]	--	9.647	--	--	6.815	--	14.229	--	--	10.202	--	13.200	--	--	9.231	--	12.152	--	--	8.367
SSB 2% Offset Strength [ksi]	--	14.562	--	--	11.914	--	14.770	--	--	12.397	--	12.629	--	--	12.398	--	15.467	--	--	12.395
SSB Ultimate Strength [ksi]	--	29.491	--	--	22.235	--	28.505	--	--	21.991	--	22.451	--	--	18.874	--	27.079	--	--	21.421
Izod Energy [J]	--	0.302	--	--	--	--	0.240	--	--	--	--	0.227	--	--	--	--	0.263	--	--	--
Izod Impact Resistance [J/m]	--	94.906	--	--	--	--	73.734	--	--	--	--	69.307	--	--	--	--	78.986	--	--	--

Due to the inappropriate test method and inconsistency of the test data for ASTM D6484 Open Hole Compression, ASTM D6742 Filled Hole Compression, and ASTM D256 Izod Impact Resistance Test, the B-basis values were not computed. These test methods will not be a requirement in upcoming equivalency testing, but are reported in this document for reference only.

See Section 4 for discussion/clarification related to SSB Ultimate Strength, OHC and FHC properties.

Table 2-1: Mechanical Testing Summary Data

2.2 Individual Test Summaries

2.2.1 X Tension Properties (XT)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Dogbone Tension Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45 Build Orientation: X			
Test method: ASTM D 638-14		Modulus calculation: 1000 to 3000 microstrain			
		CTD	RTD	RTW	ETW1
Test Temperature [°F]		-65	70	70	180
Moisture Conditioning		Dry	Dry	Equilibrium	Equilibrium
Equilibrium at T, RH				160 F,85%	160 F,85%
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-XT-X-CTD-X	X-MX-XT-X-RTD-X	X-MX-XT-X-RTW-X	X-MX-XT-X-ETW1-X
		Measured	Measured	Measured	Measured
XT 0.2% Offset Yield Strength [ksi]	Mean	6.714	5.544	5.461	4.675
	Minimum	5.557	4.890	5.252	3.982
	Maximum	8.917	5.980	5.705	5.249
	C.V.(%)	10.582	4.550	3.239	6.116
	No. Specimens	24	24	8	24
	No. Material Batches	3	3	1	3
XT Strength [ksi]	Mean	12.965	9.728	9.406	6.754
	Minimum	11.465	8.743	8.995	6.129
	Maximum	14.501	10.144	9.885	7.356
	C.V.(%)	5.131	3.369	3.957	4.566
	No. Specimens	24	24	8	24
	No. Material Batches	3	3	1	3
XT Modulus [Msi]	Mean	0.388	0.337	0.330	0.302
	Minimum	0.357	0.316	0.317	0.276
	Maximum	0.423	0.358	0.347	0.343
	C.V.(%)	4.598	2.513	3.372	5.172
	No. Specimens	24	24	8	24
	No. Material Batches	3	3	1	3

2.2.2 Y Tension Properties (YT)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Dogbone Tension Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45 Build Orientation: Y			
Test method: ASTM D 638-14		Modulus calculation: 1000 to 3000 microstrain			
		CTD	RTD	RTW	ETW1
Test Temperature [°F]		-65	70	70	180
Moisture Conditioning		Dry	Dry	Equilibrium	Equilibrium
Equilibrium at T, RH				160 F,85%	160 F,85%
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-YT-X-CTD-X	X-MX-YT-X-RTD-X	X-MX-YT-X-RTW-X	X-MX-YT-X-ETW1-X
		Measured	Measured	Measured	Measured
YT 0.2% Offset Yield Strength [ksi]	Mean	7.792	6.561	6.739	5.698
	Minimum	6.762	5.934	6.410	4.636
	Maximum	8.582	7.135	7.187	6.260
	C.V.(%)	6.407	5.009	3.514	6.656
	No. Specimens	24	24	8	24
No. Material Batches	3	3	1	3	
YT Strength [ksi]	Mean	13.594	11.183	10.937	7.707
	Minimum	11.584	10.391	10.381	7.264
	Maximum	15.050	12.274	12.541	8.140
	C.V.(%)	6.814	3.816	6.136	3.261
	No. Specimens	24	24	8	24
No. Material Batches	3	3	1	3	
YT Modulus [Msi]	Mean	0.433	0.377	0.376	0.339
	Minimum	0.410	0.366	0.356	0.322
	Maximum	0.455	0.389	0.407	0.365
	C.V.(%)	2.370	1.520	4.182	3.312
	No. Specimens	24	24	8	24
No. Material Batches	3	3	1	3	

2.2.3 Z Tension Properties (ZT)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Dogbone Tension Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45 Build Orientation: Z			
Test method: ASTM D 638-14		Modulus calculation: 1000 to 3000 microstrain			
		CTD	RTD	RTW	ETW1
Test Temperature [°F]		-65	70	70	180
Moisture Conditioning		Dry	Dry	Equilibrium	Equilibrium
Equilibrium at T, RH				160 F,85%	160 F,85%
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-ZT-X-CTD-X	X-MX-ZT-X-RTD-X	X-MX-ZT-X-RTW-X	X-MX-ZT-X-ETW1-X
		Measured	Measured	Measured	Measured
ZT 0.2% Offset Yield Strength [ksi]	Mean	6.804	5.540	6.270	4.612
	Minimum	6.194	5.255	5.724	4.162
	Maximum	7.512	5.832	6.687	5.108
	C.V.(%)	5.855	2.506	5.388	5.485
	No. Specimens	24	24	8	24
No. Material Batches	3	3	1	3	
ZT Strength [ksi]	Mean	10.720	8.550	7.876	5.416
	Minimum	8.730	8.313	6.912	4.902
	Maximum	11.880	9.085	8.776	5.719
	C.V.(%)	6.225	2.126	6.805	3.966
	No. Specimens	24	24	8	24
No. Material Batches	3	3	1	3	
ZT Modulus [Msi]	Mean	0.394	0.347	0.359	0.307
	Minimum	0.377	0.338	0.350	0.290
	Maximum	0.424	0.358	0.372	0.331
	C.V.(%)	2.854	1.842	2.365	3.789
	No. Specimens	24	24	8	24
No. Material Batches	3	3	1	3	

2.2.4 Z45 Tension Properties (Z45T)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Dogbone Tension Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45 Build Orientation: Z(45)			
Test method: ASTM D 638-14		Modulus calculation: 1000 to 3000 microstrain			
		CTD	RTD	RTW	ETW1
Test Temperature [°F]		-65	70	70	180
Moisture Conditioning		Dry	Dry	Equilibrium	Equilibrium
Equilibrium at T, RH				160 F,85%	160 F,85%
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-Z45T-X-CTD-X	X-MX-Z45T-X-RTD-X	X-MX-Z45T-X-RTW-X	X-MX-Z45T-X-ETW1-X
		Measured	Measured	Measured	Measured
Z45T 0.2% Offset Yield Strength [ksi]	Mean	6.606	5.367	5.692	4.513
	Minimum	5.837	4.976	5.237	3.871
	Maximum	7.780	6.129	6.443	5.135
	C.V.(%)	8.314	5.470	8.067	7.124
	No. Specimens	24	24	8	24
No. Material Batches	3	3	1	3	
Z45T Strength [ksi]	Mean	9.768	7.957	8.307	5.795
	Minimum	8.848	7.415	8.008	5.383
	Maximum	10.877	8.792	8.606	6.172
	C.V.(%)	4.773	4.908	2.886	3.646
	No. Specimens	24	24	8	24
No. Material Batches	3	3	1	3	
Z45T Modulus [Msi]	Mean	0.387	0.341	0.349	0.311
	Minimum	0.348	0.304	0.334	0.290
	Maximum	0.424	0.356	0.363	0.338
	C.V.(%)	4.808	3.973	3.132	4.398
	No. Specimens	24	24	8	24
No. Material Batches	3	3	1	3	

2.2.5 X Compression Properties (XC)

Material:		Dogbone Compression				
Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45 Build Orientation: X				
Test method:		Modulus calculation: 2000 to 6000 microstrain				
		CTD	RTD	RTW	ETD1	ETW1
Test Temperature [°F]		-65	70	70	180	180
Moisture Conditioning		Dry	Dry	Equilibrium	Dry	Equilibrium
Equilibrium at T, RH				160 F,85%		160 F,85%
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-XC-X-CTD-X	X-MX-XC-X-RTD-X	X-MX-XC-X-RTW-X	X-MX-XC-X-ETD1-X	X-MX-XC-X-ETW1-X
		Measured	Measured	Measured	Measured	Measured
XC 0.2% Offset Strength [ksi]	Mean	10.022	8.048	7.560	7.952	8.721
	Minimum	7.811	7.027	6.775	7.122	6.337
	Maximum	12.136	9.300	8.472	8.395	10.689
	C.V.(%)	11.518	7.822	7.886	5.318	9.904
	No. Specimens	24	23	8	8	24
No. Material Batches	3	3	1	1	3	
XC 1.0% Offset Strength [ksi]	Mean	15.472	12.253	12.237	10.520	11.816
	Minimum	13.699	10.673	10.720	9.554	9.632
	Maximum	17.188	13.245	13.133	11.048	14.122
	C.V.(%)	6.382	5.474	6.052	5.396	7.720
	No. Specimens	24	23	8	8	24
No. Material Batches	3	3	1	1	3	
XC Modulus [Msi]	Mean	0.398	0.385	0.428	0.355	0.426
	Minimum	0.366	0.352	0.383	0.325	0.353
	Maximum	0.430	0.416	0.497	0.373	0.483
	C.V.(%)	4.578	4.602	10.012	5.001	9.076
	No. Specimens	24	23	8	8	24
No. Material Batches	3	3	1	1	3	

2.2.6 Y Compression Properties (YC)

Material:		Dogbone Compression				
Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45 Build Orientation: Y				
Test method:		Modulus calculation: 2000 to 6000 microstrain				
		CTD	RTD	RTW	ETD1	ETW1
Test Temperature [°F]		-65	70	70	180	180
Moisture Conditioning		Dry	Dry	Equilibrium	Dry	Equilibrium
Equilibrium at T, RH				160 F, 85%		160 F, 85%
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-YC-X-CTD-X	X-MX-YC-X-RTD-X	X-MX-YC-X-RTW-X	X-MX-YC-X-ETD1-X	X-MX-YC-X-ETW1-X
		Measured	Measured	Measured	Measured	Measured
YC 0.2% Offset Strength [ksi]	Mean	11.827	11.343	9.532	10.866	9.884
	Minimum	9.703	8.670	8.540	9.548	7.378
	Maximum	14.021	14.104	11.010	11.780	12.319
	C.V.(%)	9.483	12.746	8.119	8.494	16.143
	No. Specimens	24	24	8	8	24
No. Material Batches	3	3	1	1	3	
YC 1.0% Offset Strength [ksi]	Mean	18.647	16.695	13.904	14.113	12.925
	Minimum	16.960	14.037	12.854	13.216	9.876
	Maximum	20.906	19.667	15.761	14.983	15.965
	C.V.(%)	5.671	8.918	8.017	5.189	15.656
	No. Specimens	24	24	8	8	24
No. Material Batches	3	3	1	1	3	
YC Modulus [Msi]	Mean	0.443	0.430	0.407	0.400	0.418
	Minimum	0.419	0.398	0.392	0.383	0.333
	Maximum	0.471	0.458	0.451	0.415	0.497
	C.V.(%)	3.347	4.122	4.523	2.643	11.857
	No. Specimens	24	24	8	8	24
No. Material Batches	3	3	1	1	3	

2.2.7 Z Compression Properties (ZC)

Material:		Dogbone Compression				
Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45 Build Orientation: Z				
Test method:		Modulus calculation: 2000 to 6000 microstrain				
		CTD	RTD	RTW	ETD1	ETW1
Test Temperature [°F]		-65	70	70	180	180
Moisture Conditioning		Dry	Dry	Equilibrium	Dry	Equilibrium
Equilibrium at T, RH				160 F,85%		160 F,85%
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-ZC-X-CTD-X	X-MX-ZC-X-RTD-X	X-MX-ZC-X-RTW-X	X-MX-ZC-X-ETD1-X	X-MX-ZC-X-ETW1-X
		Measured	Measured	Measured	Measured	Measured
ZC 0.2% Offset Strength [ksi]	Mean	11.357	9.183	8.910	8.573	9.582
	Minimum	9.989	8.221	8.042	7.985	7.303
	Maximum	12.340	10.073	10.377	9.028	11.863
	C.V.(%)	5.520	5.229	9.162	4.933	13.697
	No. Specimens	24	24	8	8	23
No. Material Batches		3	3	1	1	3
ZC 1.0% Offset Strength [ksi]	Mean	17.862	13.515	12.775	11.210	11.989
	Minimum	16.677	13.045	11.815	10.555	9.687
	Maximum	19.019	14.702	14.139	11.721	13.525
	C.V.(%)	3.484	2.684	5.748	2.935	9.209
	No. Specimens	24	24	8	8	23
No. Material Batches		3	3	1	1	3
ZC Modulus [Msi]	Mean	0.421	0.377	0.373	0.349	0.380
	Minimum	0.405	0.355	0.362	0.329	0.333
	Maximum	0.450	0.405	0.402	0.397	0.433
	C.V.(%)	2.836	3.359	3.498	6.106	5.817
	No. Specimens	24	24	8	8	24
No. Material Batches		3	3	1	1	3

2.2.8 Z45 Compression Properties (Z45C)

Material:		Dogbone Compression				
Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45 Build Orientation: Z(45)				
Test method:		Modulus calculation: 2000 to 6000 microstrain				
		CTD	RTD	RTW	ETD1	ETW1
Test Temperature [°F]		-65	70	70	180	180
Moisture Conditioning		Dry	Dry	Equilibrium	Dry	Equilibrium
Equilibrium at T, RH				160 F, 85%		160 F, 85%
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-Z45C-X-CTD-X	X-MX-Z45C-X-RTD-X	X-MX-Z45C-X-RTW-X	X-MX-Z45C-X-ETD1-X	X-MX-Z45C-X-ETW1-X
		Measured	Measured	Measured	Measured	Measured
Z45C 0.2% Offset Strength [ksi]	Mean	11.035	8.935	8.030	7.478	8.168
	Minimum	8.334	6.644	7.181	6.879	5.793
	Maximum	13.278	11.009	8.770	8.443	11.058
	C.V.(%)	10.854	10.423	6.648	6.967	15.229
	No. Specimens	24	24	8	8	24
No. Material Batches	3	3	1	1	3	
Z45C 1.0% Offset Strength [ksi]	Mean	16.611	13.015	12.185	9.941	11.010
	Minimum	14.928	11.529	11.538	9.289	8.012
	Maximum	18.033	14.697	13.411	10.564	14.470
	C.V.(%)	4.248	5.318	5.473	4.668	14.447
	No. Specimens	24	24	8	8	24
No. Material Batches	3	3	1	1	3	
Z45C Modulus [Msi]	Mean	0.392	0.364	0.373	0.331	0.373
	Minimum	0.367	0.344	0.342	0.317	0.323
	Maximum	0.438	0.383	0.404	0.343	0.425
	C.V.(%)	4.945	2.970	6.295	2.451	8.707
	No. Specimens	24	24	8	8	24
No. Material Batches	3	3	1	1	3	

2.2.9 X Flex Properties (XF)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Flex Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45 Build Orientation: X		
Test method: ASTM D 790-17		Modulus calculation: 5000 to 20000 microstrain		
	CTD	RTD	ETW1	
Test Temperature [°F]	-65	70	180	
Moisture Conditioning	Dry	Dry	Equilibrium	
Equilibrium at T, RH			160 F,85%	
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-	X-MX-XF-X-CTD-X	X-MX-XF-X-RTD-X	X-MX-XF-X-ETW1-X	
	Measured	Measured	Measured	
XF Strength [ksi]	Mean	21.693	16.725	12.955
	Minimum	18.211	16.177	12.009
	Maximum	23.471	17.256	13.867
	C.V.(%)	6.283	1.677	4.131
	No. Specimens	24	24	24
No. Material Batches	3	3	3	
XF Modulus [Msi]	Mean	0.406	0.353	0.326
	Minimum	0.390	0.341	0.302
	Maximum	0.431	0.367	0.346
	C.V.(%)	2.748	2.107	4.172
	No. Specimens	24	24	24
No. Material Batches	3	3	3	

2.2.10 Y Flex Properties (YF)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Flex Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45 Build Orientation: Y		
Test method: ASTM D 790-17		Modulus calculation: 5000 to 20000 microstrain		
	CTD	RTD	ETW1	
Test Temperature [°F]	-65	70	180	
Moisture Conditioning	Dry	Dry	Equilibrium	
Equilibrium at T, RH			160 F,85%	
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-	X-MX-YF-X-CTD-X	X-MX-YF-X-RTD-X	X-MX-YF-X-ETW1-X	
	Measured	Measured	Measured	
YF Strength [ksi]	Mean	24.300	18.943	14.575
	Minimum	23.337	18.220	13.418
	Maximum	26.220	19.467	15.970
	C.V.(%)	2.716	2.154	3.955
	No. Specimens	24	24	24
	No. Material Batches	3	3	3
YF Modulus [Msi]	Mean	0.421	0.382	0.360
	Minimum	0.393	0.369	0.335
	Maximum	0.457	0.394	0.380
	C.V.(%)	4.969	1.928	4.053
	No. Specimens	24	24	24
	No. Material Batches	3	3	3

2.2.11 Z Flex Properties (ZF)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Flex Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45 Build Orientation: Z		
Test method: ASTM D 790-17		Modulus calculation: 5000 to 20000 microstrain		
		CTD	RTD	ETW1
Test Temperature [°F]		-65	70	180
Moisture Conditioning		Dry	Dry	Equilibrium
Equilibrium at T, RH				160 F,85%
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-ZF-X-CTD-X	X-MX-ZF-X-RTD-X	X-MX-ZF-X-ETW1-X
		Measured	Measured	Measured
ZF Strength [ksi]	Mean	15.695	13.133	9.545
	Minimum	12.560	11.103	7.780
	Maximum	18.950	15.627	11.035
	C.V.(%)	12.492	11.550	12.207
	No. Specimens	24	24	24
	No. Material Batches	3	3	3
ZF Modulus [Msi]	Mean	0.374	0.333	0.302
	Minimum	0.348	0.321	0.286
	Maximum	0.405	0.347	0.318
	C.V.(%)	4.678	2.265	2.946
	No. Specimens	24	24	24
	No. Material Batches	3	3	3

2.2.12 Z45 Flex Properties (Z45F)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Flex Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45 Build Orientation: Z(45)		
Test method: ASTM D 790-17		Modulus calculation: 5000 to 20000 microstrain		
	CTD	RTD	ETW1	
Test Temperature [°F]	-65	70	180	
Moisture Conditioning	Dry	Dry	Equilibrium	
Equilibrium at T, RH			160 F,85%	
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-	X-MX-Z45F-X-CTD-X	X-MX-Z45F-X-RTD-X	X-MX-Z45F-X-ETW1-X	
	Measured	Measured	Measured	
Z45F Strength [ksi]				
Mean	14.321	12.452	9.951	
Minimum	12.514	11.035	8.892	
Maximum	16.019	13.661	10.787	
C.V.(%)	6.535	5.613	4.736	
No. Specimens	24	24	24	
No. Material Batches	3	3	3	
Z45F Modulus [Msi]				
Mean	0.360	0.314	0.282	
Minimum	0.344	0.298	0.270	
Maximum	0.384	0.335	0.295	
C.V.(%)	3.307	3.290	2.635	
No. Specimens	24	24	24	
No. Material Batches	3	3	3	

2.2.13 X V-Notch In-Plane Shear Properties (XVIPS)

Material:		Stratasys Certified ULTEM™ 9085 / Fortus 900mc			
Test method:		ASTM D 5379-12		Modulus calculation: 2000 to 6000 microstrain	
		CTD	RTD	RTW	ETW1
Test Temperature [°F]		-65	70	70	180
Moisture Conditioning		Dry	Dry	Equilibrium	Equilibrium
Equilibrium at T, RH				160 F, 85%	160 F, 85%
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-XVIPS-X-CTD-X	X-MX-XVIPS-X-RTD-X	X-MX-XVIPS-X-RTW-X	X-MX-XVIPS-X-ETW1-X
		Measured	Measured	Measured	Measured
F ₁₂ ^{s0.2%} [ksi]	Mean	4.710	3.506	2.994	2.841
	Minimum	3.856	2.939	2.789	2.420
	Maximum	5.848	4.013	3.149	3.231
	C.V.(%)	10.877	7.225	4.285	6.149
	No. Specimens	23	24	8	24
	No. Material Batches	3	3	1	3
F ₁₂ ^{s5%strain} [ksi]	Mean	6.693	5.629	5.485	4.743
	Minimum	6.387	5.312	5.311	4.476
	Maximum	6.895	5.982	5.678	4.943
	C.V.(%)	2.355	3.051	2.568	2.373
	No. Specimens	14	20	8	24
	No. Material Batches	2	3	1	3
F ₁₂ ^{su} [ksi]	Mean	5.679	4.820		
	Minimum	5.234	4.602		
	Maximum	6.348	5.080		
	C.V.(%)	6.566	4.552		
	No. Specimens	10	4		
	No. Material Batches	3	1		
G ₁₂ ^s [Msi]	Mean	0.152	0.136	0.140	0.126
	Minimum	0.141	0.123	0.134	0.119
	Maximum	0.161	0.152	0.149	0.131
	C.V.(%)	3.342	6.142	3.806	2.070
	No. Specimens	24	24	8	24
	No. Material Batches	3	3	1	3

2.2.14 X Open-Hole Tension Properties (XOHT)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Open-Hole Tension Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: X		
Test method: ASTM D 5766-11				
	CTD	RTD	ETW1	
Test Temperature [°F]	-65	70	180	
Moisture Conditioning	Dry	Dry	Equilibrium	
Equilibrium at T, RH			160 F,85%	
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-	X-MX-XOHT-X-CTD-X	X-MX-XOHT-X-RTD-X	X-MX-XOHT-X-ETW1-X	
	Measured	Measured	Measured	
XOHT Strength [ksi]	Mean	8.327	6.556	4.638
	Minimum	7.743	6.071	4.433
	Maximum	8.689	7.067	4.900
	C.V.(%)	2.762	4.339	2.906
	No. Specimens	24	24	24
	No. Material Batches	3	3	3

2.2.15 Y Open-Hole Tension Properties (YOHT)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Open-Hole Tension Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: Y		
Test method: ASTM D 5766-11				
	CTD	RTD	ETW1	
Test Temperature [°F]	-65	70	180	
Moisture Conditioning	Dry	Dry	Equilibrium	
Equilibrium at T, RH			160 F, 85%	
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-	X-MX-YOHT-X-CTD-X	X-MX-YOHT-X-RTD-X	X-MX-YOHT-X-ETW1-X	
	Measured	Measured	Measured	
YOHT Strength [ksi]	8.399	8.877	6.236	
Mean	7.269	8.365	5.931	
Minimum	10.189	9.473	6.573	
Maximum	10.135	3.234	2.767	
C.V.(%)	24	24	24	
No. Specimens	3	3	3	
No. Material Batches				

2.2.16 Z Open-Hole Tension Properties (ZOHT)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Open-Hole Tension Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: Z		
Test method: ASTM D 5766-11				
	CTD	RTD	ETW1	
Test Temperature [°F]	-65	70	180	
Moisture Conditioning	Dry	Dry	Equilibrium	
Equilibrium at T, RH			160 F,85%	
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-	X-MX-ZOHT-X-CTD-X	X-MX-ZOHT-X-RTD-X	X-MX-ZOHT-X-ETW1-X	
	Measured	Measured	Measured	
ZOHT Strength [ksi]				
Mean	4.487	4.199	2.842	
Minimum	3.728	3.369	2.370	
Maximum	5.283	4.786	3.297	
C.V.(%)	8.945	9.291	10.978	
No. Specimens	24	24	24	
No. Material Batches	3	3	3	

2.2.17 Z45 Open-Hole Tension Properties (Z45OHT)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Open-Hole Tension Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: Z(45)		
Test method: ASTM D 5766-11				
	CTD	RTD	ETW1	
Test Temperature [°F]	-65	70	180	
Moisture Conditioning	Dry	Dry	Equilibrium	
Equilibrium at T, RH			160 F, 85%	
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-	X-MX-Z45OHT-X-CTD-X	X-MX-Z45OHT-X-RTD-X	X-MX-Z45OHT-X-ETW1-X	
	Measured	Measured	Measured	
Mean	5.737	5.075	3.946	
Minimum	3.813	4.478	3.682	
Maximum	6.872	5.589	4.526	
Z45OHT Strength [ksi] C.V.(%)	13.911	6.305	5.658	
No. Specimens	24	24	24	
No. Material Batches	3	3	3	

2.2.18 X Filled-Hole Tension Properties (XFHT)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Filled-Hole Tension Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: X		
Test method: ASTM D 6742-12				
	CTD	RTD	ETW1	
Test Temperature [°F]	-65	70	180	
Moisture Conditioning	Dry	Dry	Equilibrium	
Equilibrium at T, RH			160 F,85%	
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-	X-MX-XFHT-X-CTD-X	X-MX-XFHT-X-RTD-X	X-MX-XFHT-X-ETW1-X	
	Measured	Measured	Measured	
Mean	10.075	7.413	5.277	
Minimum	9.138	7.092	4.945	
Maximum	11.127	8.341	5.708	
XFHT Strength [ksi] C.V.(%)	5.747	3.742	3.724	
No. Specimens	24	24	24	
No. Material Batches	3	3	3	

2.2.19 Y Filled-Hole Tension Properties (YFHT)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Filled-Hole Tension Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: Y		
Test method: ASTM D 6742-12				
	CTD	RTD	ETW1	
Test Temperature [°F]	-65	70	180	
Moisture Conditioning	Dry	Dry	Equilibrium	
Equilibrium at T, RH			160 F,85%	
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-	X-MX-YFHT-X-CTD-X	X-MX-YFHT-X-RTD-X	X-MX-YFHT-X-ETW1-X	
	Measured	Measured	Measured	
YFHT Strength [ksi]	13.179	10.052	6.818	
Mean	10.120	9.417	6.275	
Minimum	14.697	10.698	7.203	
Maximum	7.948	3.150	3.518	
C.V.(%)				
No. Specimens	24	24	24	
No. Material Batches	3	3	3	

2.2.20 Z Filled-Hole Tension Properties (ZFHT)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Filled-Hole Tension Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: Z		
Test method: ASTM D 6742-12				
	CTD	RTD	ETW1	
Test Temperature [°F]	-65	70	180	
Moisture Conditioning	Dry	Dry	Equilibrium	
Equilibrium at T, RH			160 F,85%	
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-	X-MX-ZFHT-X-CTD-X	X-MX-ZFHT-X-RTD-X	X-MX-ZFHT-X-ETW1-X	
	Measured	Measured	Measured	
Mean	8.772	7.298	4.595	
Minimum	6.141	6.703	3.924	
Maximum	10.157	7.762	5.034	
ZFHT Strength [ksi] C.V.(%)	12.797	3.729	6.658	
No. Specimens	24	24	24	
No. Material Batches	3	3	3	

2.2.21 Z45 Filled-Hole Tension Properties (Z45FHT)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Filled-Hole Tension Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: Z(45)		
Test method: ASTM D 6742-12				
	CTD	RTD	ETW1	
Test Temperature [°F]	-65	70	180	
Moisture Conditioning	Dry	Dry	Equilibrium	
Equilibrium at T, RH			160 F,85%	
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-	X-MX-Z45FHT-X-CTD-X	X-MX-Z45FHT-X-RTD-X	X-MX-Z45FHT-X-ETW1-X	
	Measured	Measured	Measured	
Mean	8.194	6.629	5.054	
Minimum	6.619	5.719	4.521	
Maximum	9.849	7.360	5.555	
Z45FHT Strength [ksi] C.V.(%)	10.877	7.018	5.275	
No. Specimens	24	24	24	
No. Material Batches	3	3	3	

2.2.22 X Open-Hole Compression Properties (XOHC) – Reference Only

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Open-Hole Compression Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: X		
Test method: ASTM D 6484-14				
	RTD	ETW1		
Test Temperature [°F]	70	180		
Moisture Conditioning	Dry	Equilibrium		
Equilibrium at T, RH		160 F,85%		
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-	X-MX-XOHC-X-RTD-X	X-MX-XOHC-X-ETW1-X		
	Measured	Measured		
XOHC 0.2% Offset Strength [ksi]	Mean	6.362	4.902	
	Minimum	5.366	4.435	
	Maximum	7.769	5.448	
	C.V.(%)	9.263	5.855	
	No. Specimens	24	24	
	No. Material Batches	3	3	
XOHC 1.0% Offset Strength [ksi]	Mean	8.971	6.268	
	Minimum	8.136	5.741	
	Maximum	10.913	6.775	
	C.V.(%)	7.270	4.884	
	No. Specimens	24	24	
	No. Material Batches	3	3	

Due to the inappropriate test method of ASTM D6484 Open Hole Compression for the ULTEM 9085 material, the B-basis values were not computed. Data reported is for reference only.

2.2.23 Y Open-Hole Compression Properties (YOHC) – Reference Only

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Open-Hole Compression Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: Y		
Test method: ASTM D 6484-14				
		RTD	ETW1	
Test Temperature [°F]		70	180	
Moisture Conditioning		Dry	Equilibrium	
Equilibrium at T, RH			160 F, 85%	
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-YOHC-X-RTD-X	X-MX-YOHC-X-ETW1-X	
		Measured	Measured	
YOHC 0.2% Offset Strength [ksi]	Mean	9.167	7.155	
	Minimum	7.751	6.609	
	Maximum	11.226	7.816	
	C.V.(%)	9.559	4.527	
	No. Specimens	24	24	
	No. Material Batches	3	3	
YOHC 1.0% Offset Strength [ksi]	Mean	12.339	8.865	
	Minimum	11.295	8.120	
	Maximum	13.437	9.355	
	C.V.(%)	4.648	3.954	
	No. Specimens	24	24	
	No. Material Batches	3	3	

Due to the inappropriate test method of ASTM D6484 Open Hole Compression for the ULTEM 9085 material, the B-basis values were not computed. Data reported is for reference only.

2.2.24 Z Open-Hole Compression Properties (ZOHC) – Reference Only

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Open-Hole Compression Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: Z		
Test method: ASTM D 6484-14				
		RTD	ETW1	
Test Temperature [°F]		70	180	
Moisture Conditioning		Dry	Equilibrium	
Equilibrium at T, RH			160 F, 85%	
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-ZOHC-X-RTD-X	X-MX-ZOHC-X-ETW1-X	
		Measured	Measured	
ZOHC 0.2% Offset Strength [ksi]	Mean	8.491	6.605	
	Minimum	7.597	5.964	
	Maximum	9.877	7.111	
	C.V.(%)	7.248	4.922	
	No. Specimens	24	24	
	No. Material Batches	3	3	
ZOHC 1.0% Offset Strength [ksi]	Mean	11.781	8.449	
	Minimum	11.162	8.009	
	Maximum	12.821	8.886	
	C.V.(%)	3.960	2.851	
	No. Specimens	24	24	
	No. Material Batches	3	3	

Due to the inappropriate test method of ASTM D6484 Open Hole Compression for the ULTEM 9085 material, the B-basis values were not computed. Data reported is for reference only.

2.2.25 Z45 Open-Hole Compression Properties (Z45OHC) – Reference Only

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Open-Hole Compression Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: Z(45)		
Test method: ASTM D 6484-14				
	RTD	ETW1		
Test Temperature [°F]	70	180		
Moisture Conditioning	Dry	Equilibrium		
Equilibrium at T, RH		160 F, 85%		
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-	X-MX-Z45OHC-X-RTD-X	X-MX-Z45OHC-X-ETW1-X		
	Measured	Measured		
Z45OHC 0.2% Offset Strength [ksi]	Mean	8.336	6.284	
	Minimum	7.449	5.979	
	Maximum	9.682	6.556	
	C.V.(%)	6.182	2.809	
	No. Specimens	24	24	
No. Material Batches	3	3		
Z45OHC 1.0% Offset Strength [ksi]	Mean	11.244	7.818	
	Minimum	10.533	7.459	
	Maximum	11.827	8.259	
	C.V.(%)	2.898	2.766	
	No. Specimens	24	24	
No. Material Batches	3	3		

Due to the inappropriate test method of ASTM D6484 Open Hole Compression for the ULTEM 9085 material, the B-basis values were not computed. Data reported is for reference only.

2.2.26 X Filled-Hole Compression Properties (XFHC) – Reference Only

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Filled-Hole Compression Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: X		
Test method: ASTM D 6742-12				
		RTD	ETW1	
Test Temperature [°F]		70	180	
Moisture Conditioning		Dry	Equilibrium	
Equilibrium at T, RH			160 F, 85%	
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-XFHC-X-RTD-X	X-MX-XFHC-X-ETW1-X	
		Measured	Measured	
XFHC 0.2% Offset Strength [ksi]	Mean	6.861	5.178	
	Minimum	6.088	4.569	
	Maximum	8.115	6.027	
	C.V.(%)	7.931	6.786	
	No. Specimens	24	24	
	No. Material Batches	3	3	
XFHC 1.0% Offset Strength [ksi]	Mean	9.647	6.815	
	Minimum	8.483	6.193	
	Maximum	10.872	7.674	
	C.V.(%)	6.812	5.436	
	No. Specimens	24	24	
	No. Material Batches	3	3	

Due to the inappropriate test method of ASTM D6742 Filled Hole Compression for the ULTEM 9085 material, the B-basis values were not computed. Data reported is for reference only.

2.2.27 Y Filled-Hole Compression Properties (YFHC) – Reference Only

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Filled-Hole Compression Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: Y		
Test method: ASTM D 6742-12				
		RTD	ETW1	
Test Temperature [°F]		70	180	
Moisture Conditioning		Dry	Equilibrium	
Equilibrium at T, RH			160 F, 85%	
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-YFHC-X-RTD-X	X-MX-YFHC-X-ETW1-X	
		Measured	Measured	
YFHC 0.2% Offset Strength [ksi]	Mean	10.279	8.021	
	Minimum	9.340	7.565	
	Maximum	11.235	8.449	
	C.V.(%)	4.248	3.189	
	No. Specimens	24	24	
	No. Material Batches	3	3	
YFHC 1.0% Offset Strength [ksi]	Mean	14.229	10.202	
	Minimum	13.194	9.811	
	Maximum	15.124	10.691	
	C.V.(%)	2.799	2.584	
	No. Specimens	24	24	
	No. Material Batches	3	3	

Due to the inappropriate test method of ASTM D6742 Filled Hole Compression for the ULTEM 9085 material, the B-basis values were not computed. Data reported is for reference only.

2.2.28 Z Filled-Hole Compression Properties (ZFHC) – Reference Only

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Filled-Hole Compression Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: Z		
Test method: ASTM D 6742-12				
		RTD	ETW1	
Test Temperature [°F]		70	180	
Moisture Conditioning		Dry	Equilibrium	
Equilibrium at T, RH			160 F, 85%	
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-ZFHC-X-RTD-X	X-MX-ZFHC-X-ETW1-X	
		Measured	Measured	
ZFHC 0.2% Offset Strength [ksi]	Mean	9.568	7.171	
	Minimum	8.759	6.666	
	Maximum	10.109	7.916	
	C.V.(%)	3.465	4.338	
	No. Specimens	24	24	
	No. Material Batches	3	3	
ZFHC 1.0% Offset Strength [ksi]	Mean	13.200	9.231	
	Minimum	12.709	8.589	
	Maximum	13.888	9.638	
	C.V.(%)	2.337	3.055	
	No. Specimens	24	24	
	No. Material Batches	3	3	

Due to the inappropriate test method of ASTM D6742 Filled Hole Compression for the ULTEM 9085 material, the B-basis values were not computed. Data reported is for reference only.

2.2.29 Z45 Filled-Hole Compression Properties (Z45FHC) – Reference Only

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Filled-Hole Compression Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: Z(45)		
Test method: ASTM D 6742-12				
	RTD	ETW1		
Test Temperature [°F]	70	180		
Moisture Conditioning	Dry	Equilibrium		
Equilibrium at T, RH		160 F, 85%		
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-	X-MX-Z45FHC-X-RTD-X	X-MX-Z45FHC-X-ETW1-X		
	Measured	Measured		
Z45FHC 0.2% Offset Strength [ksi]	Mean	8.958	6.490	
	Minimum	7.824	5.873	
	Maximum	9.763	6.947	
	C.V.(%)	5.587	3.986	
	No. Specimens	24	24	
No. Material Batches	3	3		
Z45FHC 1.0% Offset Strength [ksi]	Mean	12.152	8.367	
	Minimum	11.227	8.001	
	Maximum	12.581	8.783	
	C.V.(%)	2.659	2.376	
	No. Specimens	24	24	
No. Material Batches	3	3		

Due to the inappropriate test method of ASTM D6742 Filled Hole Compression for the ULTEM 9085 material, the B-basis values were not computed. Data reported is for reference only.

2.2.30 X Single-Shear Bearing Properties (XSSB)

Material: Stratasy Certified ULTEM™ 9085 / Fortus 900mc		Single-Shear Bearing Stratasy Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: X		
Test method: ASTM D 5961-17				
	RTD	ETW1		
Test Temperature [°F]	70	180		
Moisture Conditioning	Dry	Equilibrium		
Equilibrium at T, RH		160 F,85%		
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-	X-MX-XSSB-X-RTD-X	X-MX-XSSB-X-ETW1-X		
	Measured	Measured		
XSSB 2% Offset Strength [ksi]	Mean	14.562	11.914	
	Minimum	12.584	8.205	
	Maximum	19.731	14.272	
	C.V.(%)	10.356	13.683	
	No. Specimens	24	24	
	No. Material Batches	3	3	
XSSB Ultimate Strength [ksi]	Mean	29.491	22.235	
	Minimum	27.396	20.907	
	Maximum	30.842	24.925	
	C.V.(%)	3.119	3.736	
	No. Specimens	24	24	
	No. Material Batches	3	3	

See Section 4 for discussion related to SSB Ultimate Strength properties.

2.2.31 Y Single-Shear Bearing Properties (YSSB)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Single-Shear Bearing Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: Y		
Test method: ASTM D 5961-17				
	RTD	ETW1		
Test Temperature [°F]	70	180		
Moisture Conditioning	Dry	Equilibrium		
Equilibrium at T, RH		160 F,85%		
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-	X-MX-YSSB-X-RTD-X	X-MX-YSSB-X-ETW1-X		
	Measured	Measured		
YSSB 2% Offset Strength [ksi]	14.770	12.397		
Mean	10.689	8.488		
Minimum	22.087	15.859		
Maximum	17.902	14.461		
C.V.(%)	24	24		
No. Specimens	3	3		
No. Material Batches				
YSSB Ultimate Strength [ksi]	28.505	21.991		
Mean	25.409	20.039		
Minimum	31.777	23.879		
Maximum	5.714	5.170		
C.V.(%)	24	24		
No. Specimens	3	3		
No. Material Batches				

See Section 4 for discussion related to SSB Ultimate Strength properties.

2.2.32 Z Single-Shear Bearing Properties (ZSSB)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Single-Shear Bearing Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: Z		
Test method: ASTM D 5961-17				
	RTD	ETW1		
Test Temperature [°F]	70	180		
Moisture Conditioning	Dry	Equilibrium		
Equilibrium at T, RH		160 F,85%		
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-	X-MX-ZSSB-X-RTD-X	X-MX-ZSSB-X-ETW1-X		
	Measured	Measured		
ZSSB 2% Offset Strength [ksi]	Mean	12.629	12.398	
	Minimum	8.363	10.592	
	Maximum	16.247	15.468	
	C.V.(%)	13.812	10.156	
	No. Specimens	24	23	
No. Material Batches	3	3		
ZSSB Initial Peak Strength [ksi]	Mean	N/A	16.456	
	Minimum	N/A	16.398	
	Maximum	N/A	16.515	
	C.V.(%)	N/A	0.502	
	No. Specimens	N/A	2	
No. Material Batches	N/A	1		
ZSSB Ultimate Strength [ksi]	Mean	22.451	18.874	
	Minimum	19.410	15.529	
	Maximum	26.651	21.413	
	C.V.(%)	7.693	7.817	
	No. Specimens	24	24	
No. Material Batches	3	3		

See Section 4 for discussion related to SSB Ultimate Strength properties.

2.2.33 Z45 Single-Shear Bearing Properties (Z45SSB)

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		Single-Shear Bearing Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Hole Build Orientation: Z(45)		
Test method: ASTM D 5961-17				
	RTD	ETW1		
Test Temperature [°F]	70	180		
Moisture Conditioning	Dry	Equilibrium		
Equilibrium at T, RH		160 F, 85%		
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-	X-MX-Z45SSB-X-RTD-X	X-MX-Z45SSB-X-ETW1-X		
	Measured	Measured		
Z45SSB 2% Offset Strength [ksi]	Mean	15.467	12.395	
	Minimum	10.095	8.994	
	Maximum	21.100	15.125	
	C.V.(%)	19.057	14.960	
	No. Specimens	24	24	
No. Material Batches	3	3		
Z45SSB Ultimate Strength [ksi]	Mean	27.079	21.421	
	Minimum	24.002	20.161	
	Maximum	30.511	23.445	
	C.V.(%)	6.075	4.957	
	No. Specimens	24	24	
No. Material Batches	3	3		

See Section 4 for discussion related to SSB Ultimate Strength properties.

2.2.34 X Izod Impact Resistance Properties (XIzod) – Reference Only

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		IZOD Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Notch Build Orientation: X		
Test method: ASTM D 256-10 Method A		RTD		
Test Temperature [°F]		70		
Moisture Conditioning		Dry		
Equilibrium at T, RH				
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-XIzod-X-RTD-X		
		Measured		
Mean		0.302		
Minimum		0.160		
Maximum		0.532		
XIzod Energy [Joules] C.V.(%)		29.900		
No. Specimens		24		
No. Material Batches		3		
Mean		94.906		
Minimum		49.538		
Maximum		163.692		
XIzod Impact Resistance [Joules/meter] C.V.(%)		30.675		
No. Specimens		24		
No. Material Batches		3		

Due to the inconsistency of the test data for ASTM D256 Izod Impact Resistance Test, the B-basis values were not computed. Data reported is for reference only.

2.2.35 Y Izod Impact Resistance Properties (YIzod) – Reference Only

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		IZOD Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Notch Build Orientation: Y		
Test method: ASTM D 256-10 Method A		RTD		
Test Temperature [°F]		70		
Moisture Conditioning		Dry		
Equilibrium at T, RH				
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-YIzod-X-RTD-X		
		Measured		
Mean		0.240		
Minimum		0.162		
Maximum		0.323		
YIzod Energy [Joules] C.V.(%)		14.304		
No. Specimens		24		
No. Material Batches		3		
Mean		73.734		
Minimum		49.390		
Maximum		98.476		
YIzod Impact Resistance [Joules/meter] C.V.(%)		14.224		
No. Specimens		24		
No. Material Batches		3		

Due to the inconsistency of the test data for ASTM D256 Izod Impact Resistance Test, the B-basis values were not computed. Data reported is for reference only.

2.2.36 Z Izod Impact Resistance Properties (ZIzod) – Reference Only

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		IZOD Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Notch Build Orientation: Z		
Test method: ASTM D 256-10 Method A		RTD		
Test Temperature [°F]		70		
Moisture Conditioning		Dry		
Equilibrium at T, RH				
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-ZIzod-X-RTD-X		
		Measured		
ZIzod Energy [Joules]		0.227		
Mean		0.157		
Minimum		0.408		
Maximum		27.062		
C.V.(%)				
No. Specimens		24		
No. Material Batches		3		
ZIzod Impact Resistance [Joules/meter]		69.307		
Mean		47.147		
Minimum		122.523		
Maximum		26.661		
C.V.(%)				
No. Specimens		24		
No. Material Batches		3		

Due to the inconsistency of the test data for ASTM D256 Izod Impact Resistance Test, the B-basis values were not computed. Data reported is for reference only.

2.2.37 Z45 Izod Impact Resistance Properties (Z45Izod) – Reference Only

Material: Stratasys Certified ULTEM™ 9085 / Fortus 900mc		IZOD Stratasys Certified ULTEM™ 9085 / Fortus 900mc -45/45; Machined Notch Build Orientation: Z(45)		
Test method: ASTM D 256-10 Method A		Modulus calculation: N/A		
RTD				
Test Temperature [°F]		70		
Moisture Conditioning		Dry		
Equilibrium at T, RH				
Source code: Prefixed by NTPAMP001-SY-UM9085-RPM-		X-MX-Z45Izod-X-RTD-X		
		Measured		
Z45Izod Energy [Joules]	Mean	0.263		
	Minimum	0.167		
	Maximum	0.356		
	C.V.(%)	19.450		
	No. Specimens	24		
	No. Material Batches	3		
Z45Izod Impact Resistance [Joules/meter]	Mean	78.986		
	Minimum	50.150		
	Maximum	106.968		
	C.V.(%)	19.294		
	No. Specimens	24		
	No. Material Batches	3		

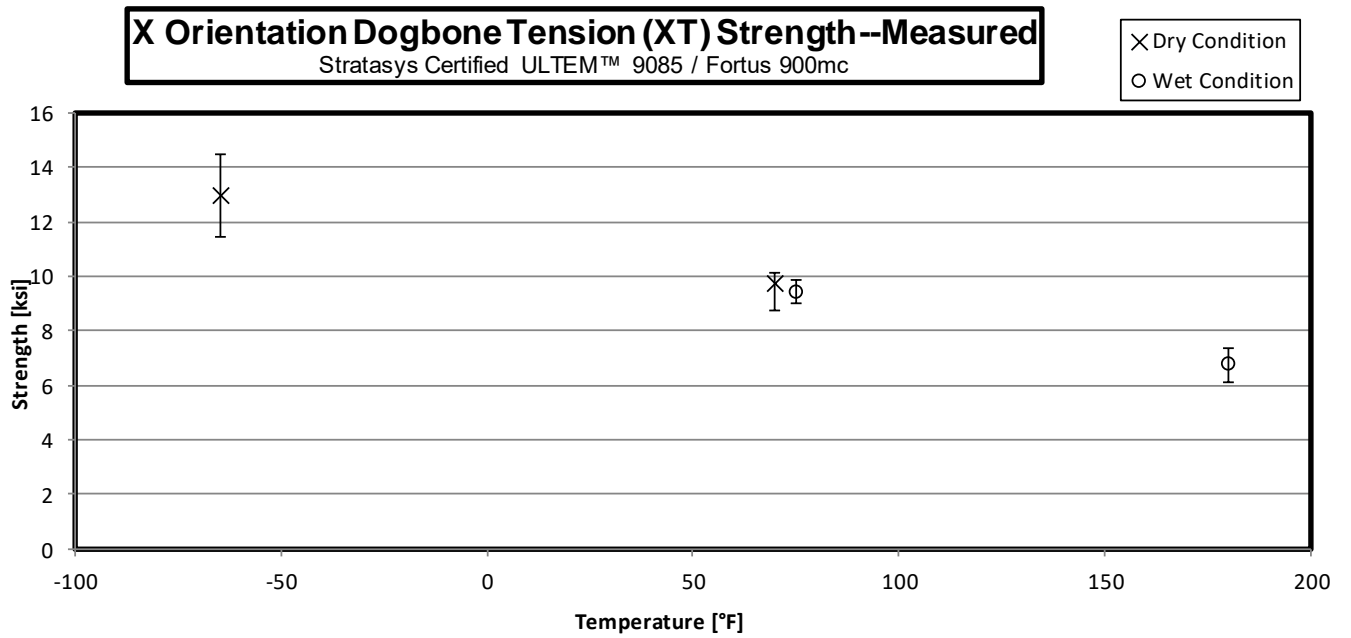
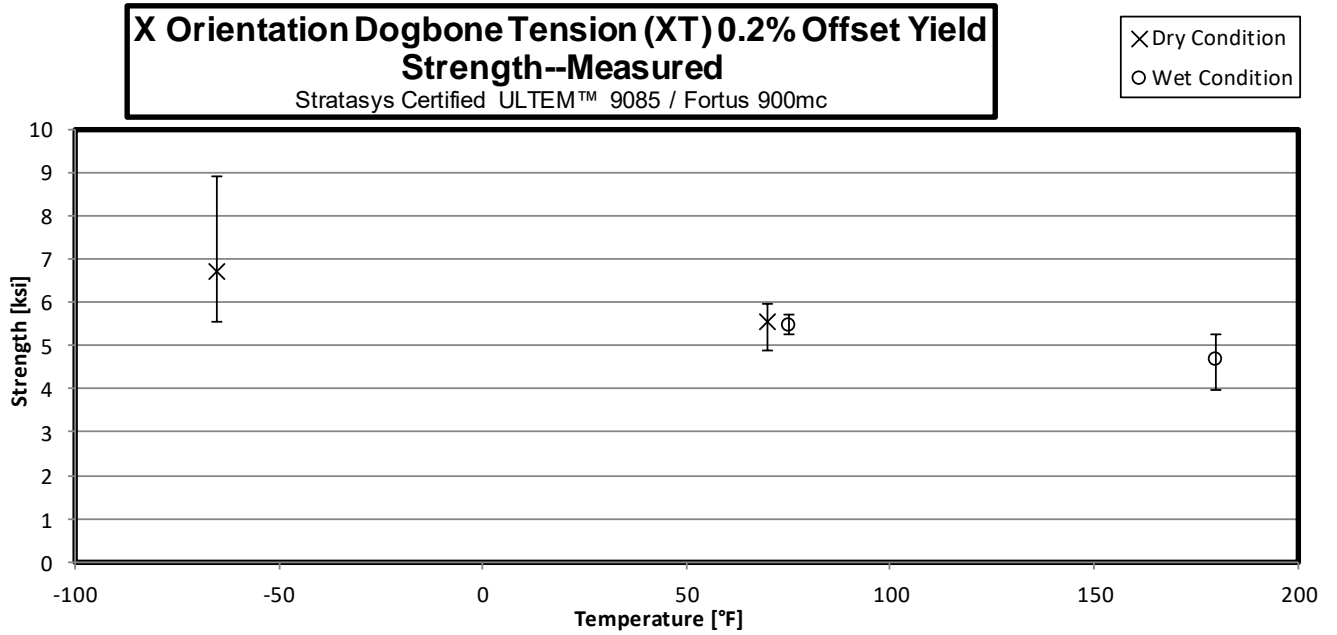
Due to the inconsistency of the test data for ASTM D256 Izod Impact Resistance Test, the B-basis values were not computed. Data reported is for reference only.

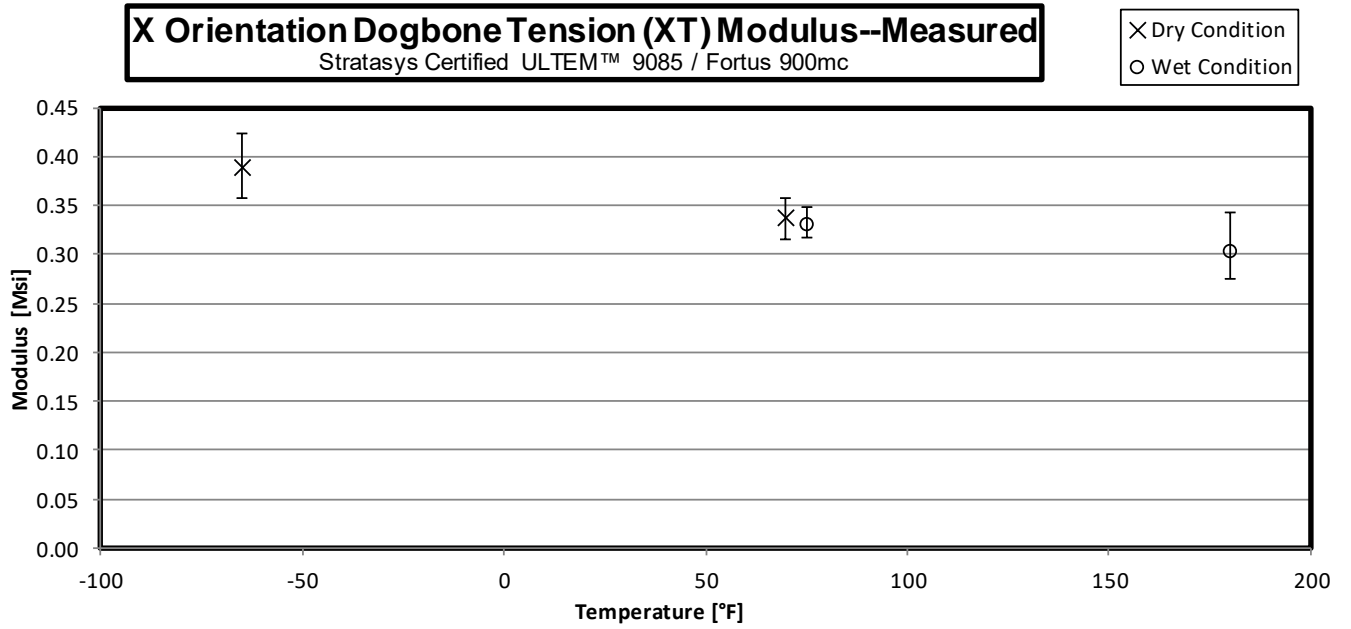
3. Individual Test Charts

These charts combine all three batches of data and plot the minimum and maximum modulus and strength range based on the test temperature.

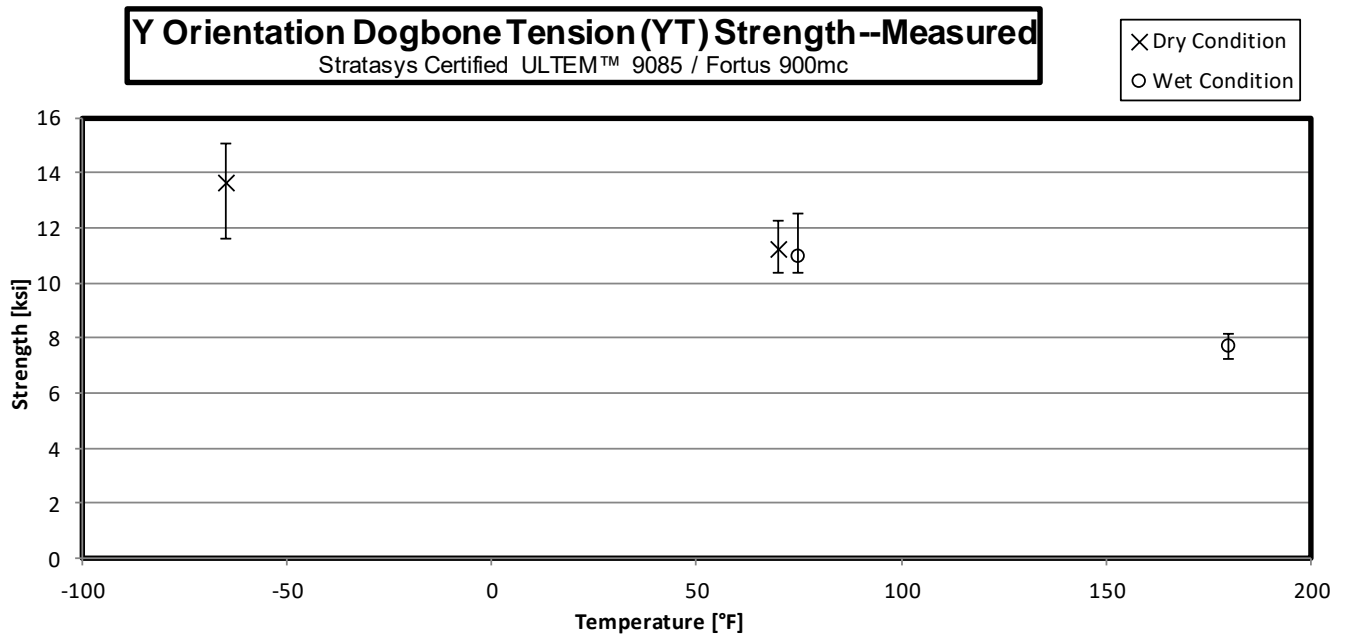
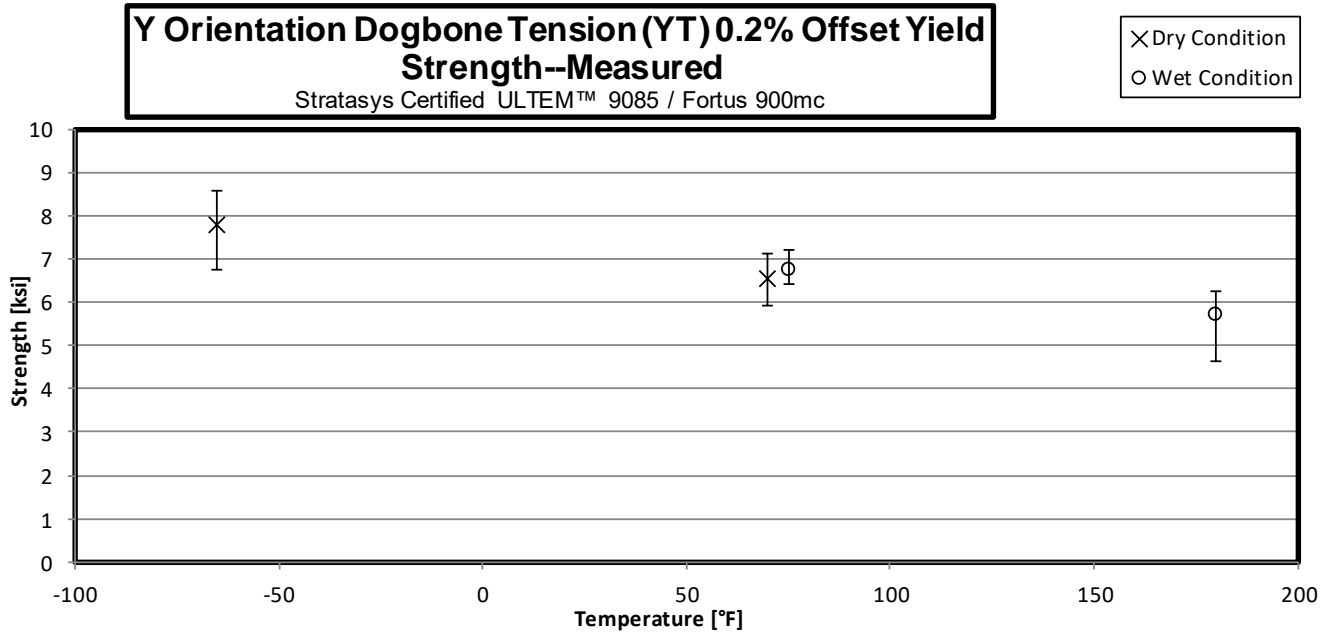
Plots for RTW and ETD1 have been offset to 75°F (from 70°F) and 185°F (from 180°F) respectively, to improve clarity and readability.

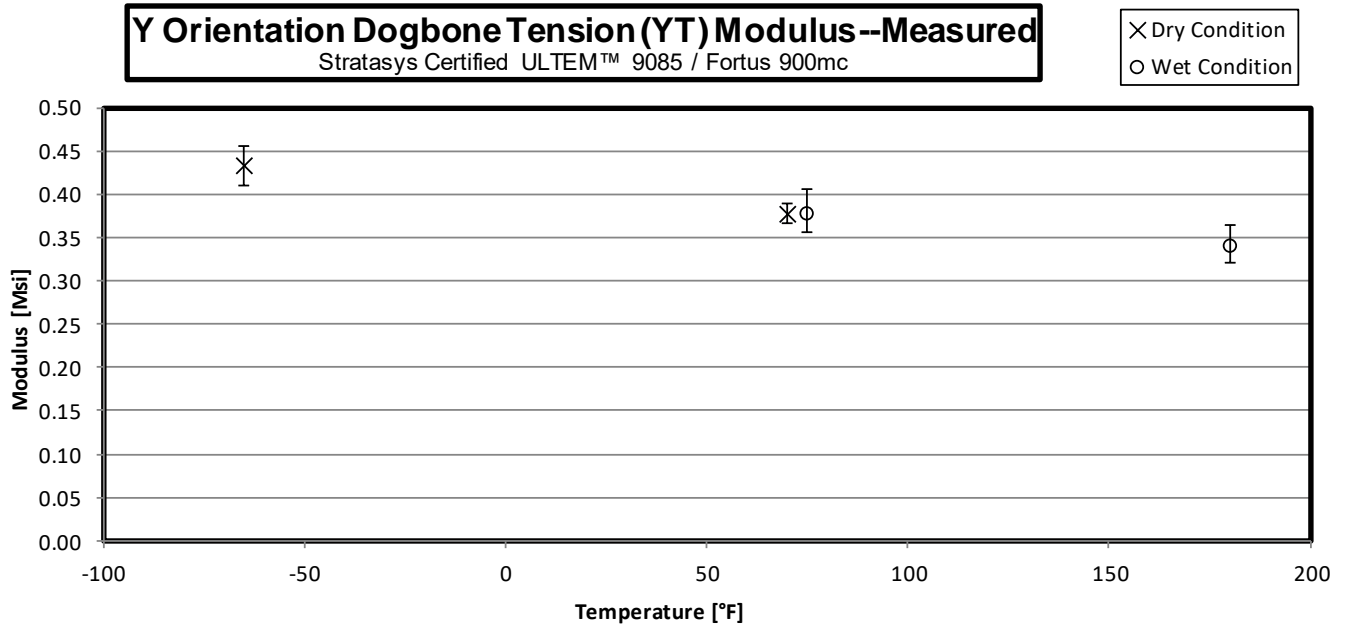
3.1 X Tension Properties (XT)



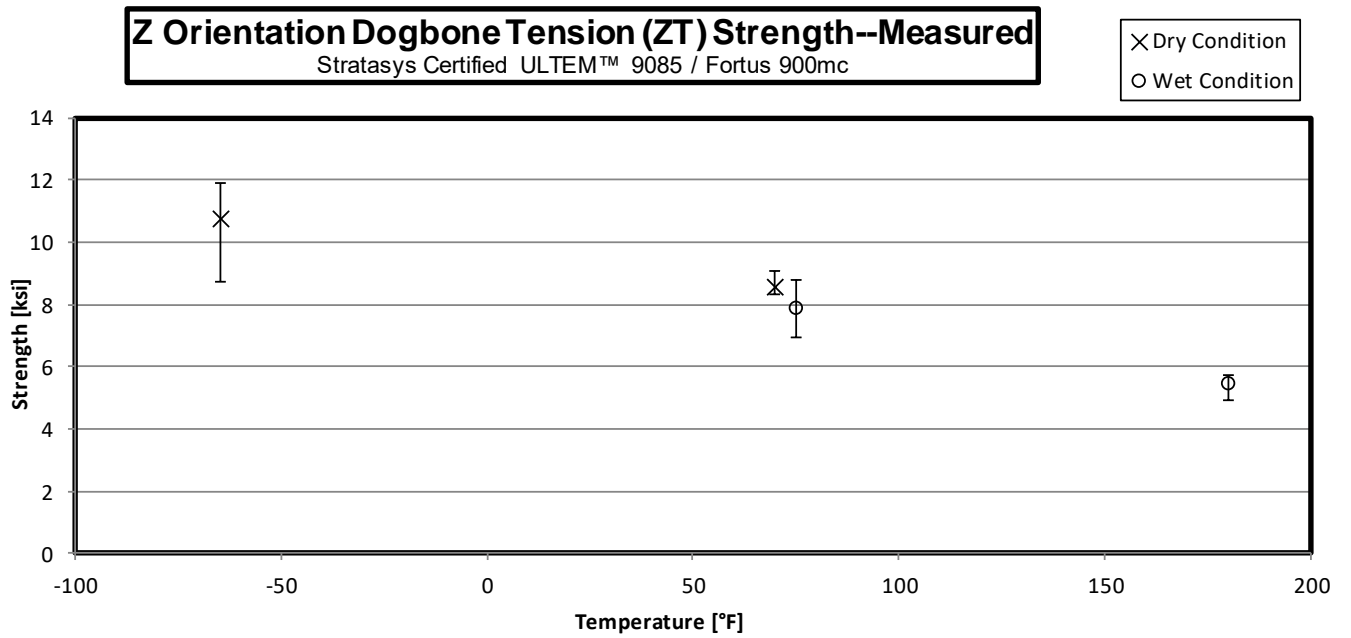
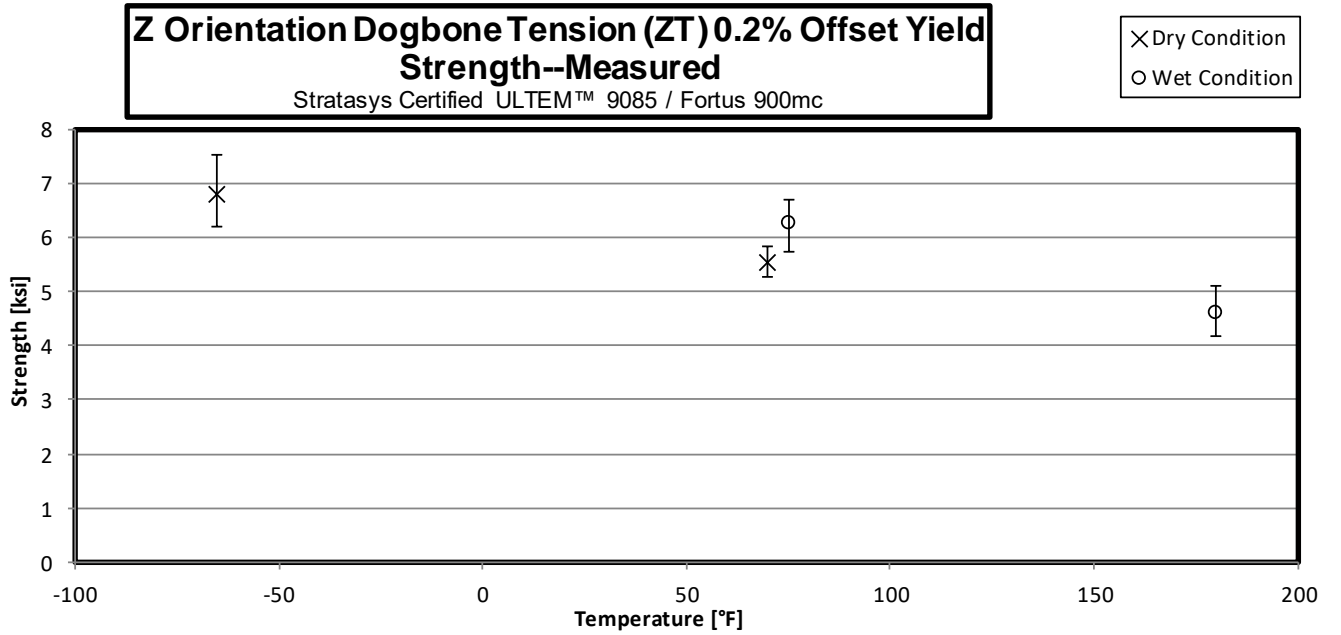


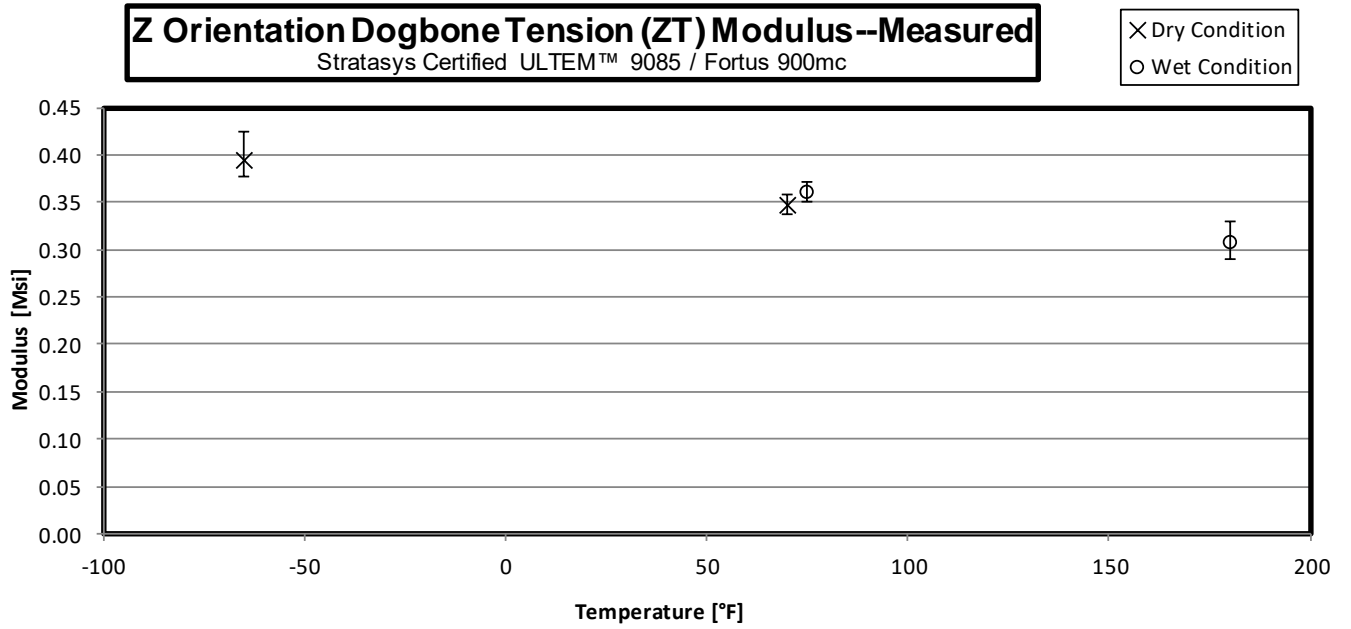
3.2 Y Tension Properties (YT)



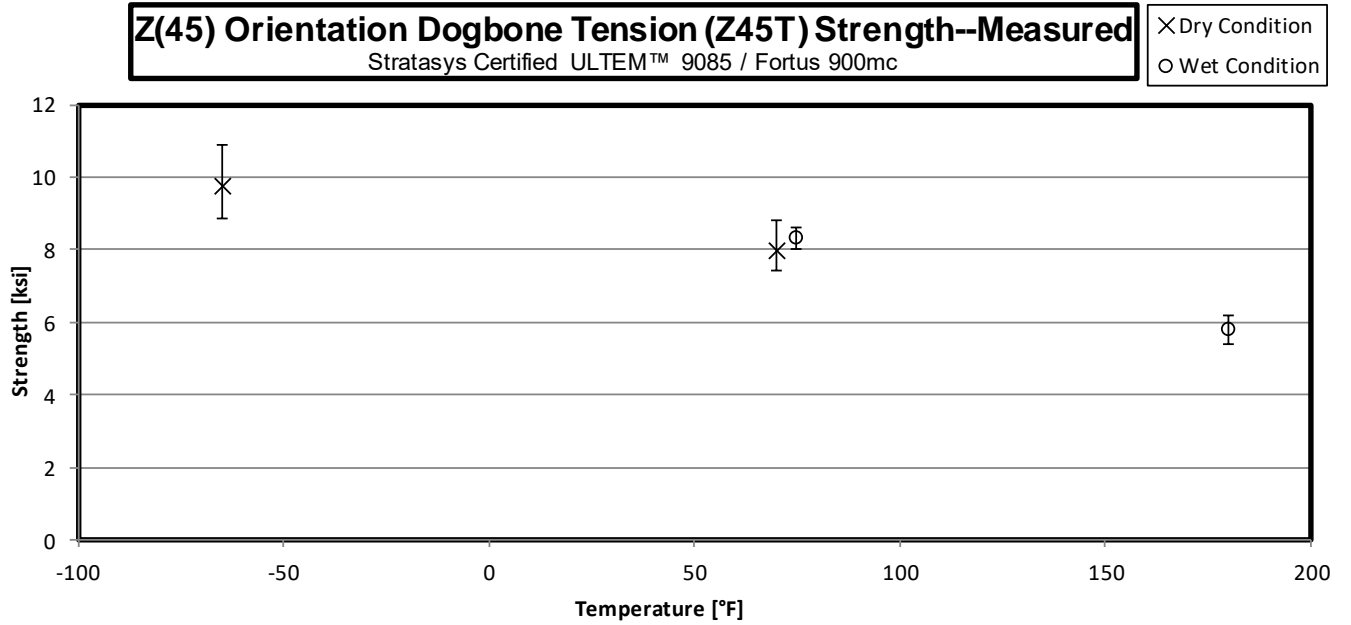
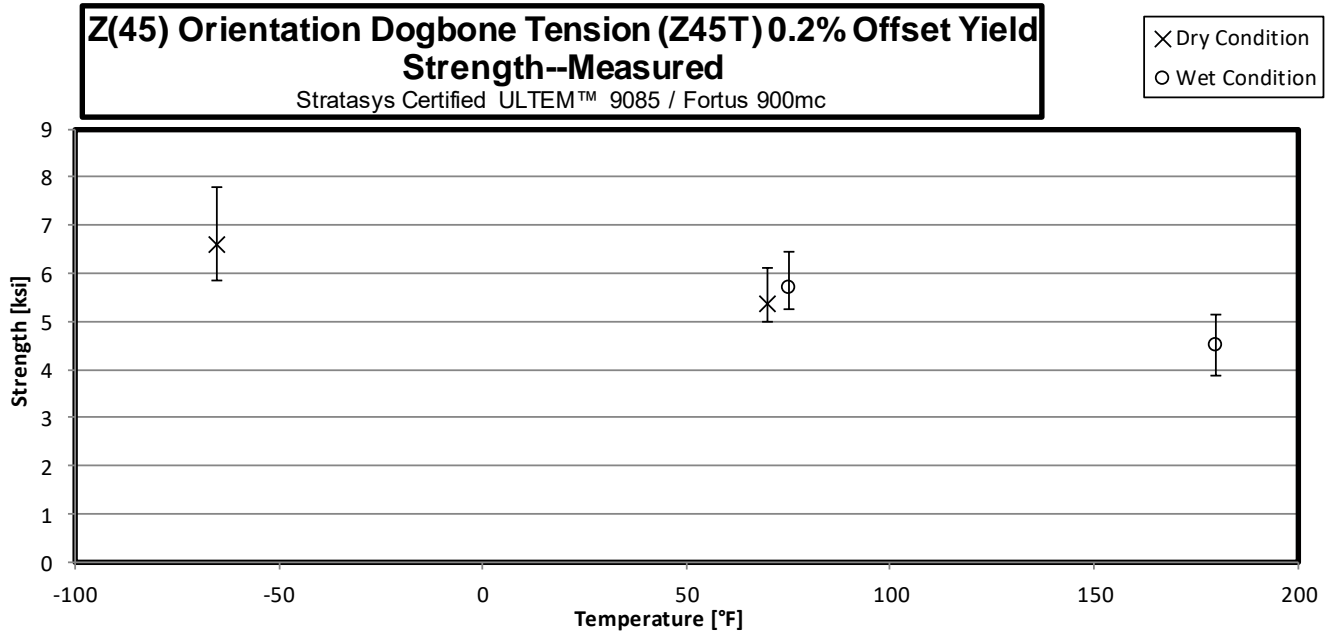


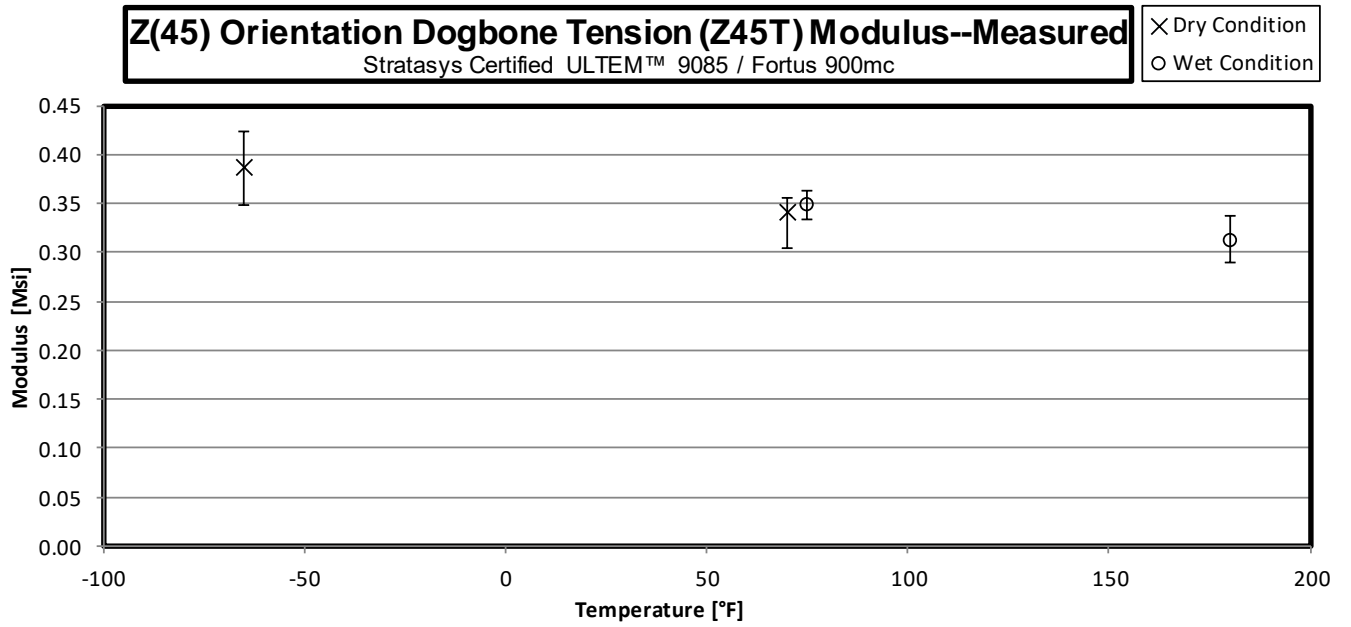
3.3 Z Tension Properties (ZT)



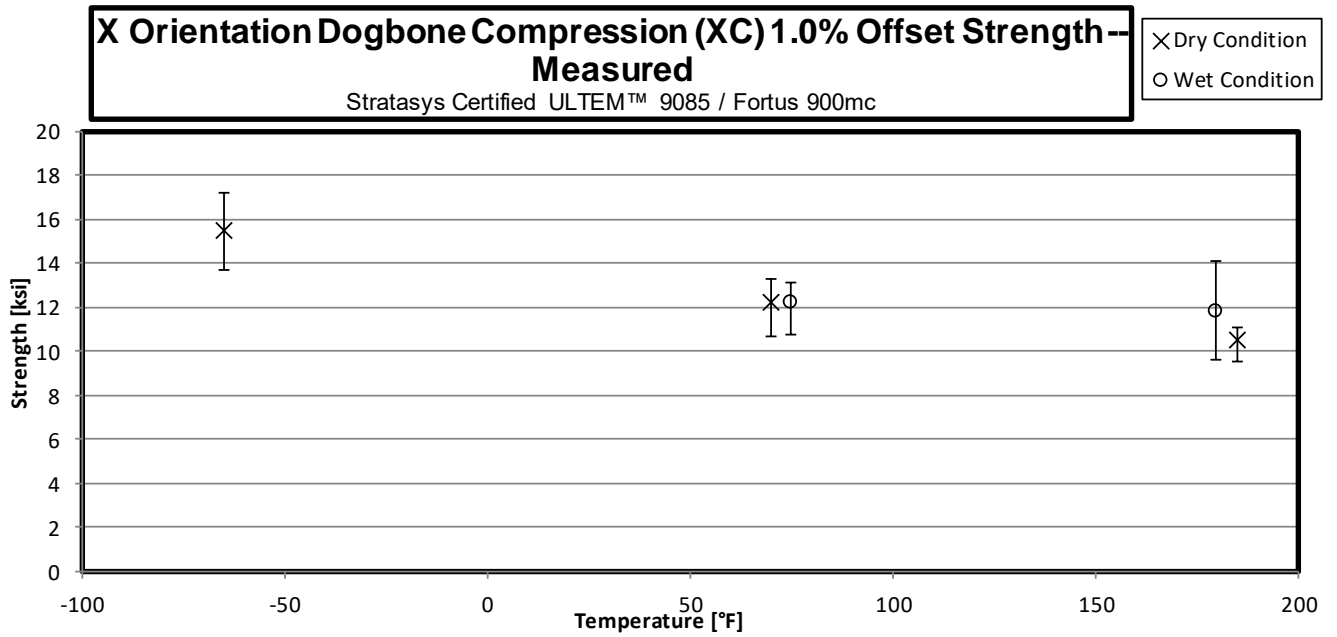
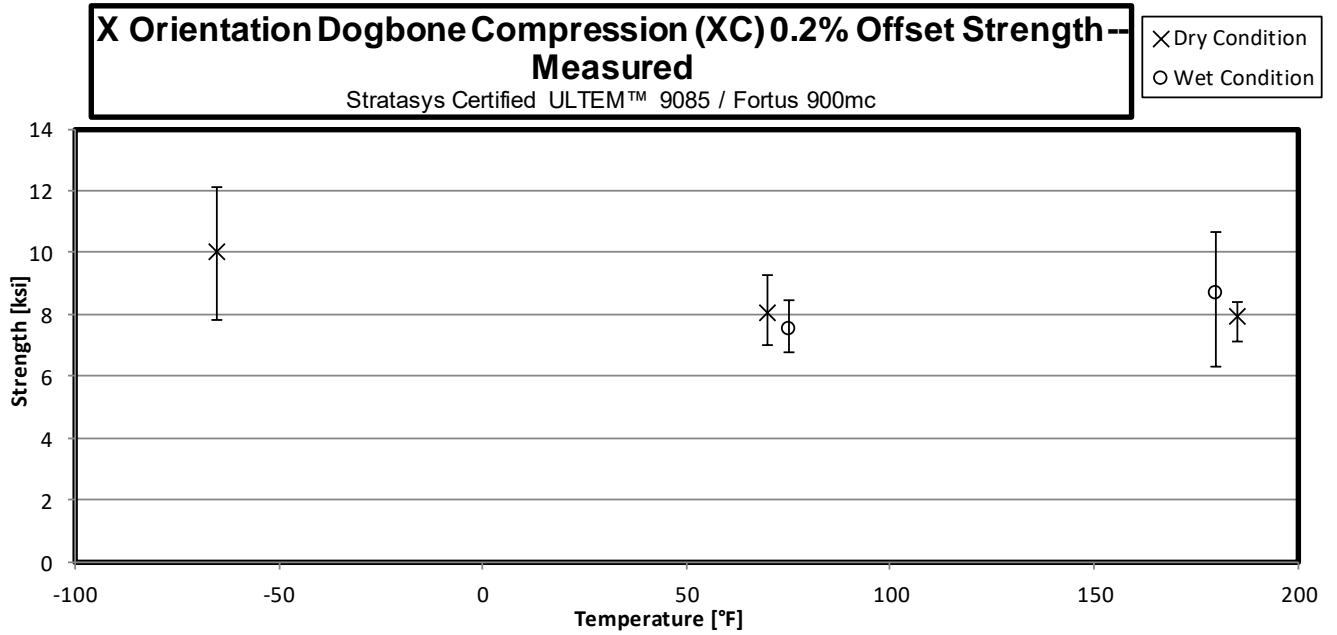


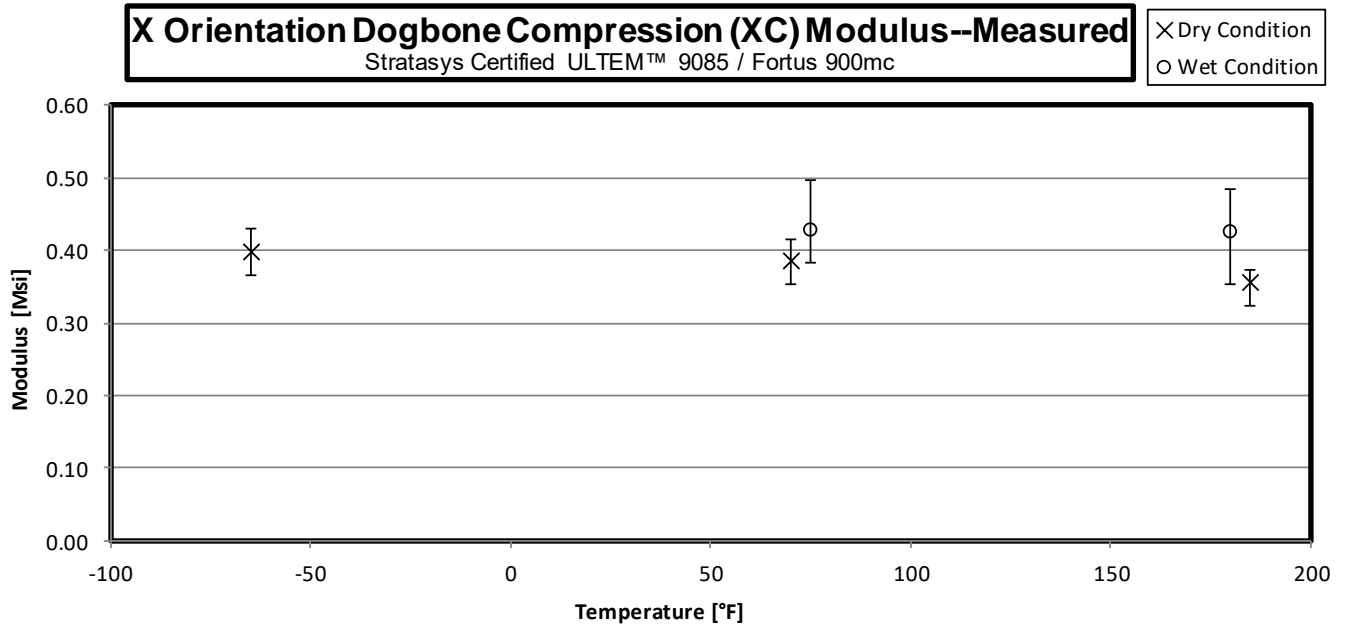
3.4 Z45 Tension Properties (Z45T)



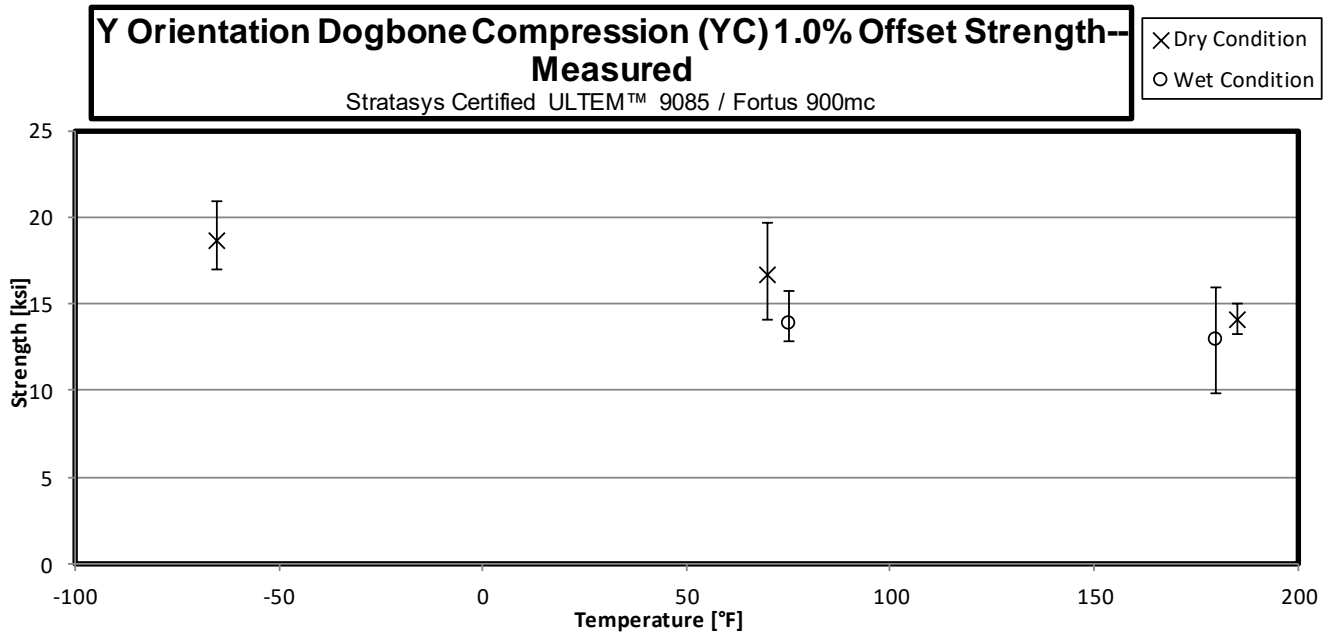
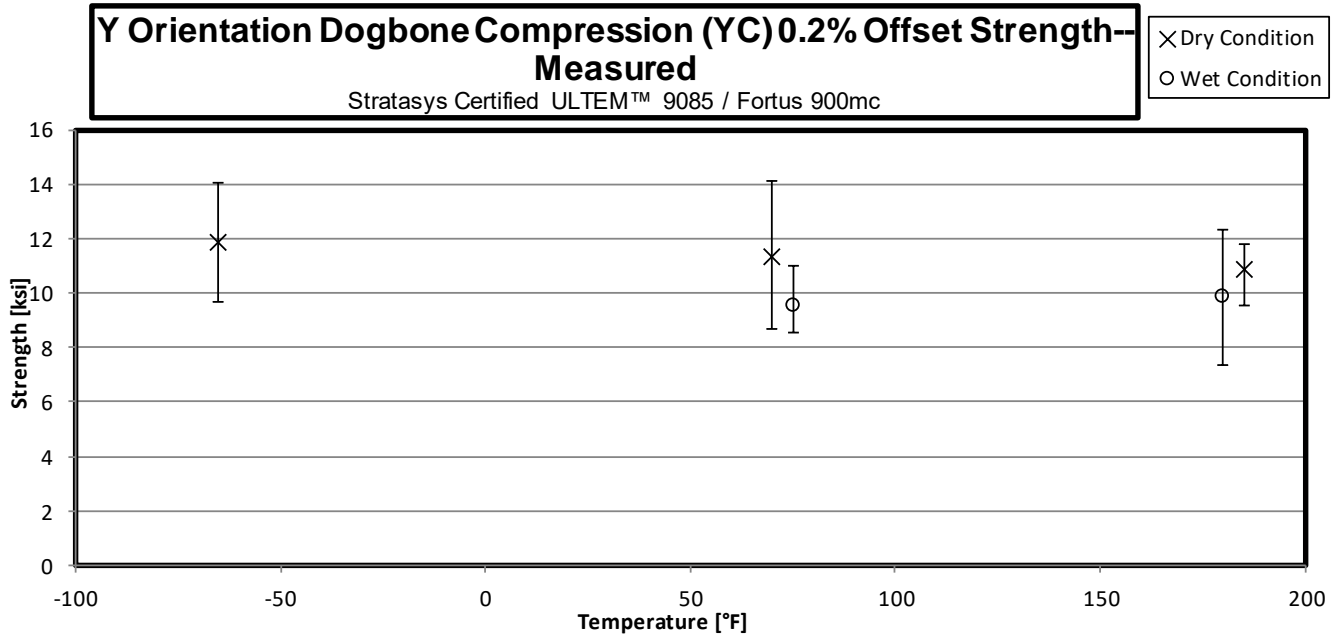


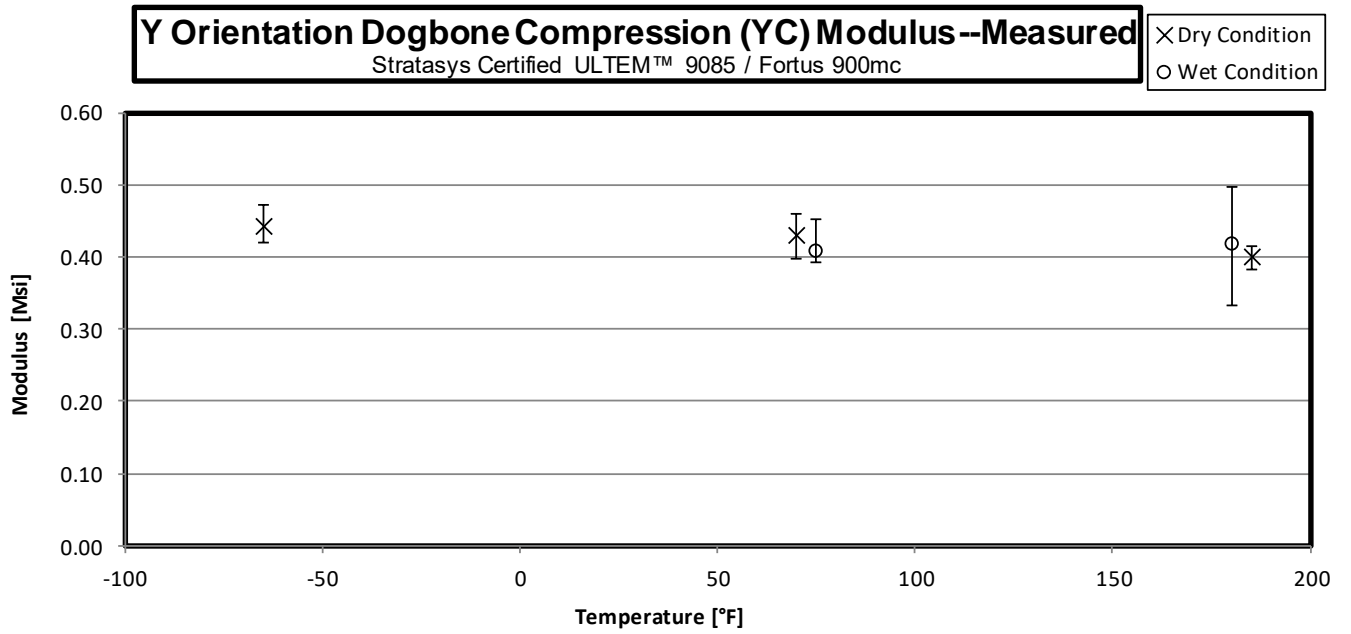
3.5 X Compression Properties (XC)



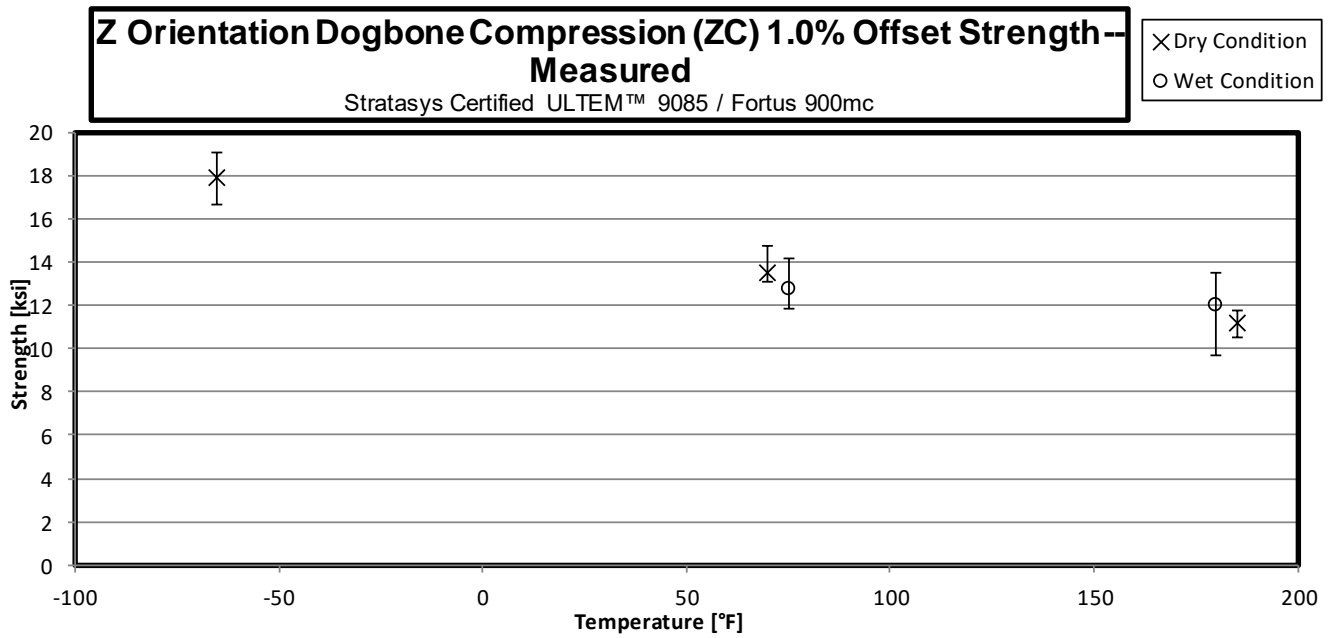
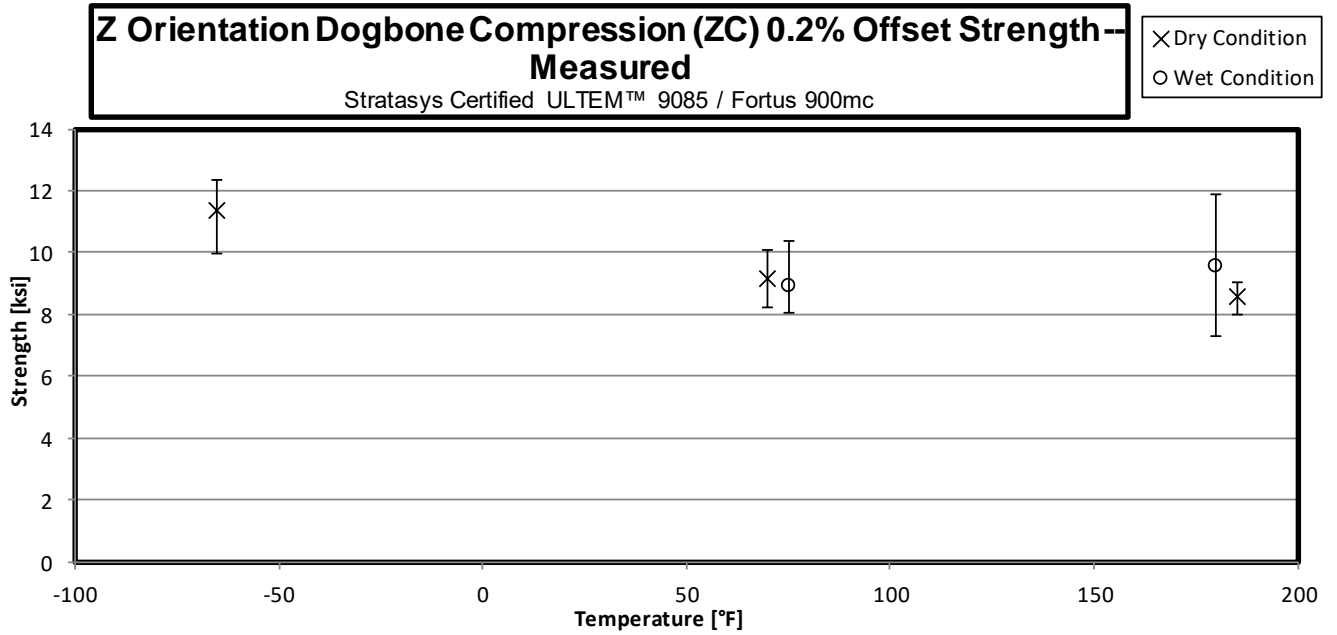


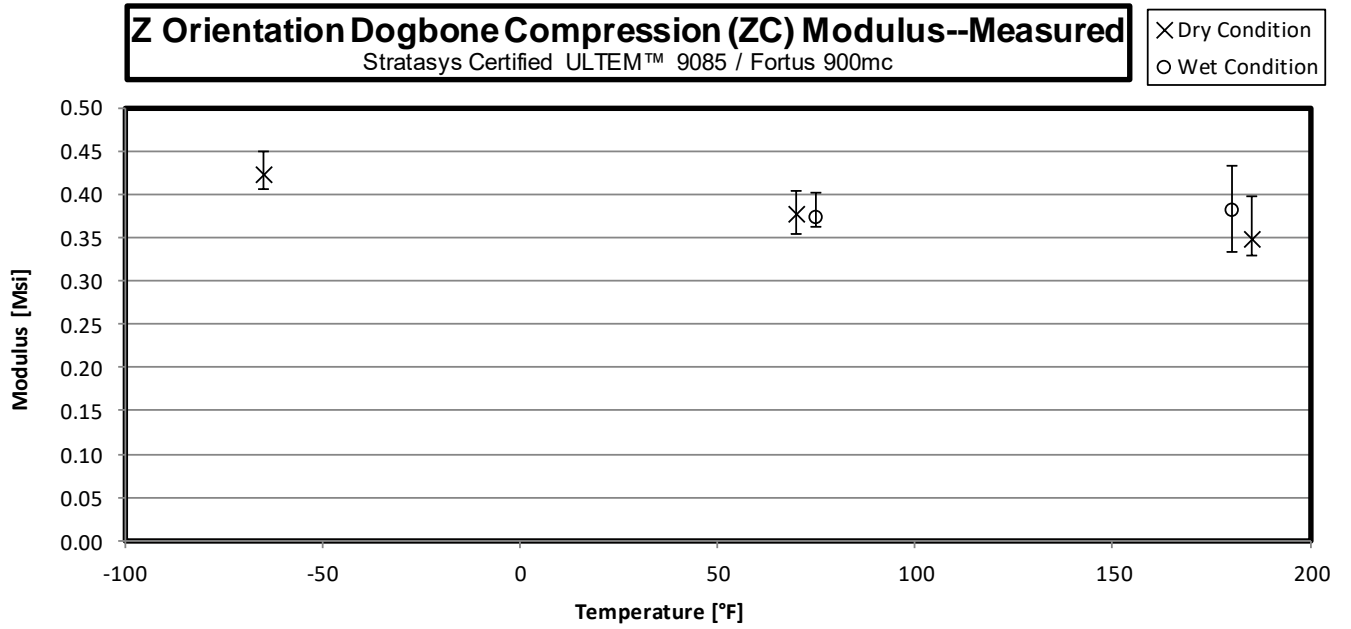
3.6 Y Compression Properties (YC)



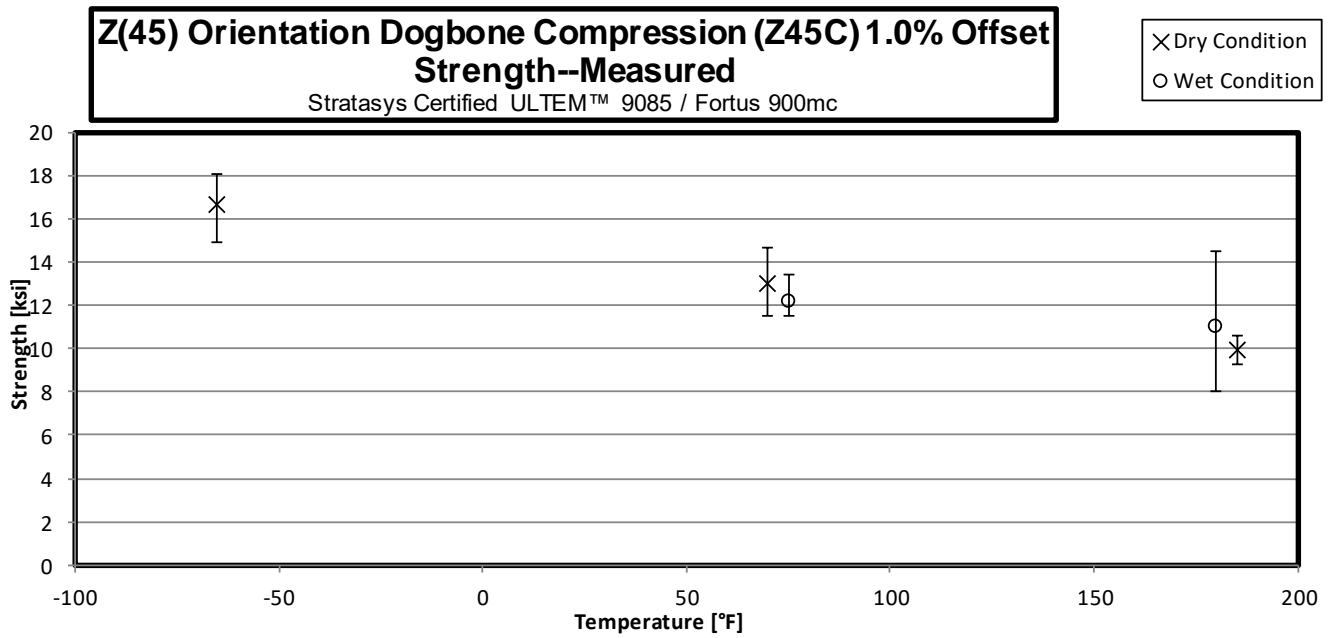
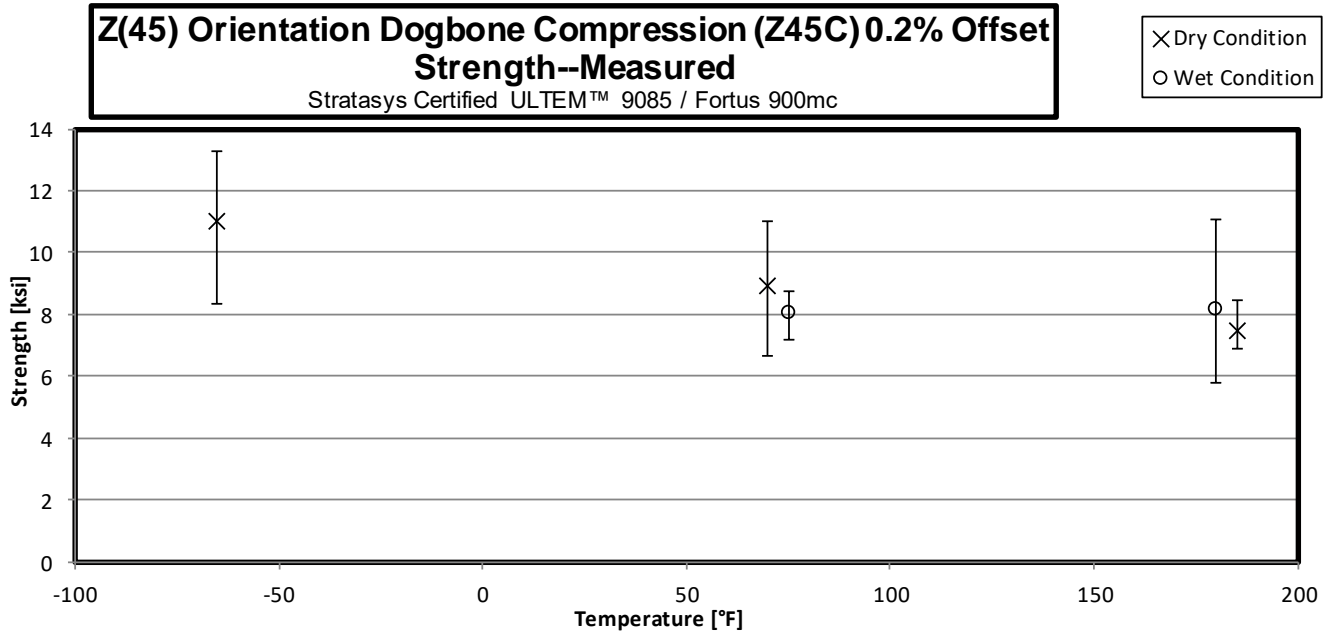


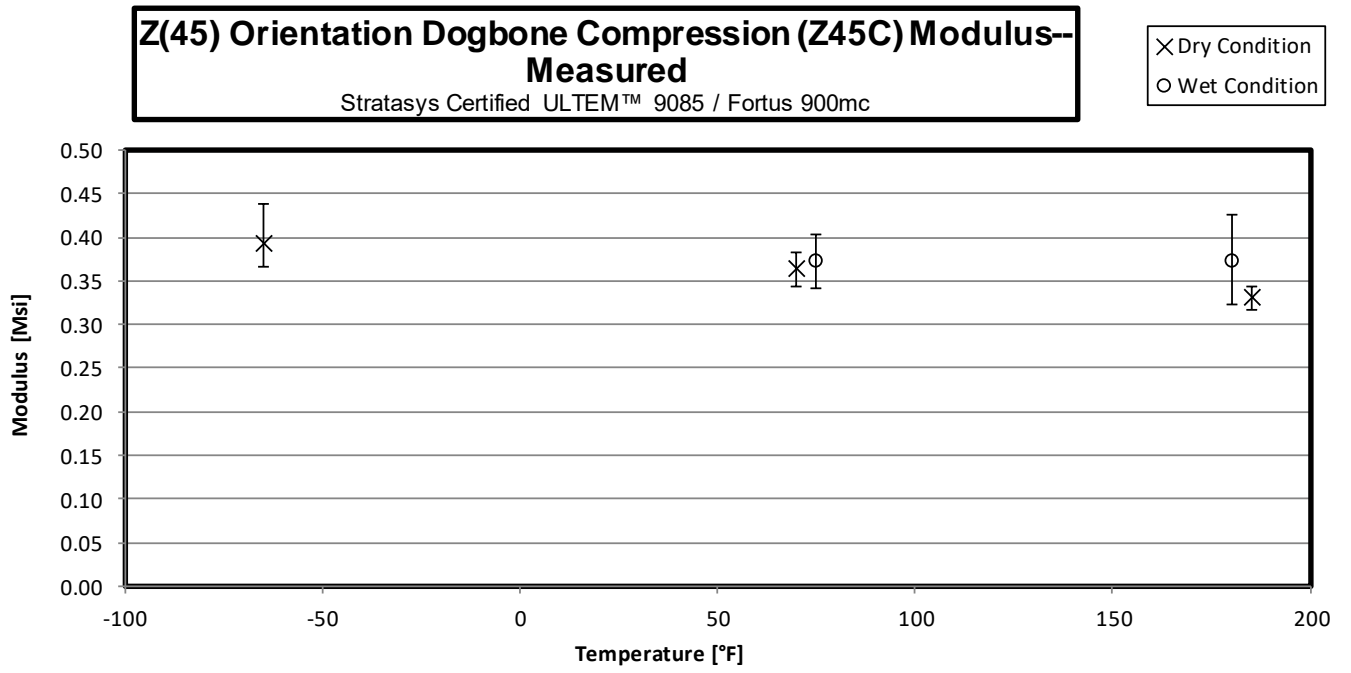
3.7 Z Compression Properties (ZC)



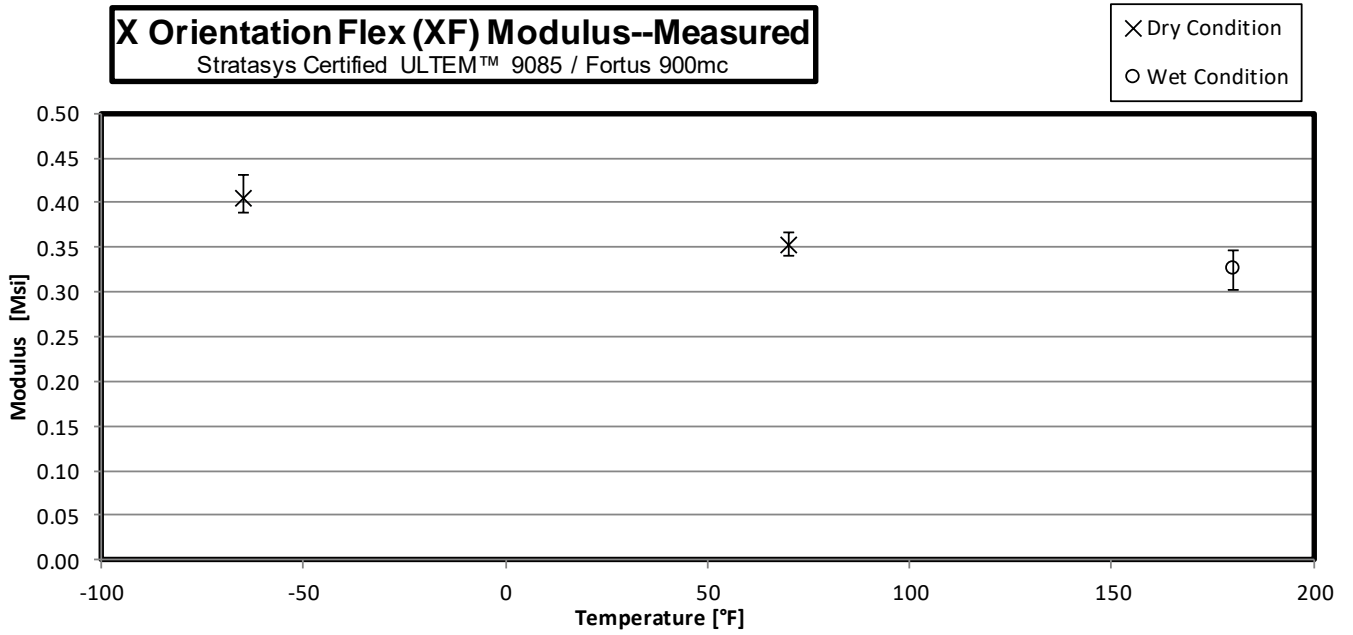
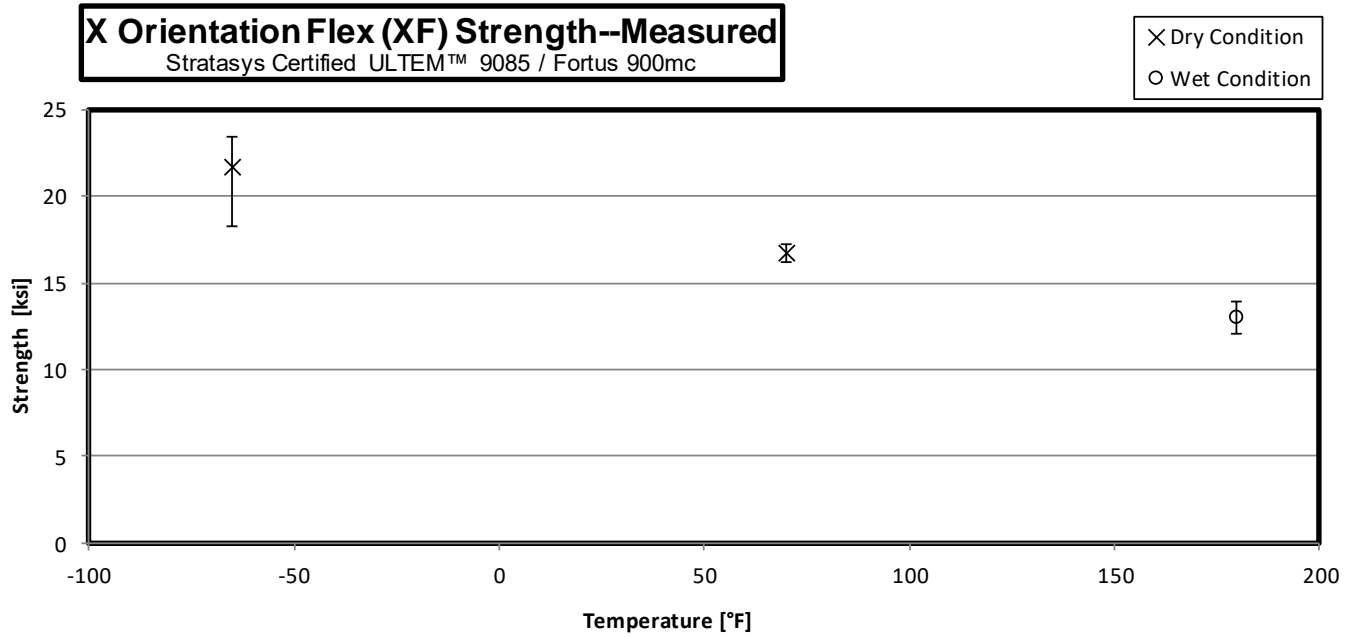


3.8 Z45 Compression Properties (Z45C)

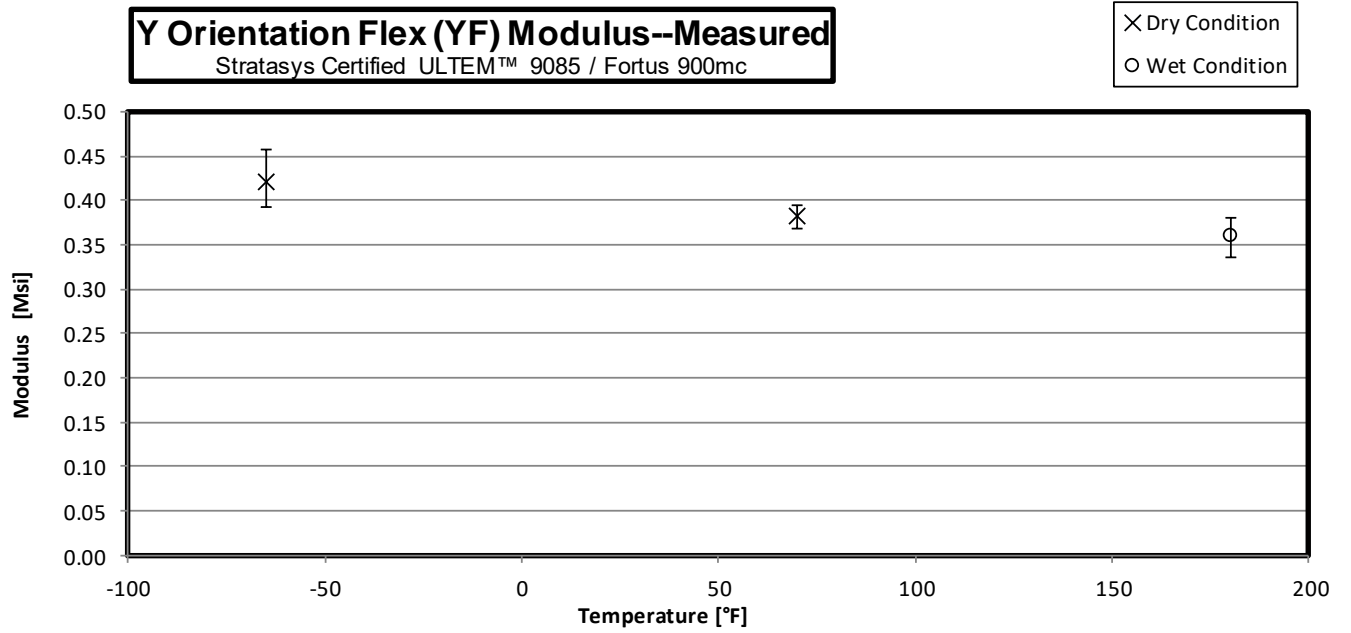
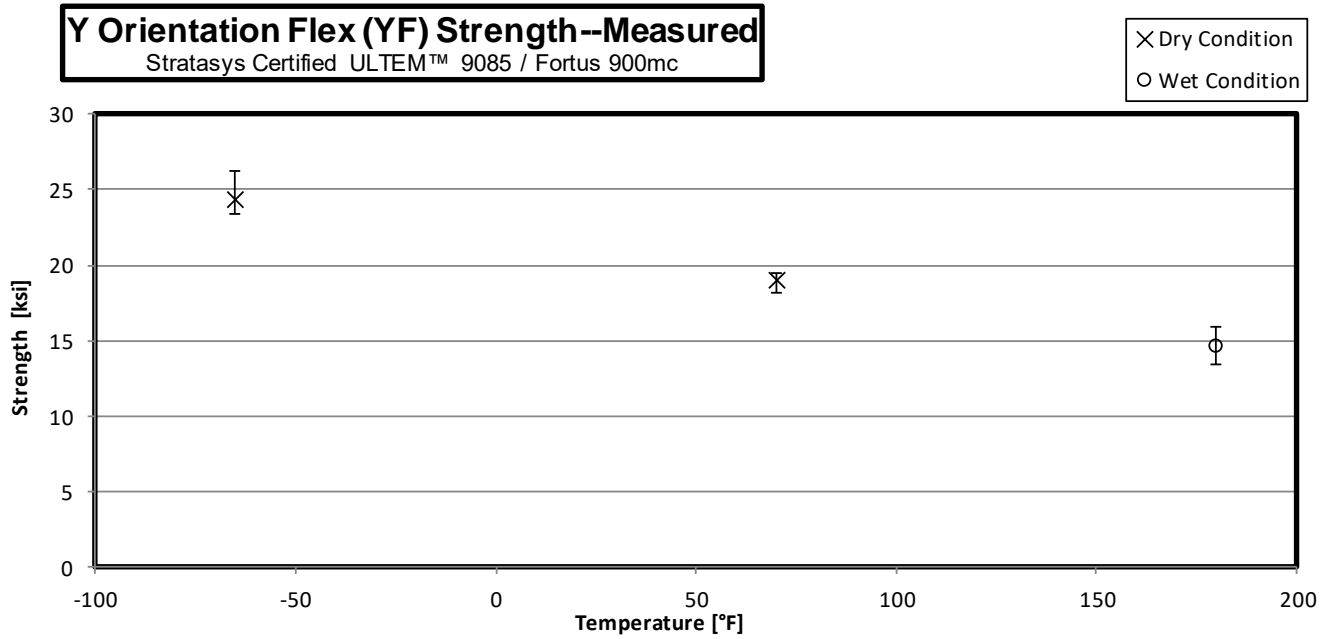




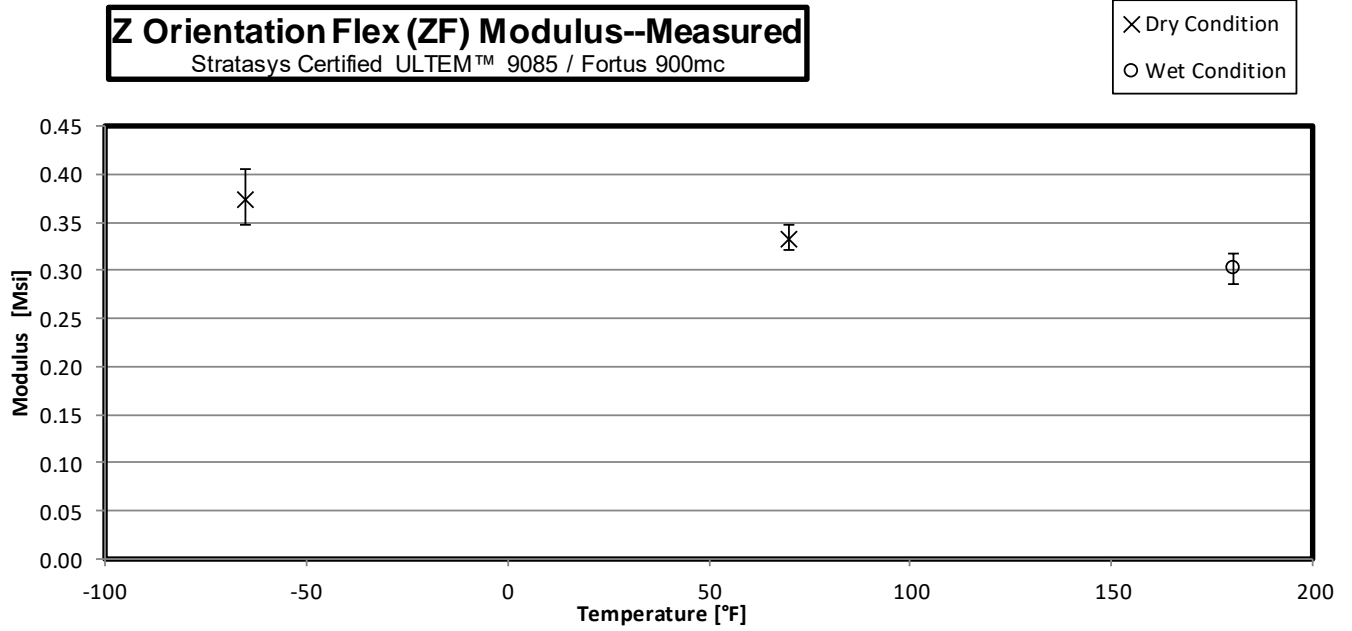
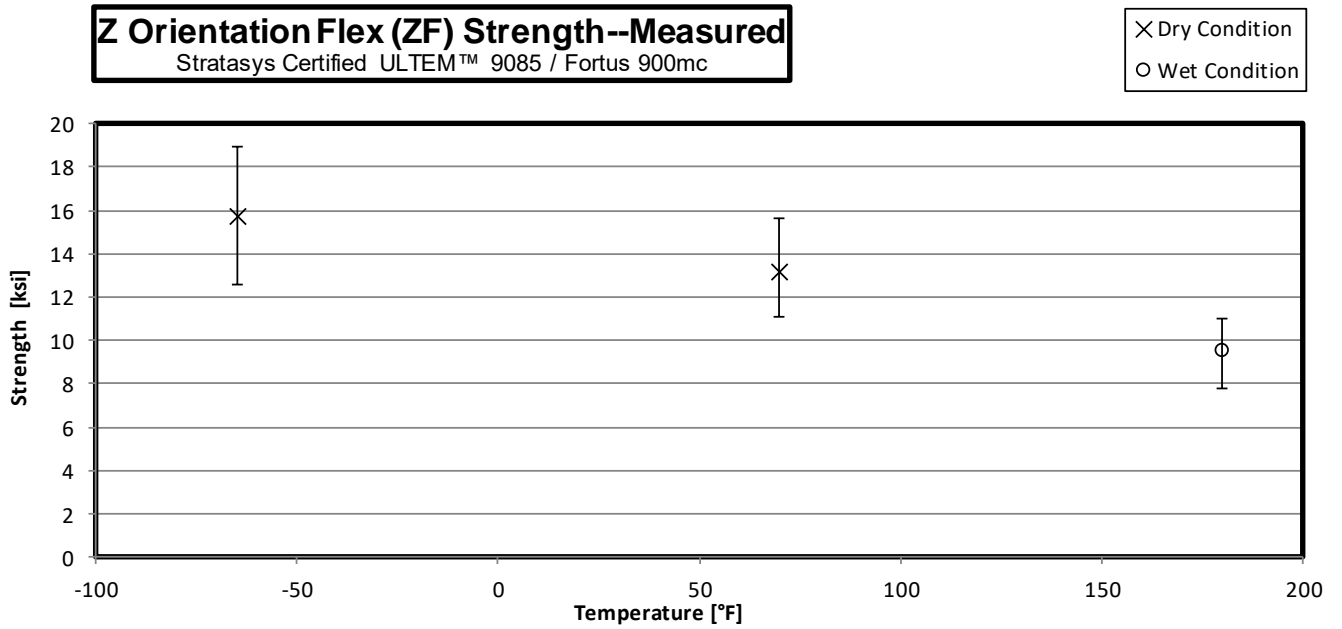
3.9 X Flex Properties (XF)



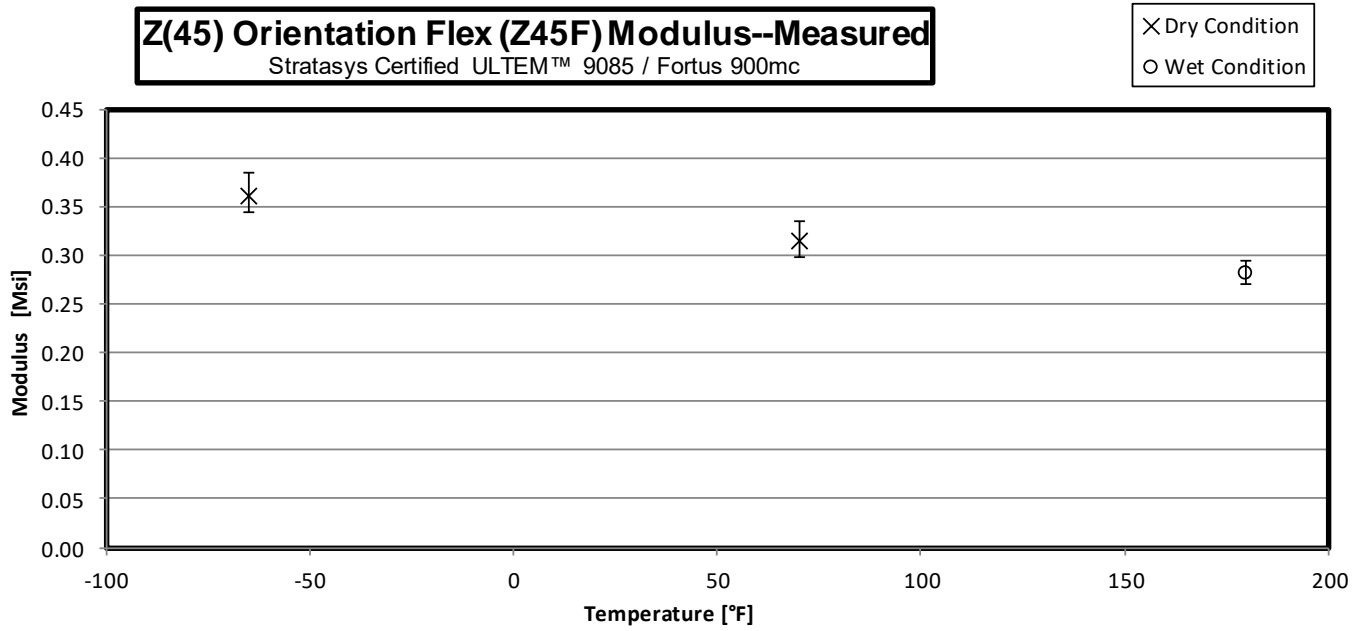
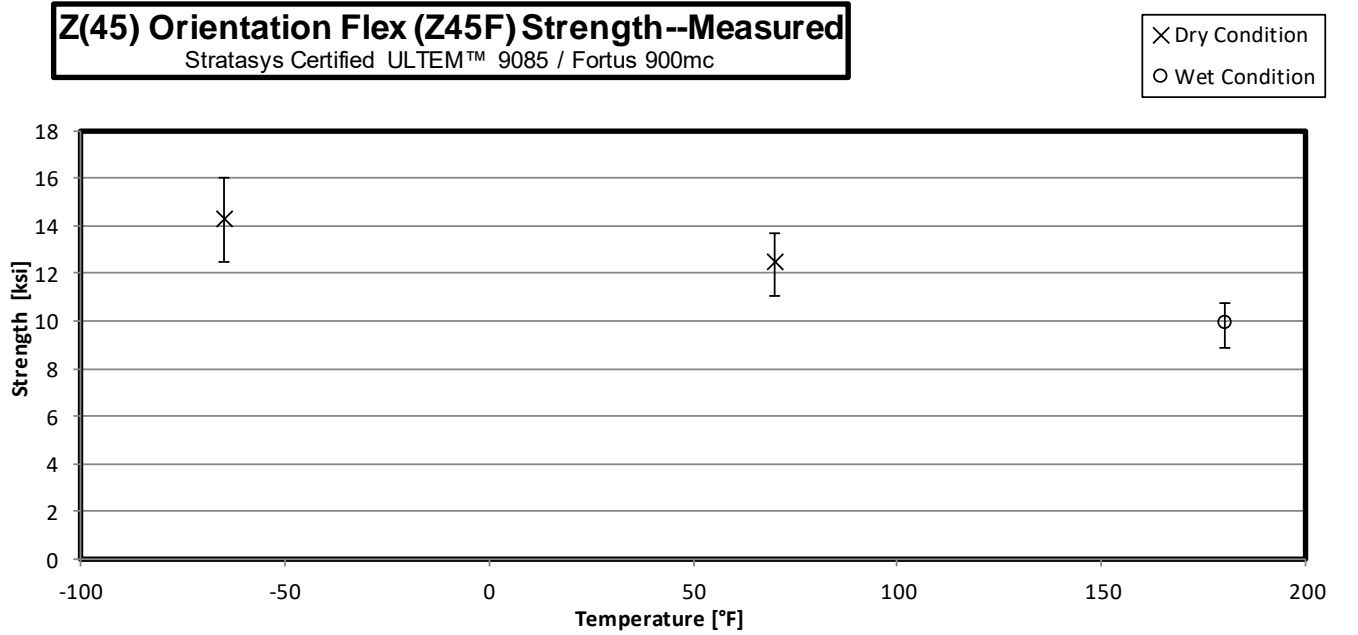
3.10 Y Flex Properties (YF)



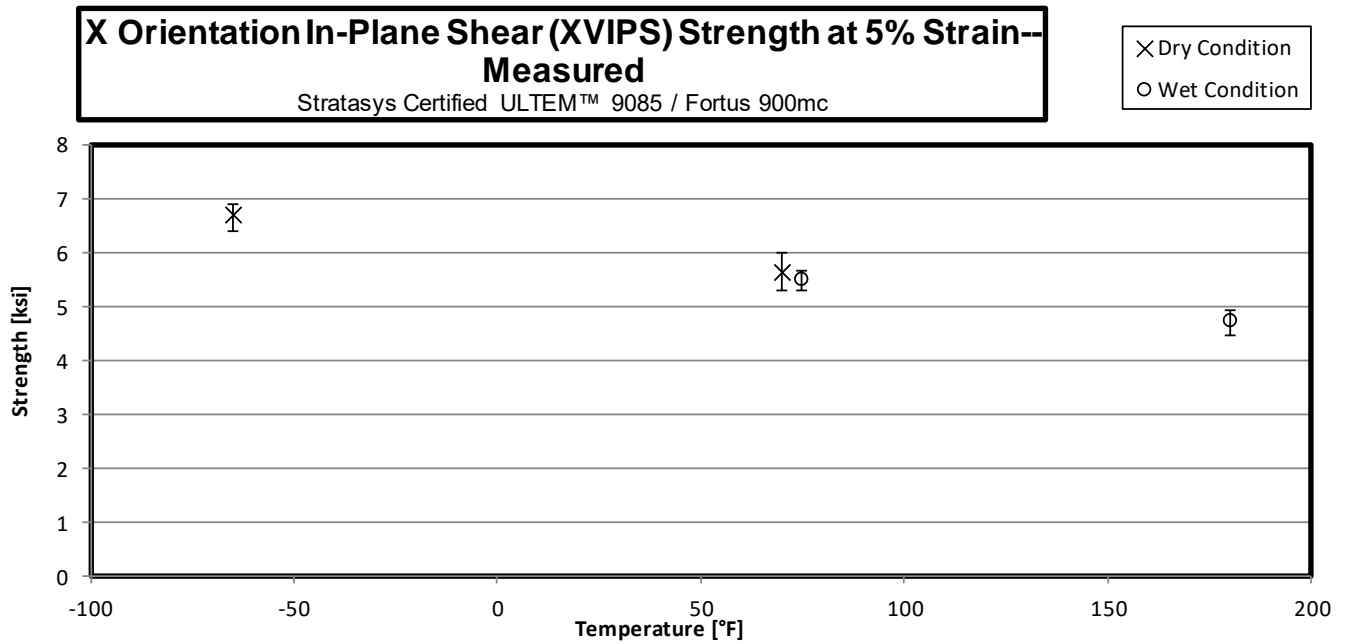
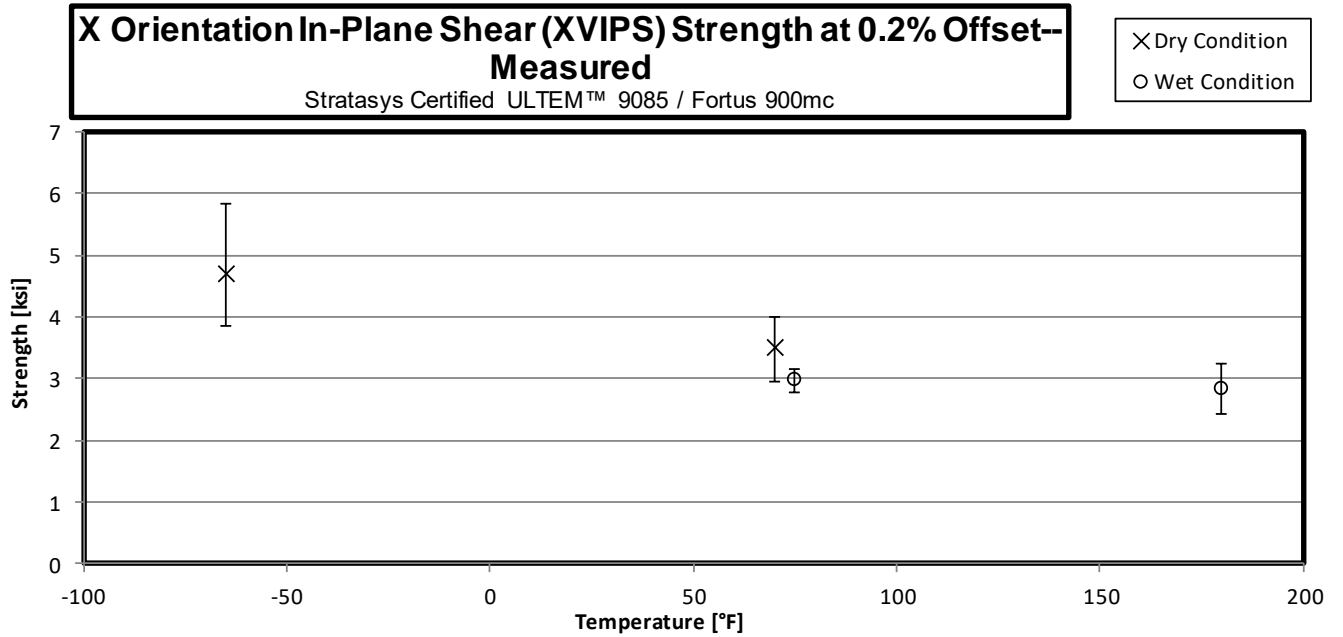
3.11 Z Flex Properties (ZF)

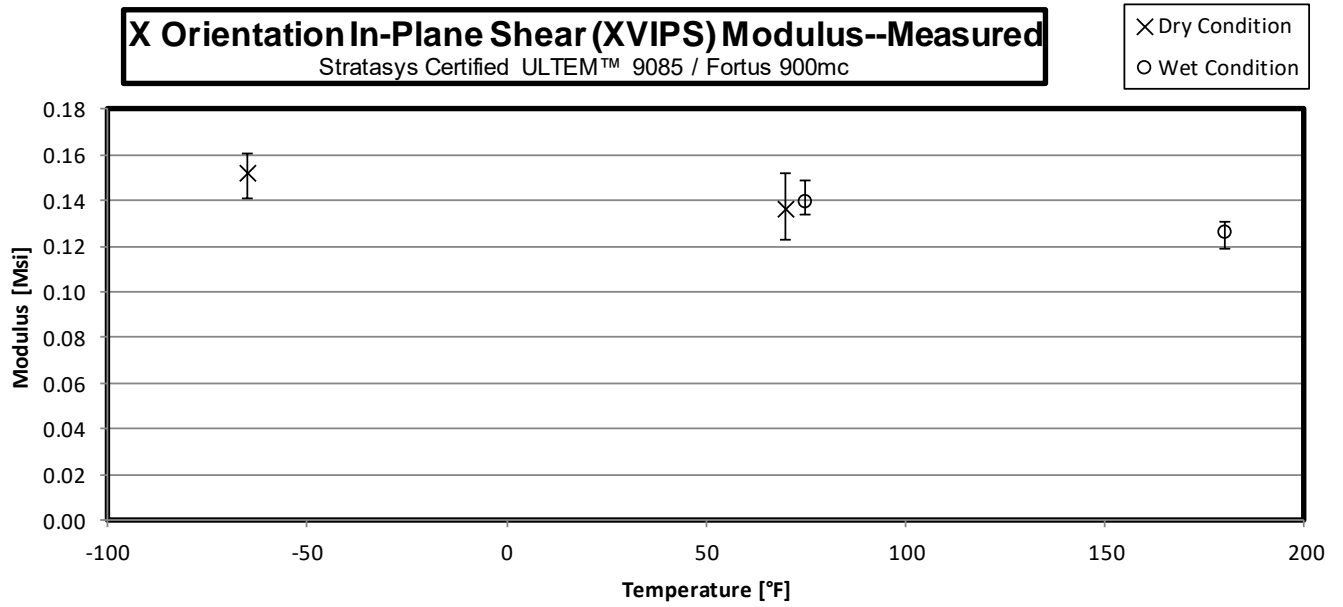
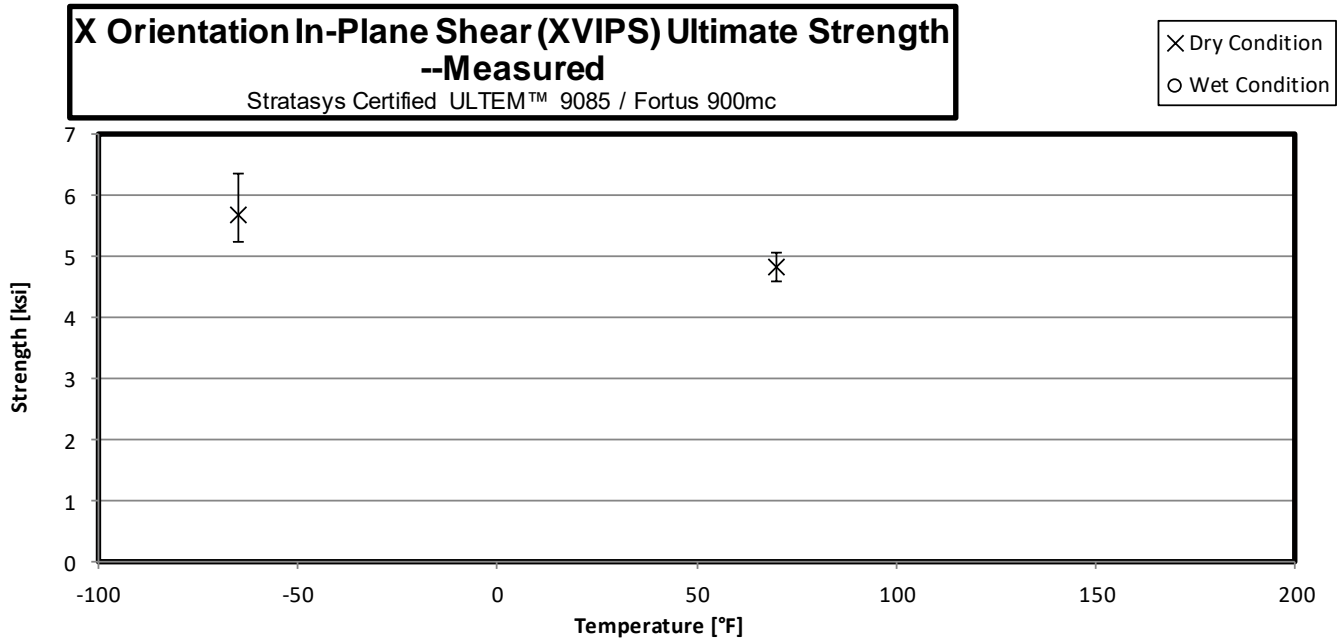


3.12 Z45 Flex Properties (Z45F)

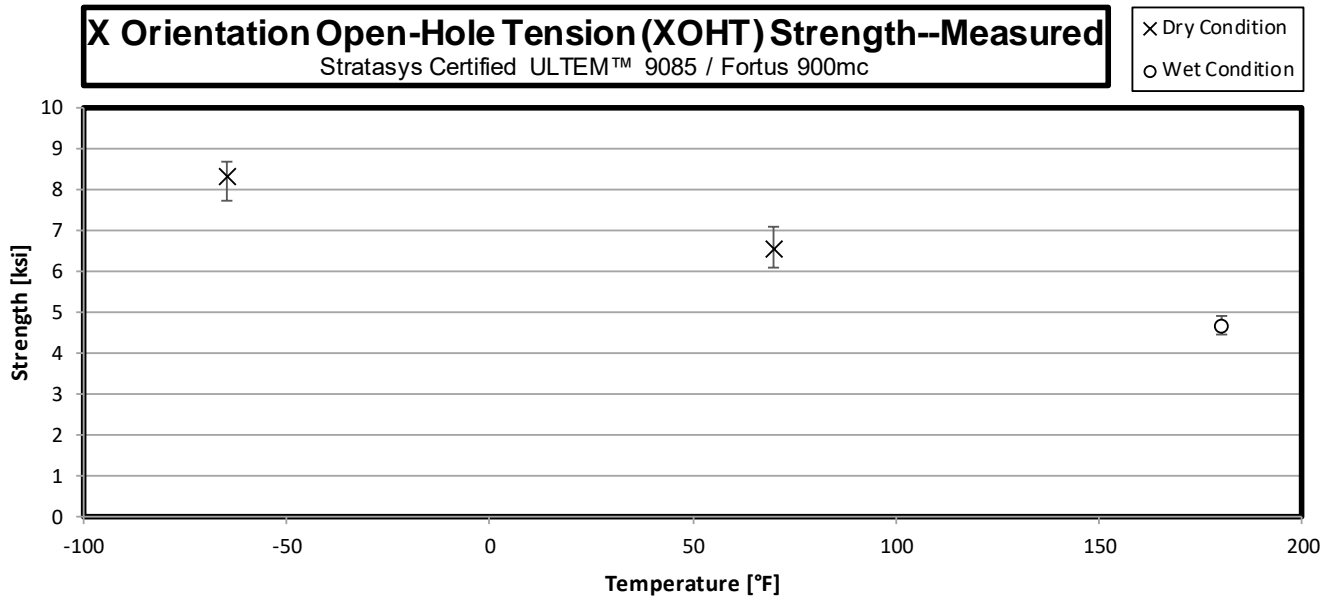


3.13 X V-Notch In-Plane Shear Properties (XVIPS)

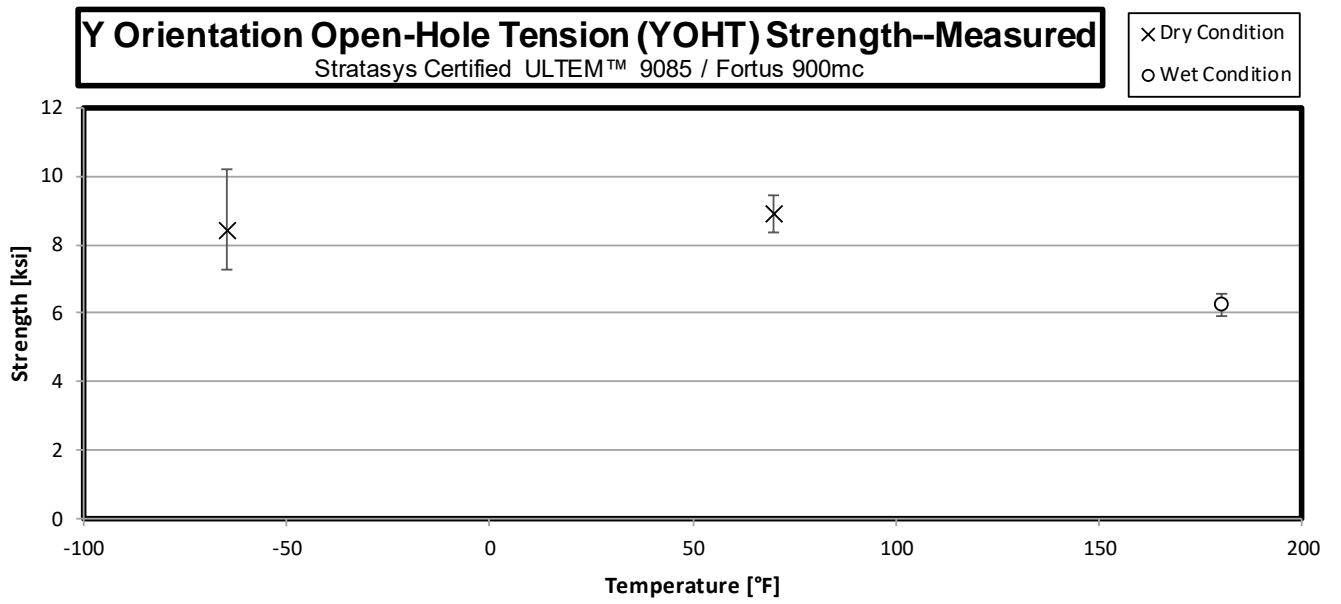




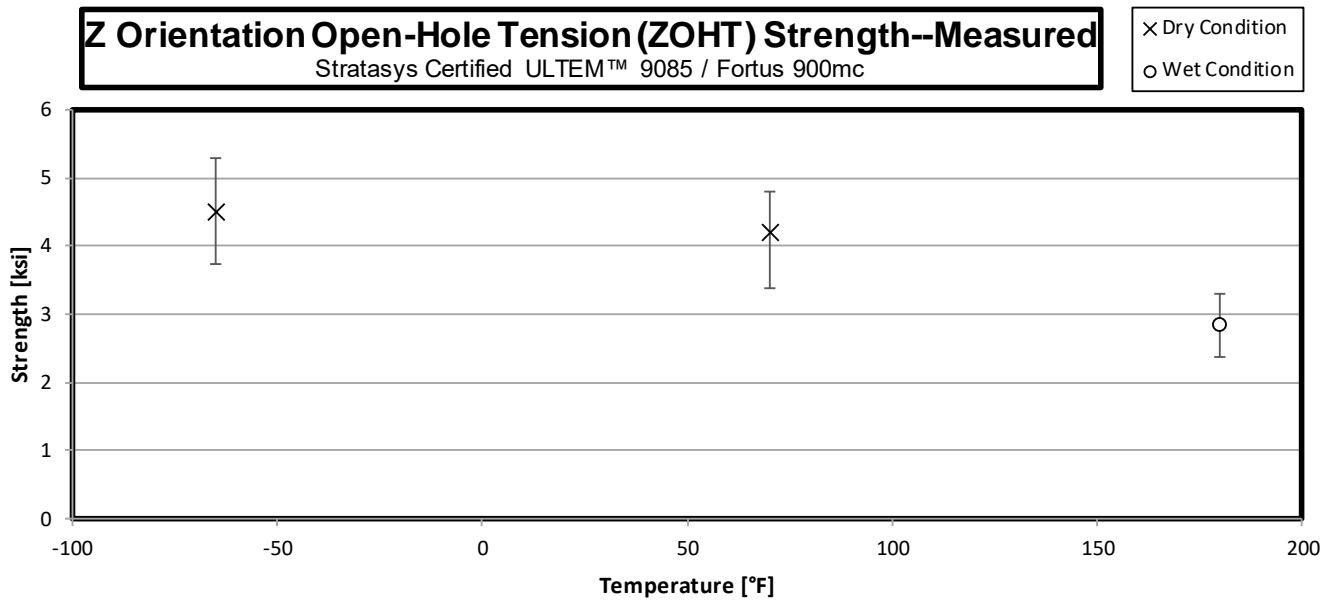
3.14 X Open-Hole Tension Properties (XOHT)



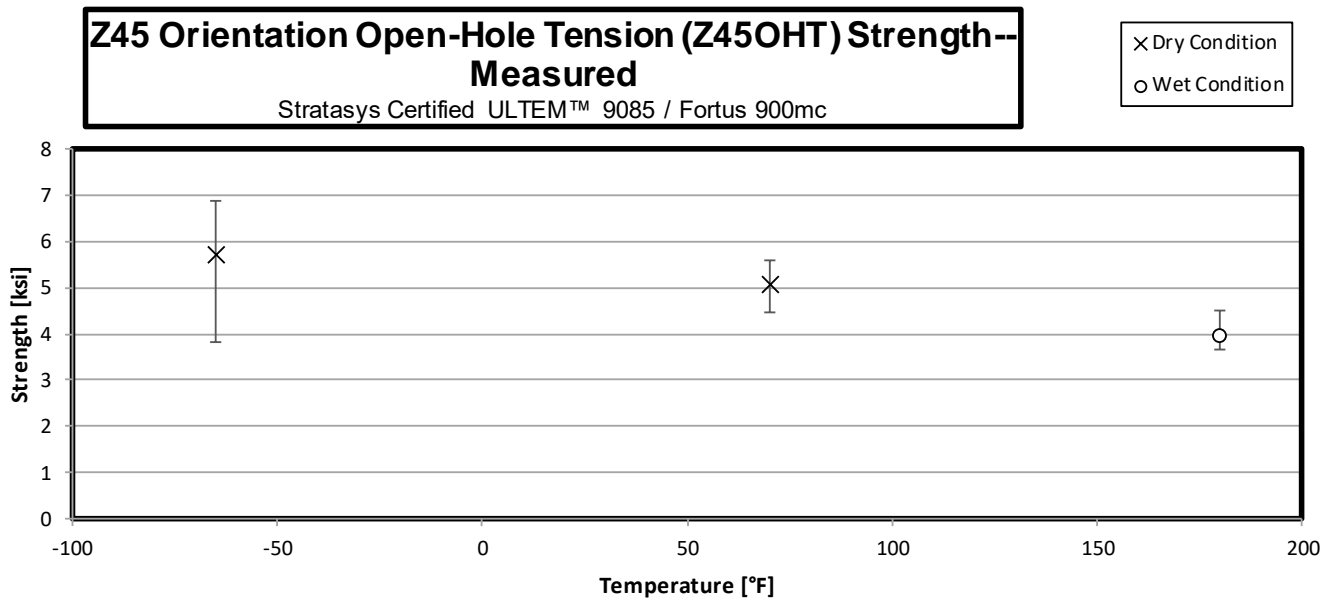
3.15 Y Open-Hole Tension Properties (YOHT)



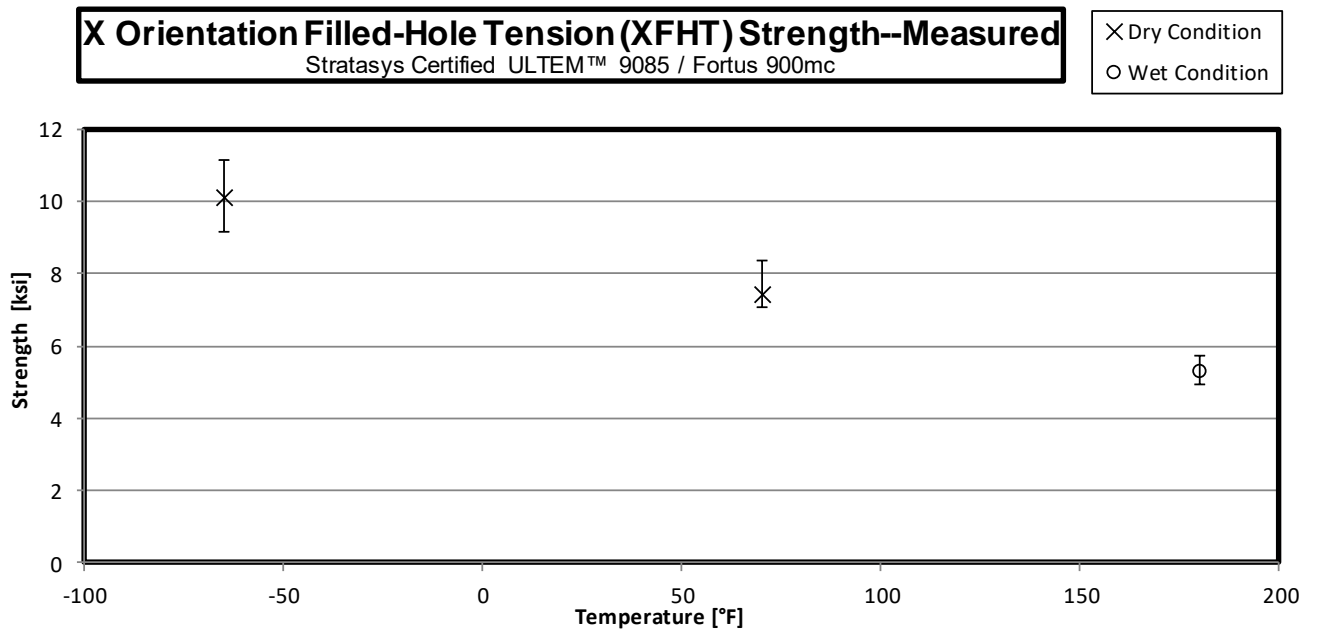
3.16 Z Open-Hole Tension Properties (ZOHT)



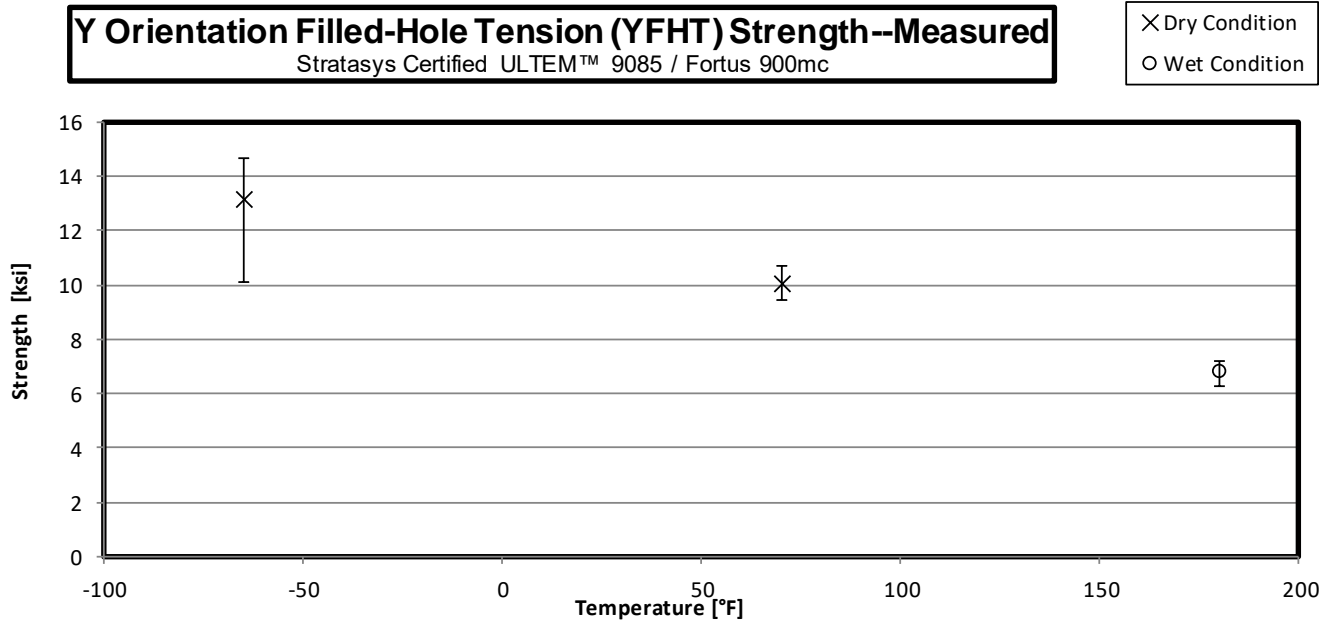
3.17 Z45 Open-Hole Tension Properties (Z45OHT)



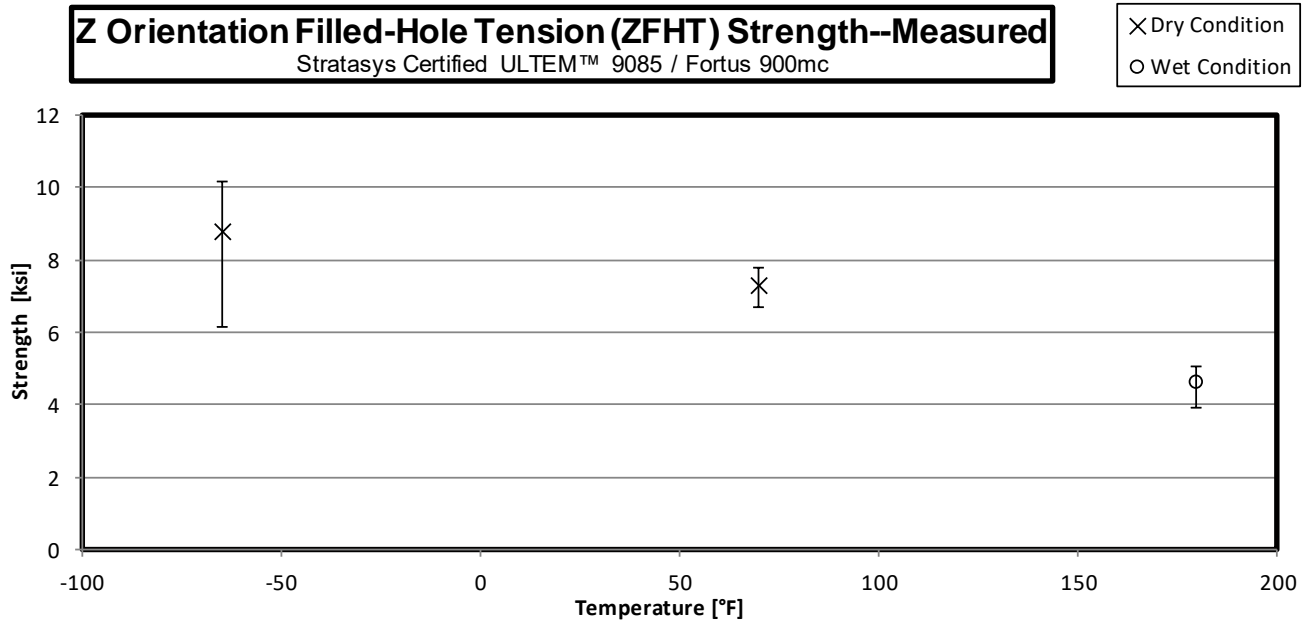
3.18 X Filled-Hole Tension Properties (XFHT)



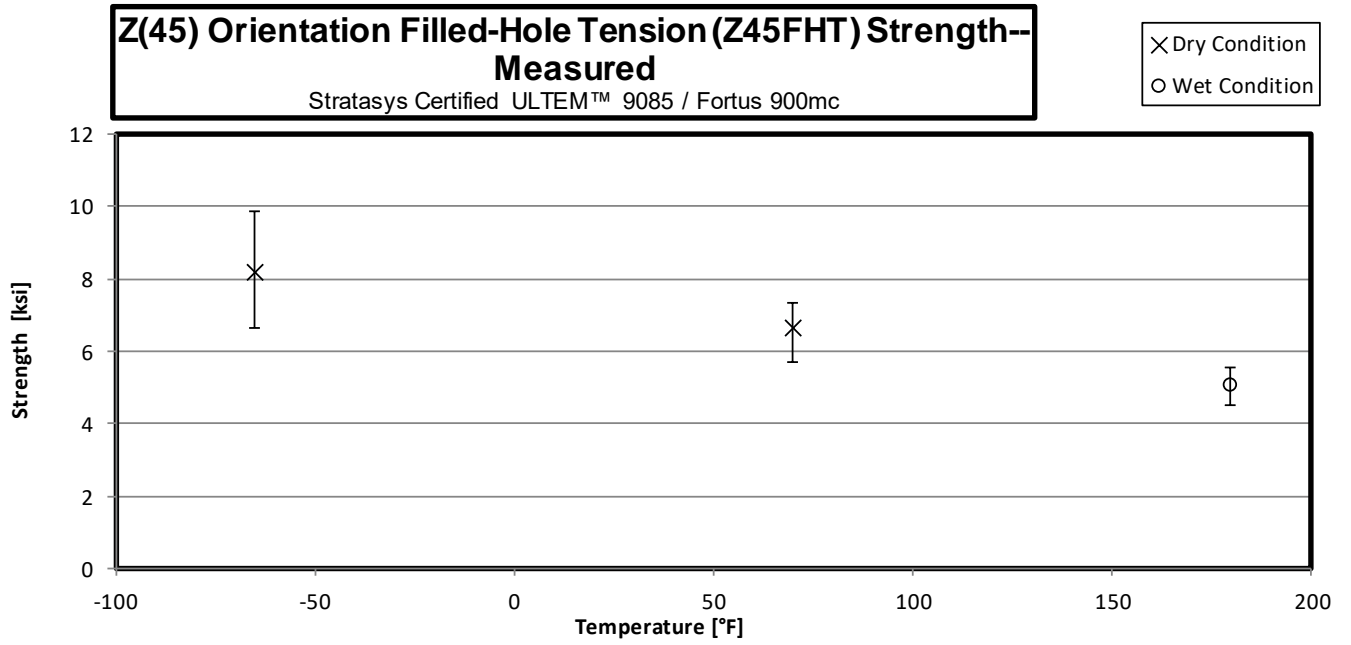
3.19 Y Filled-Hole Tension Properties (YFHT)



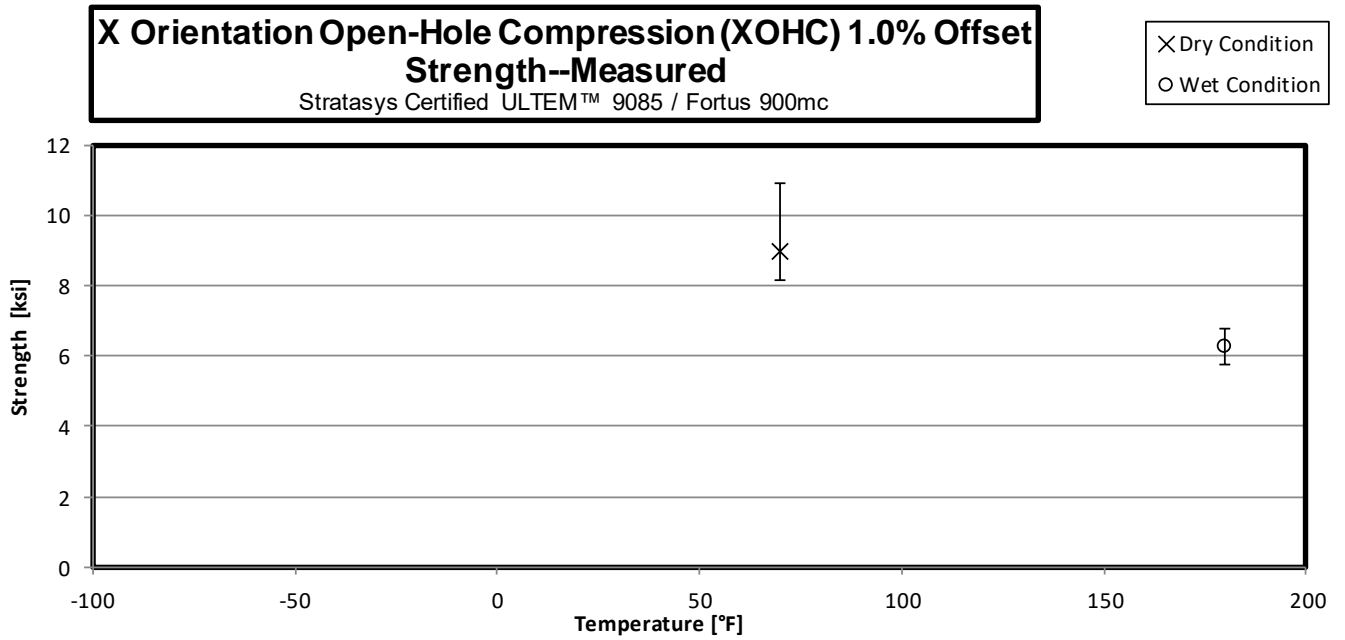
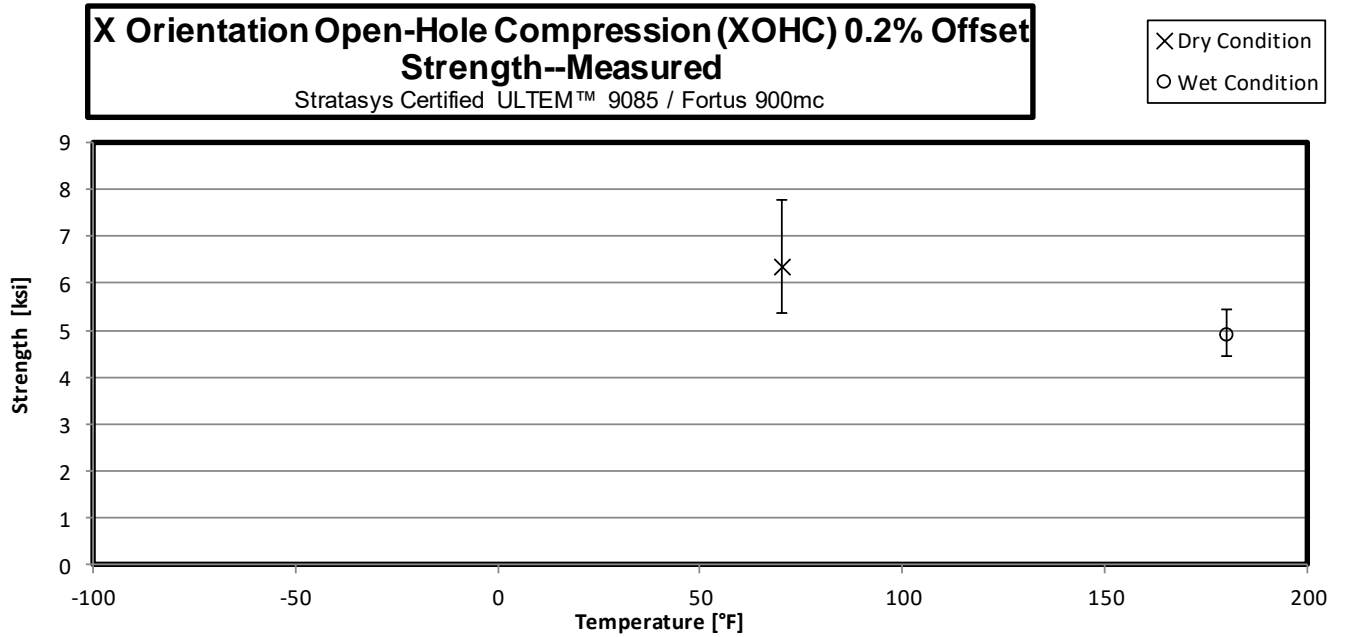
3.20 Z Filled-Hole Tension Properties (ZFHT)



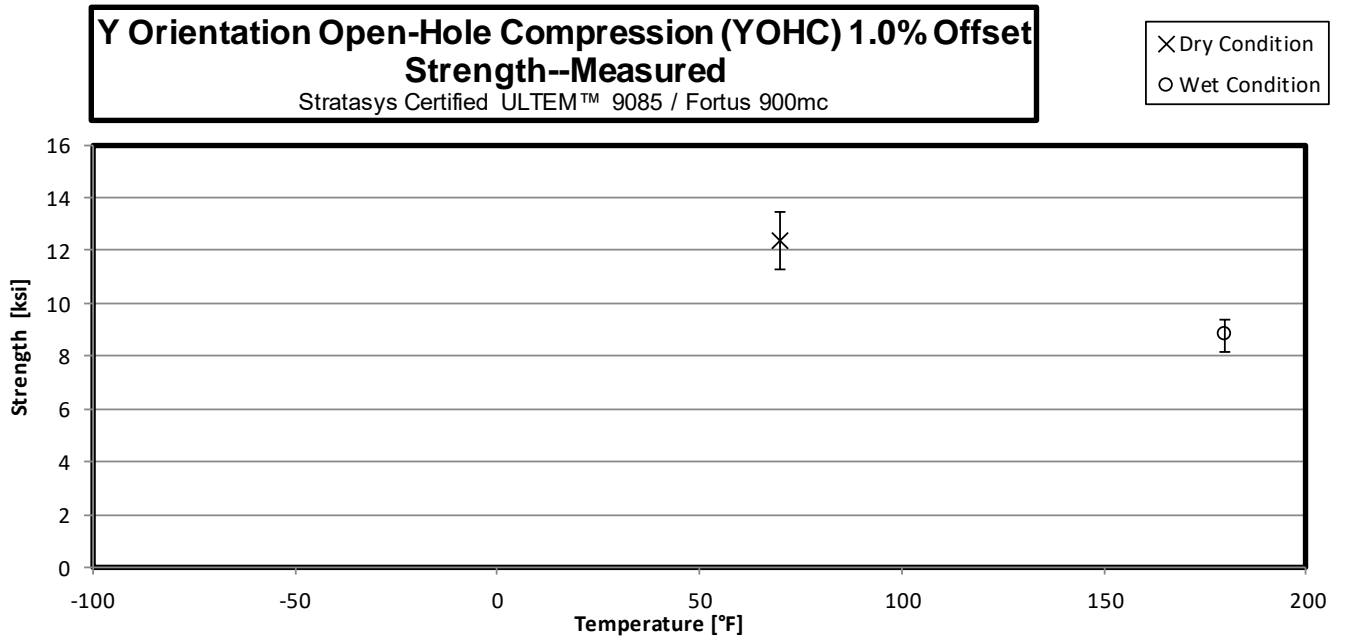
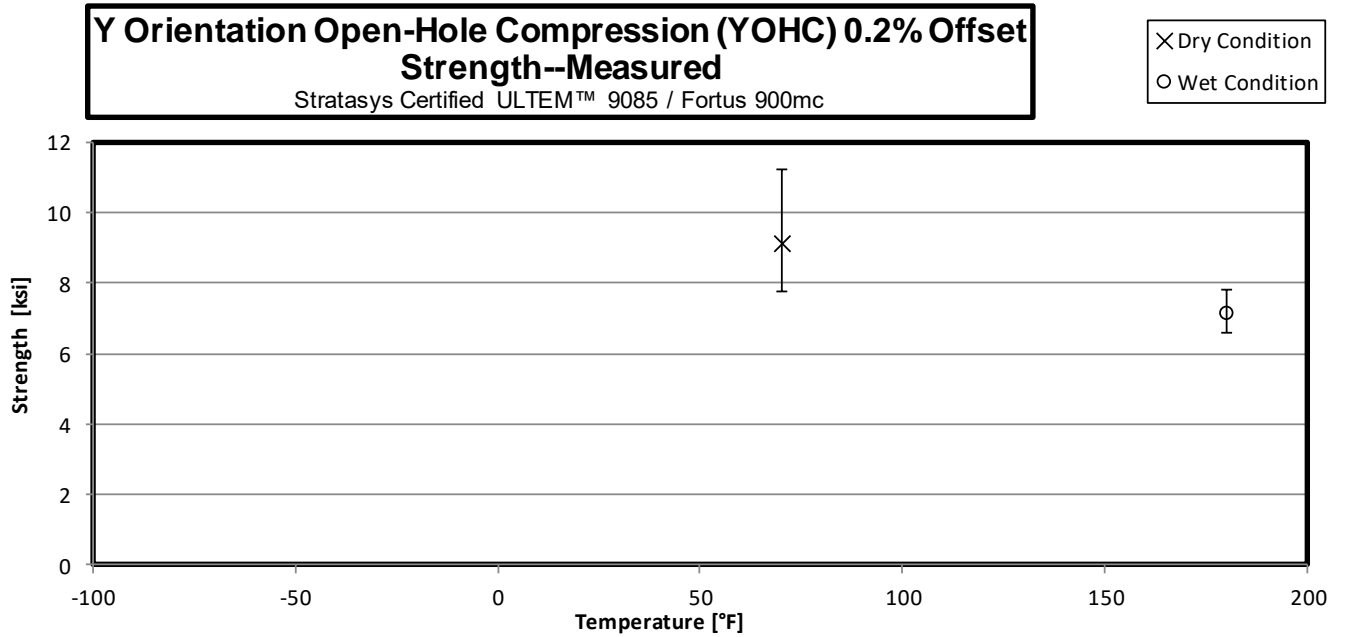
3.21 Z45 Filled-Hole Tension Properties (Z45FHT)



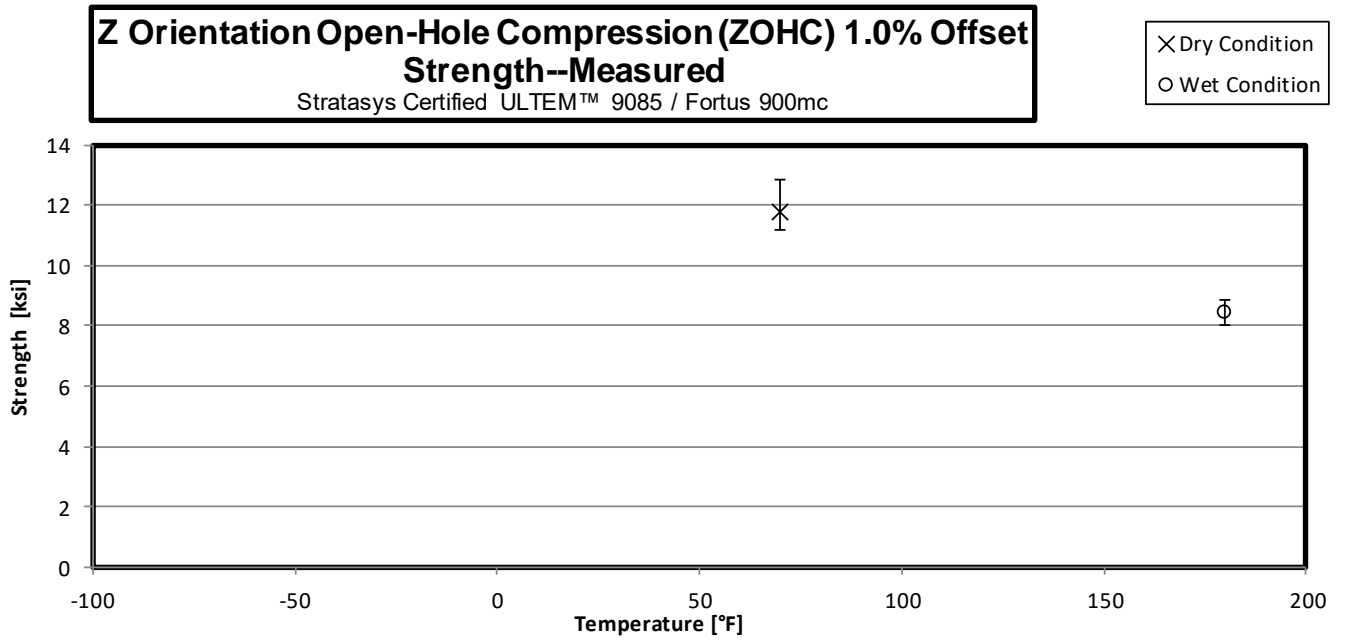
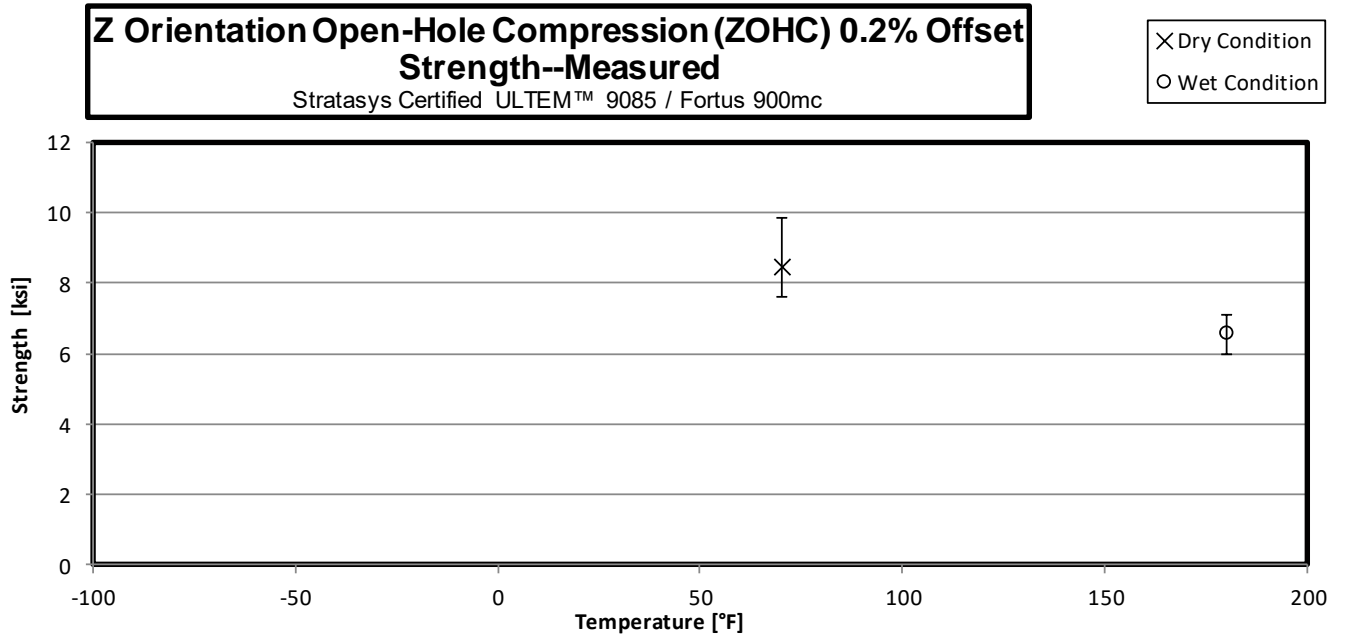
3.22 X Open-Hole Compression Properties (XOHC) – Reference Only



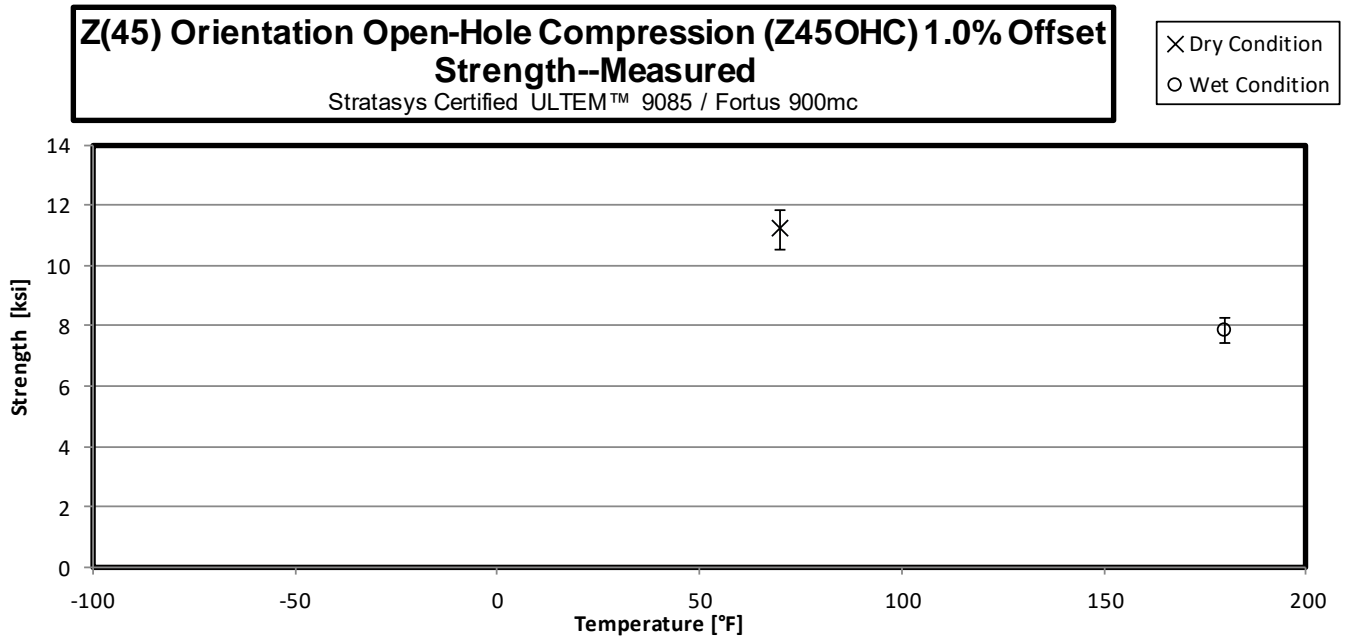
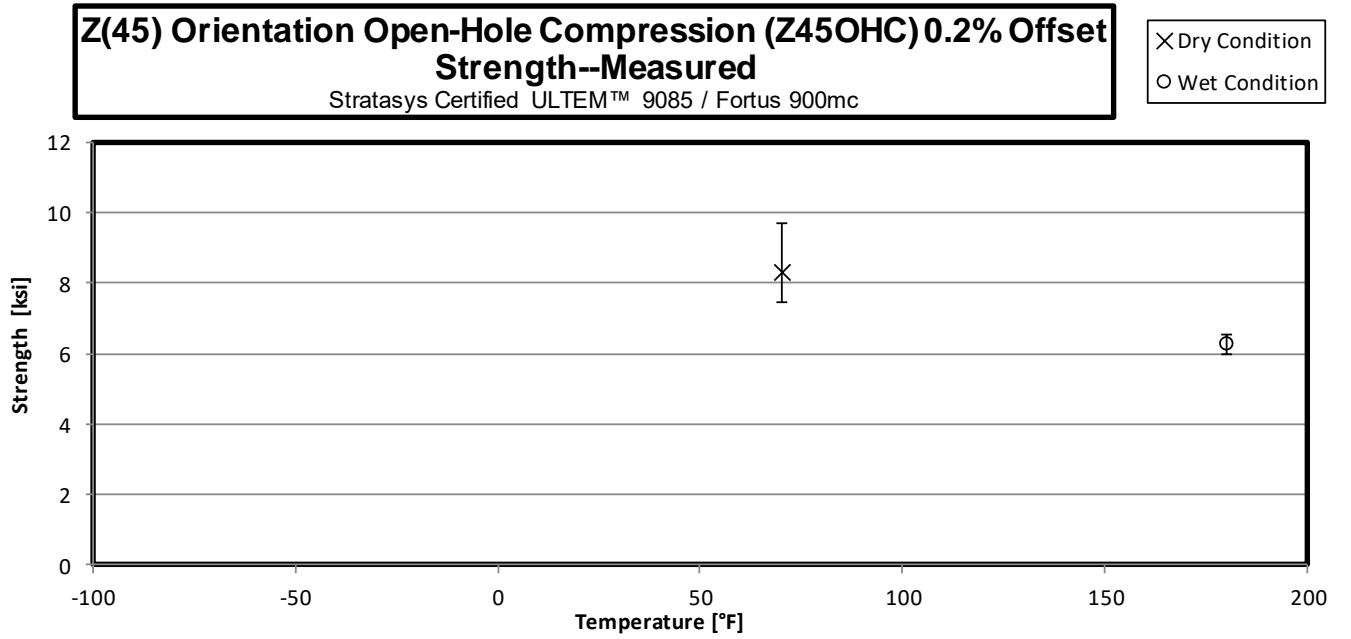
3.23 Y Open-Hole Compression Properties (YOHC) – Reference Only



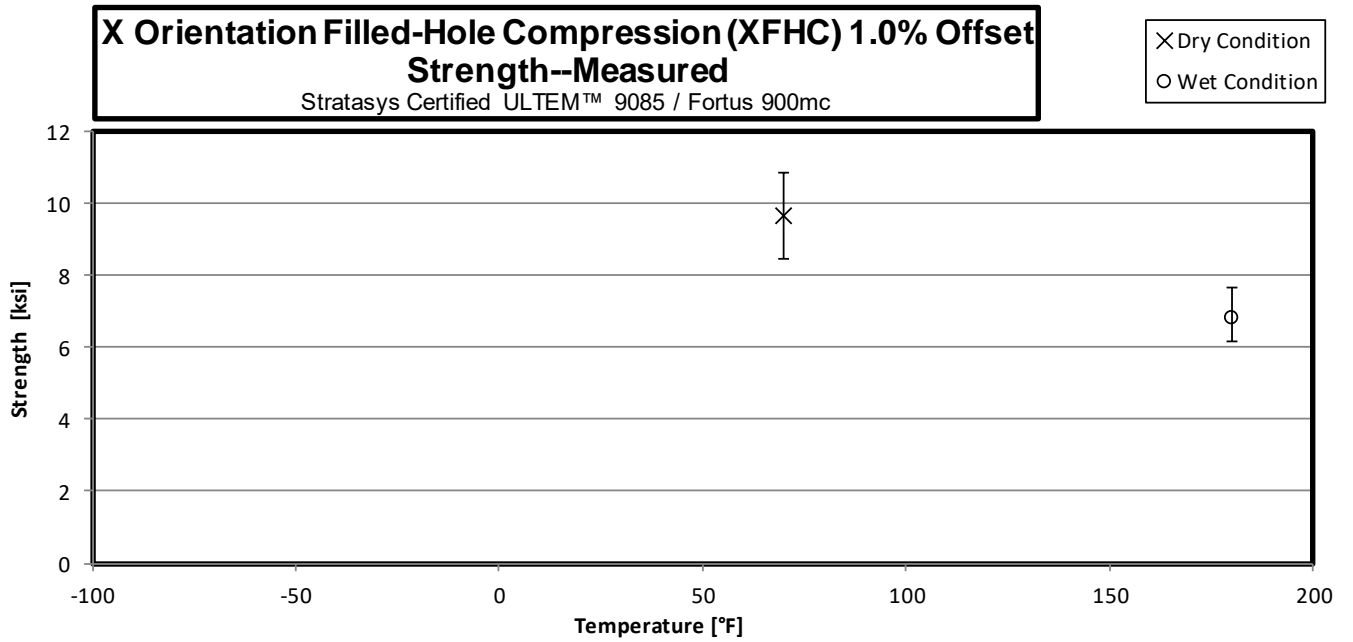
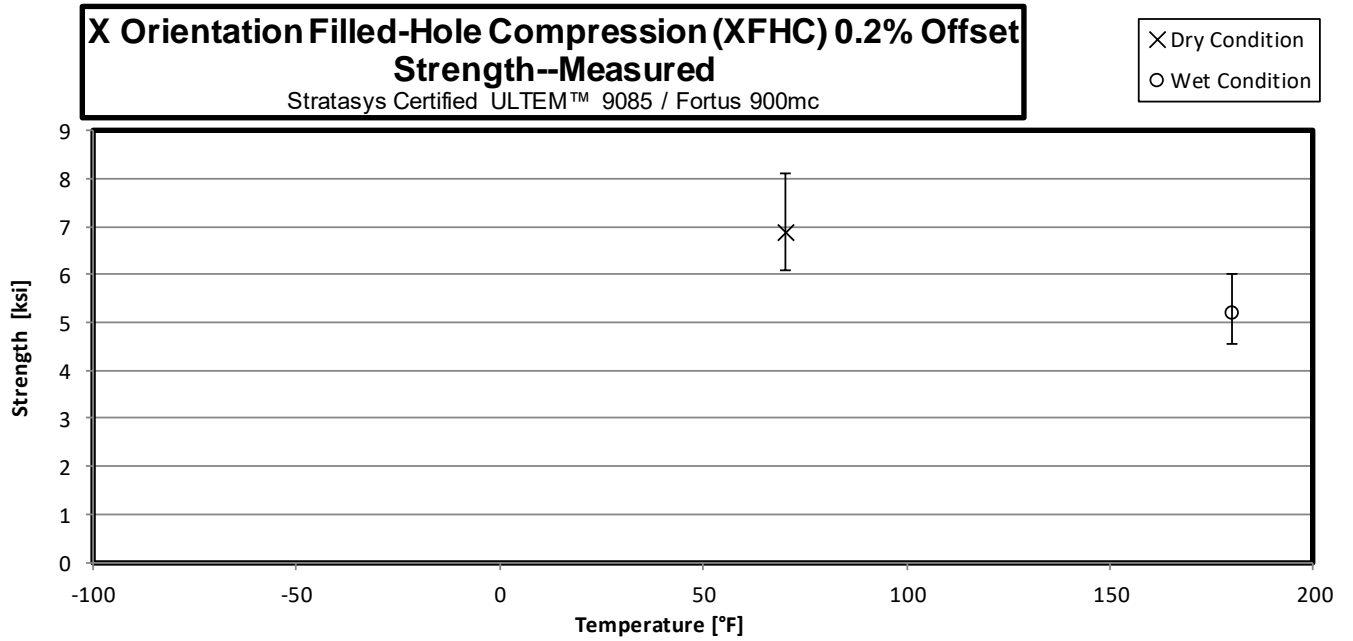
3.24 Z Open-Hole Compression Properties (ZOHC) – Reference Only



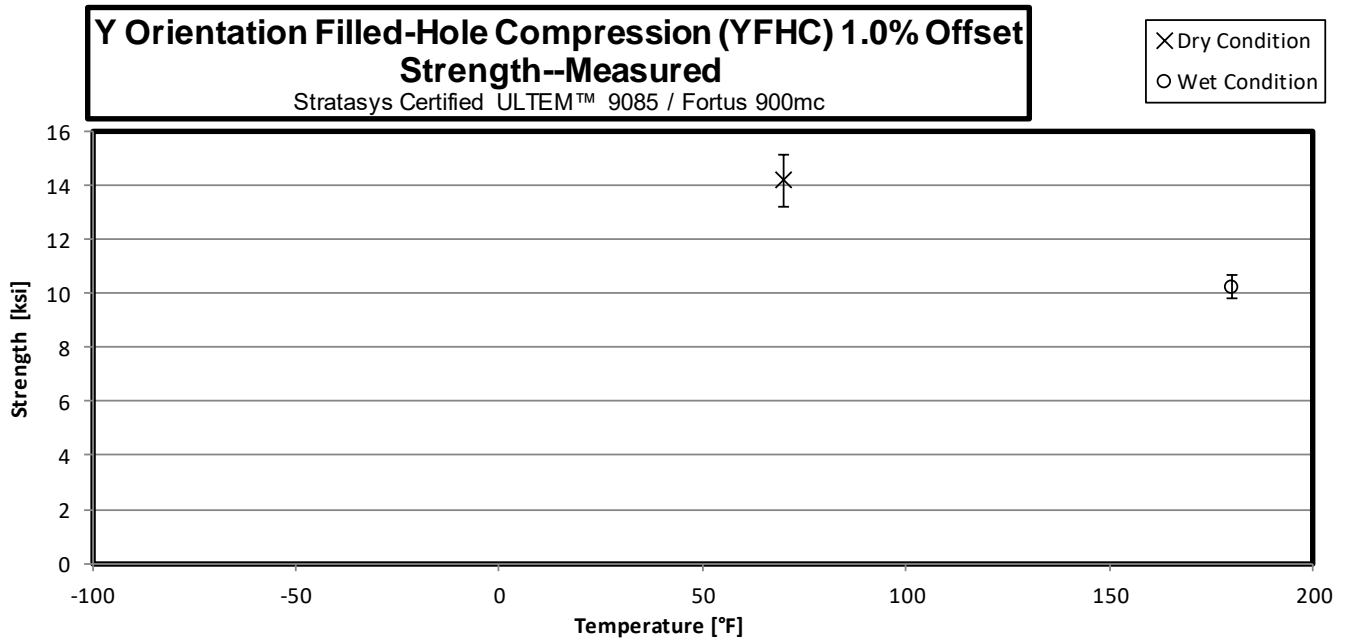
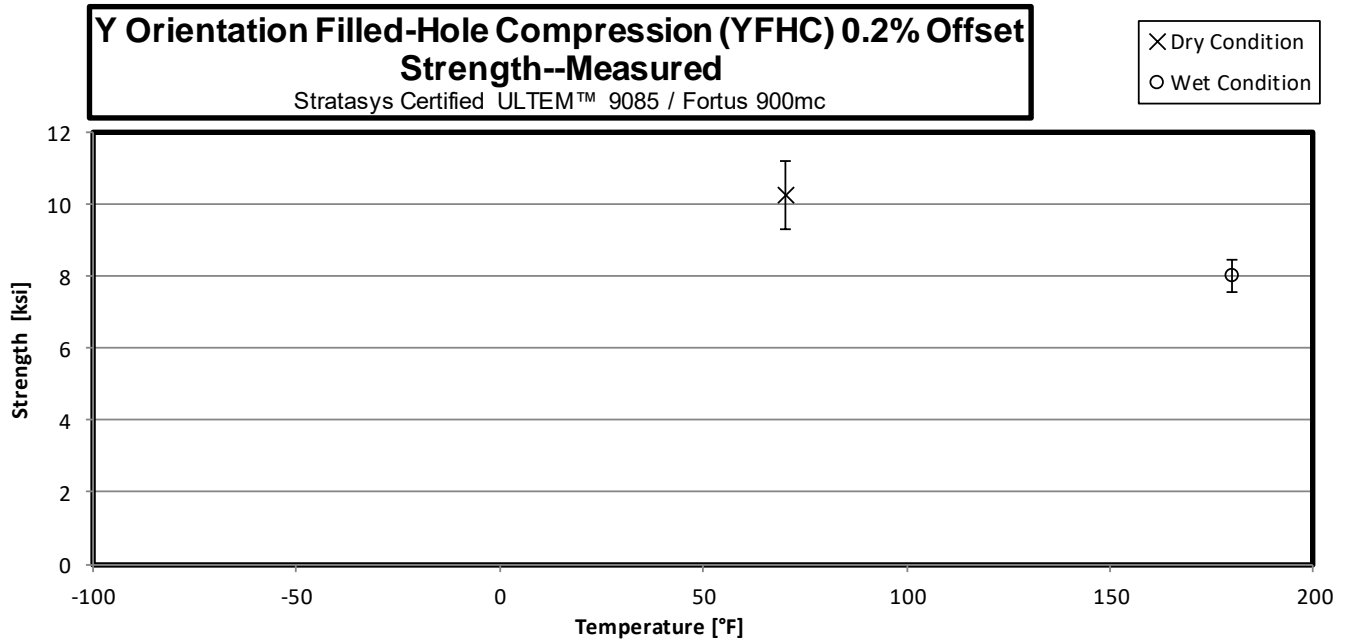
3.25 Z45 Open-Hole Compression Properties (Z45OHC) – Reference Only



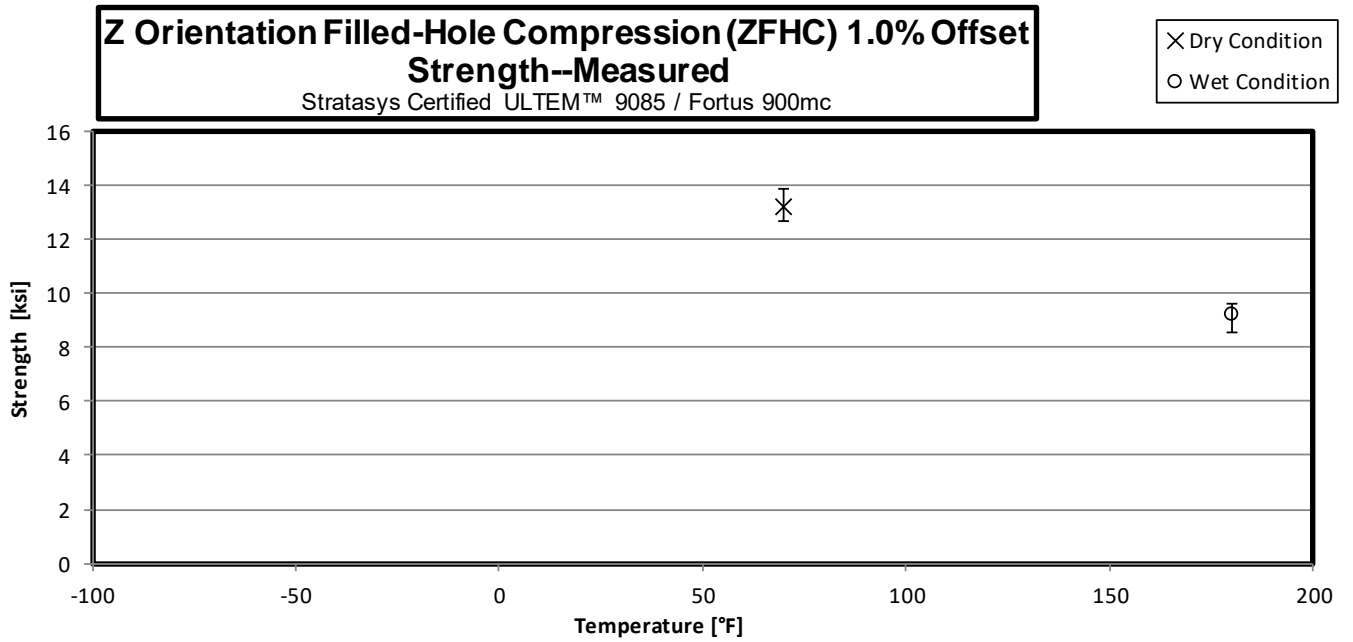
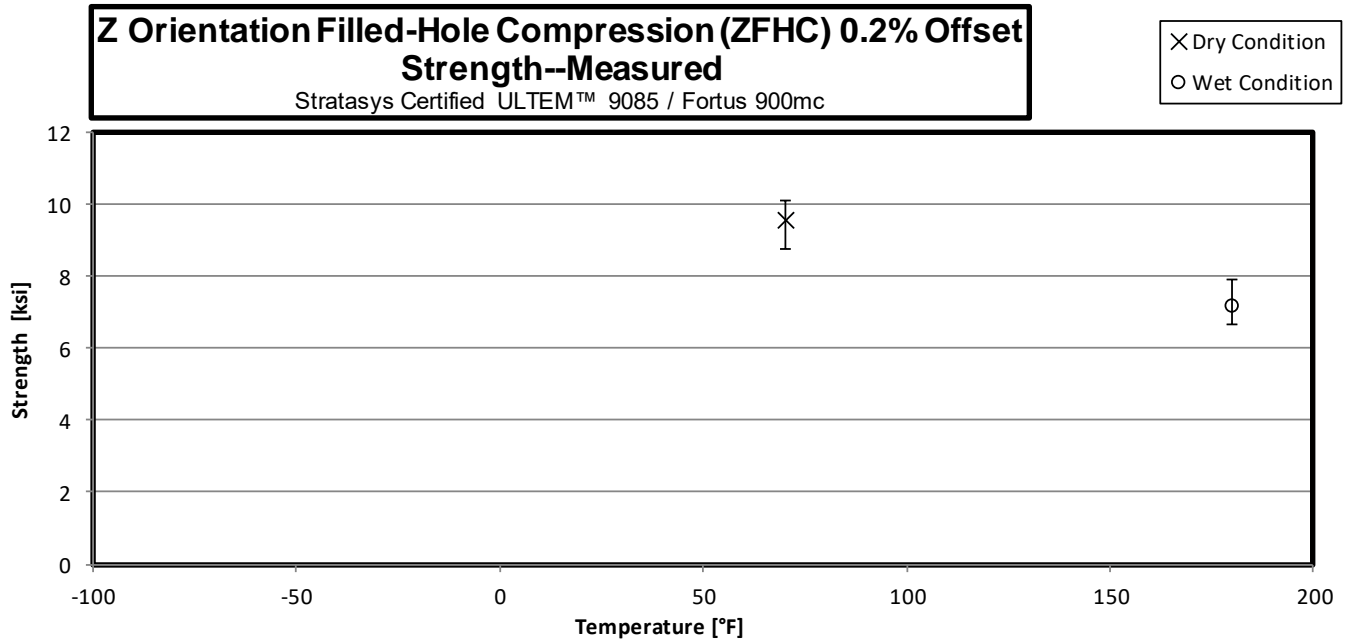
3.26 X Filled-Hole Compression Properties (XFHC) – Reference Only



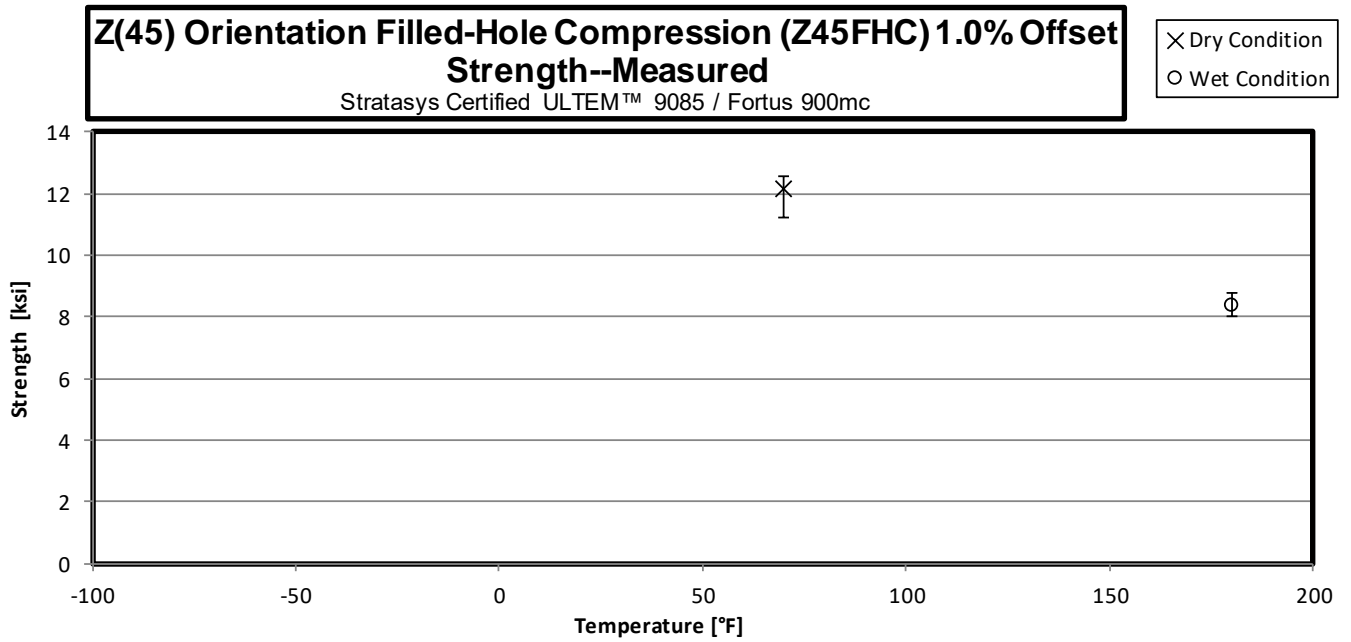
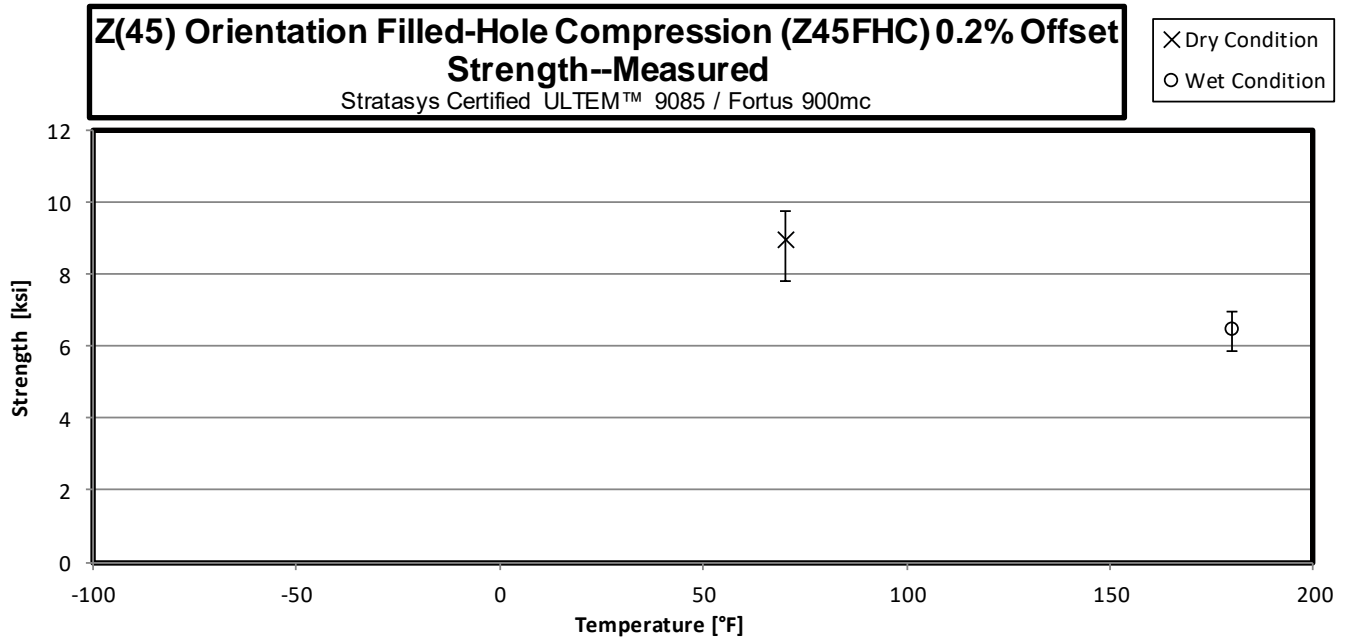
3.27 Y Filled-Hole Compression Properties (YFHC) – Reference Only



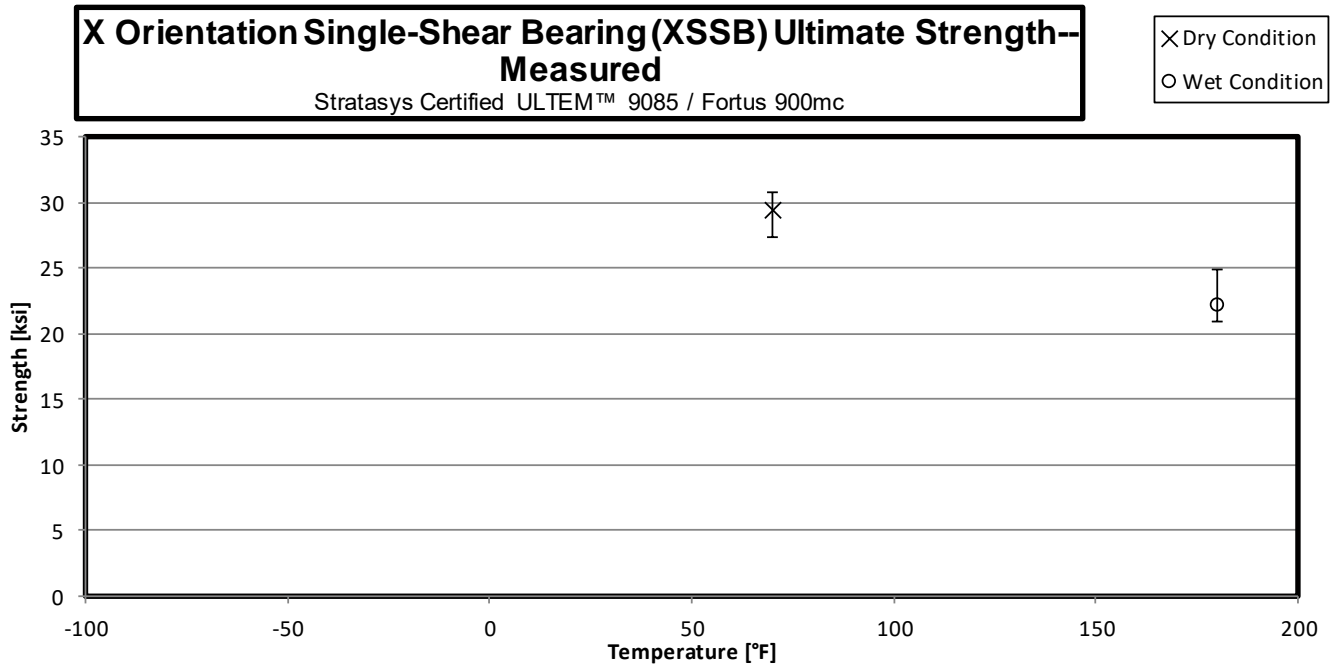
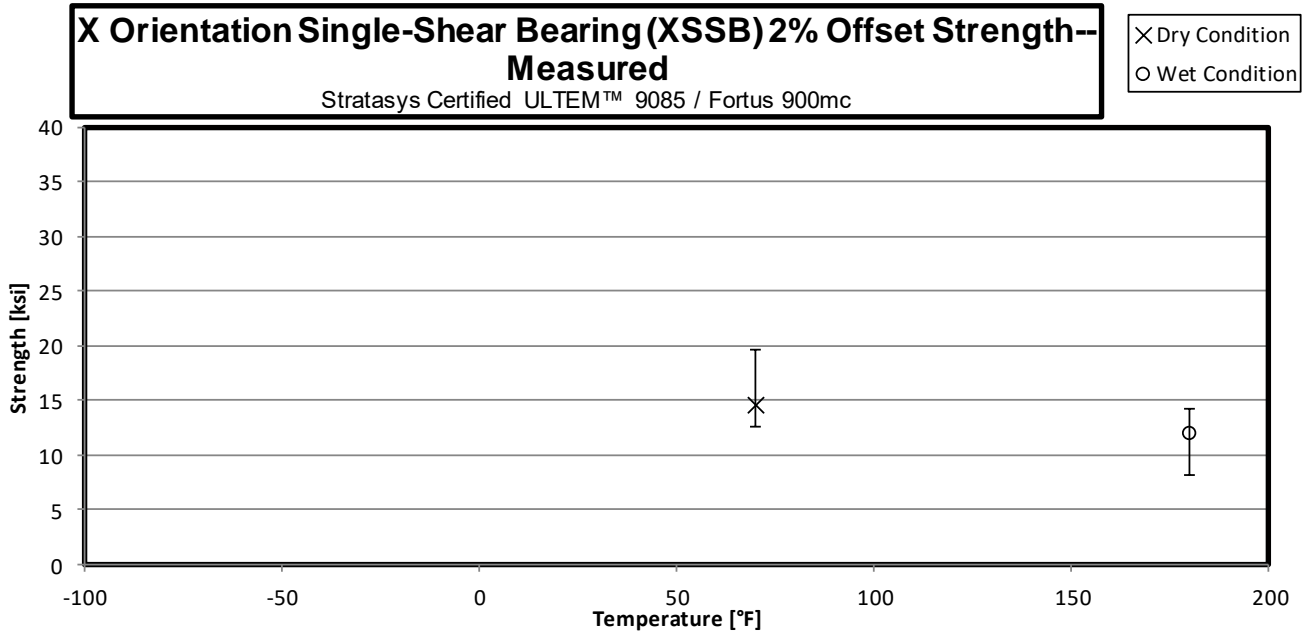
3.28 Z Filled-Hole Compression Properties (ZFHC) – Reference Only



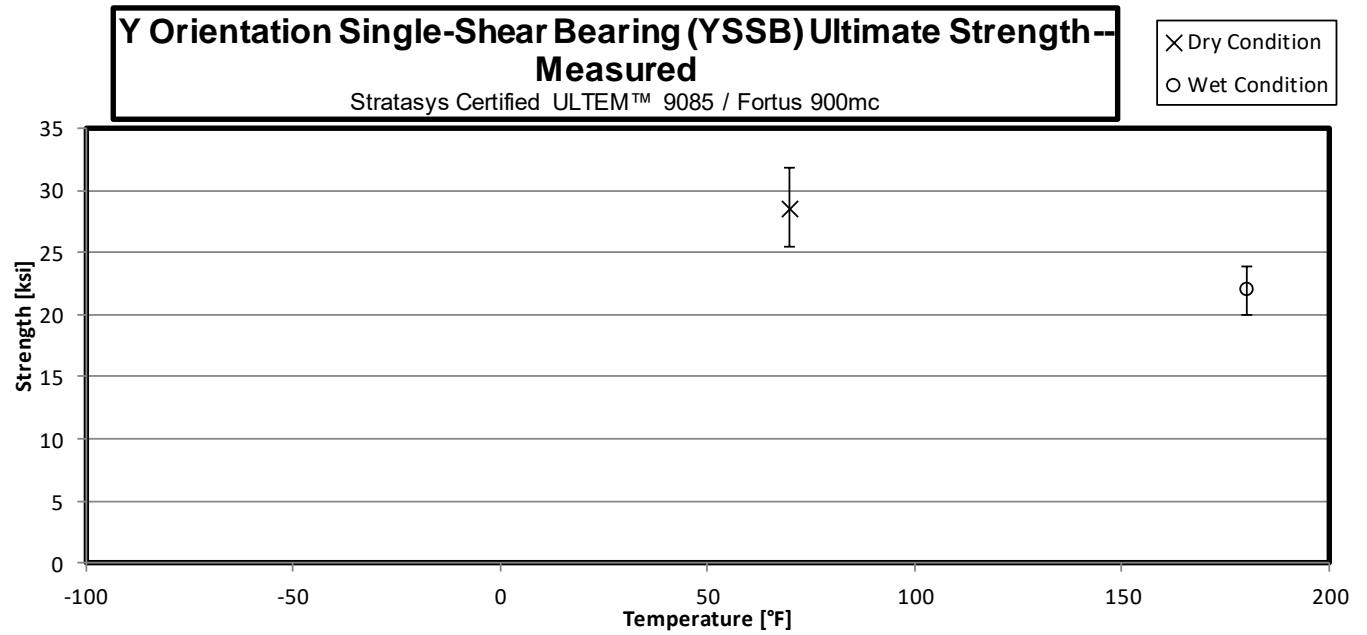
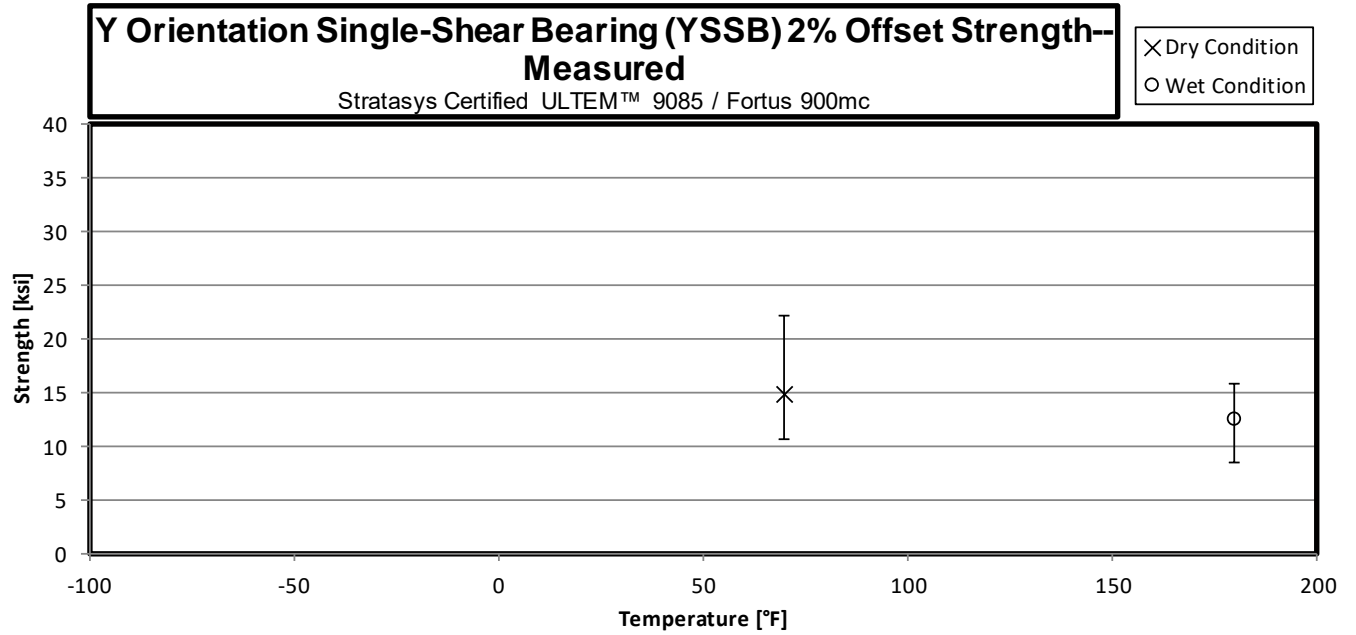
3.29 Z45 Filled-Hole Compression Properties (Z45FHC) – Reference Only



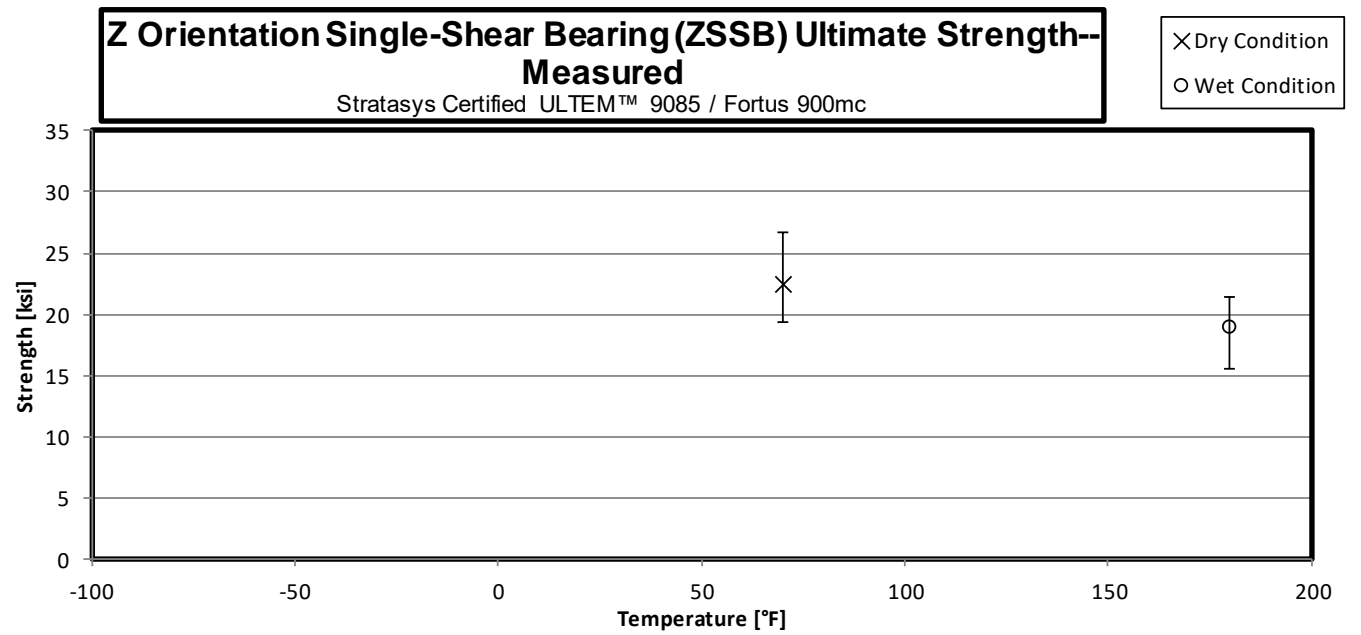
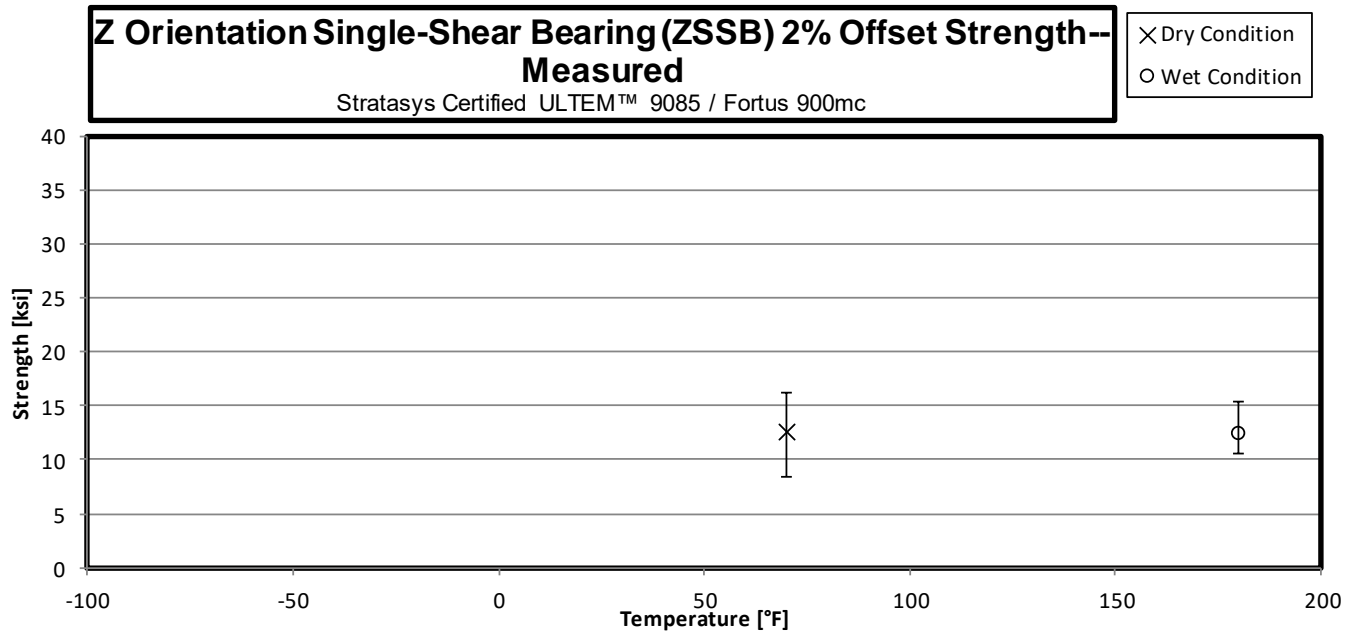
3.30 X Single-Shear Bearing Properties (XSSB)



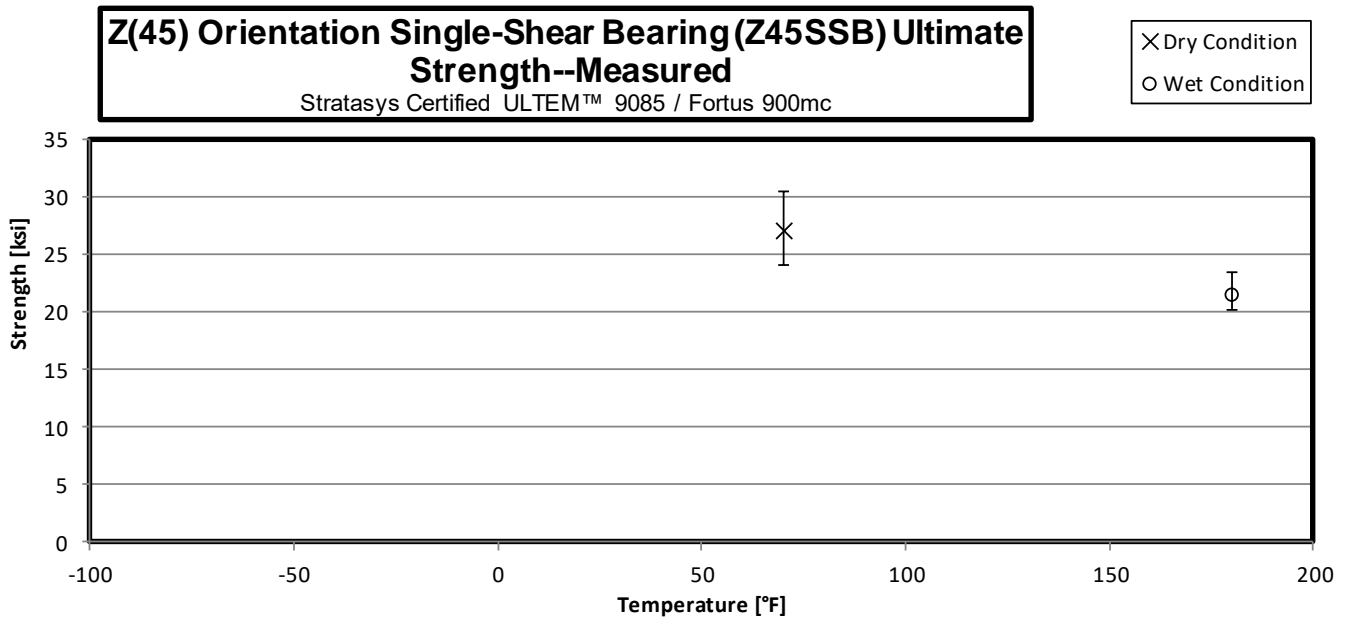
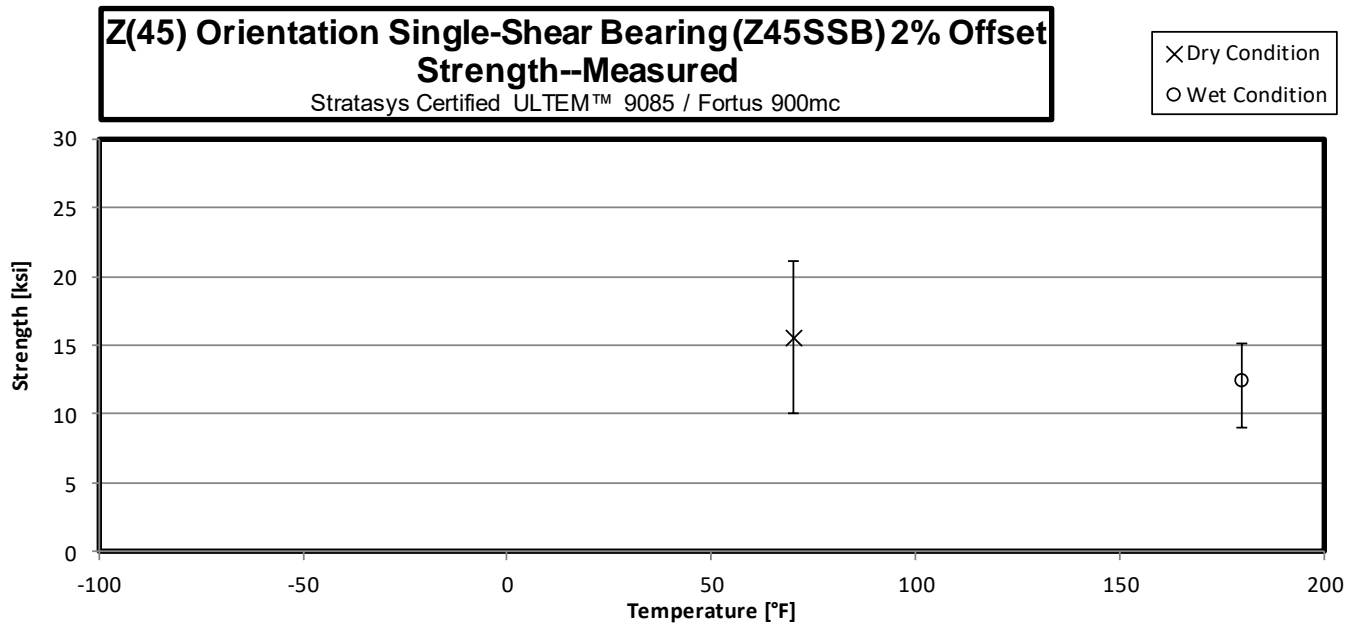
3.31 Y Single-Shear Bearing Properties (YSSB)



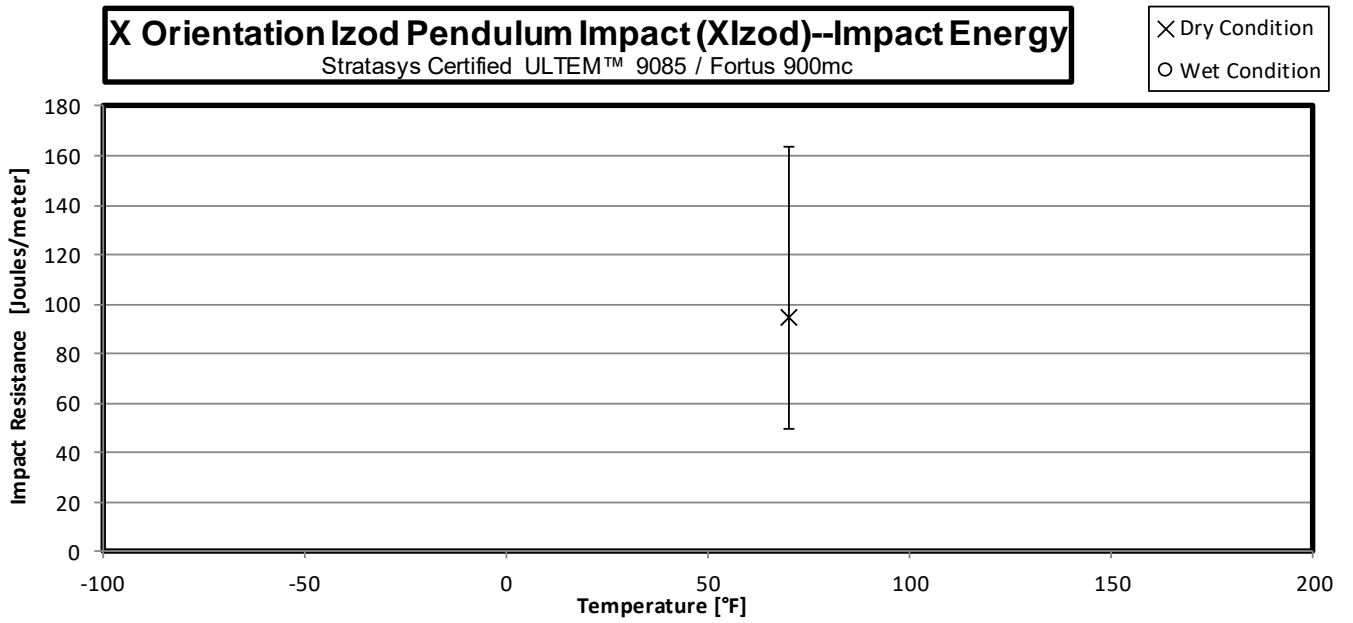
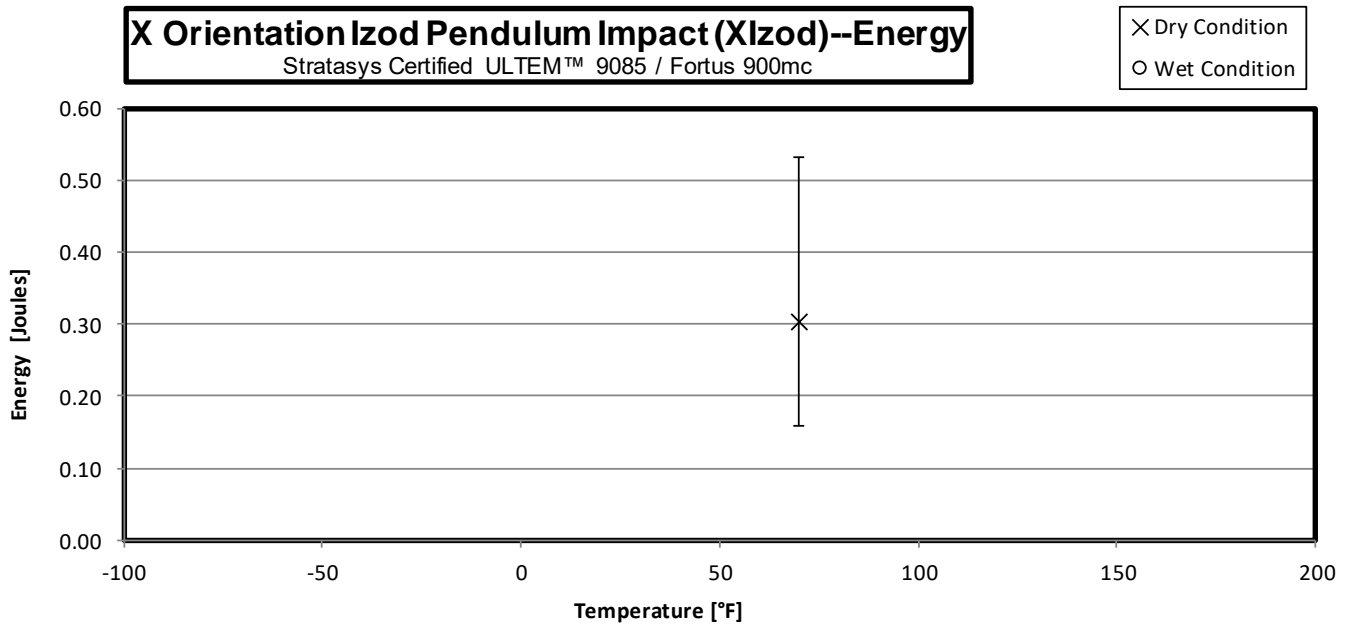
3.32 Z Single-Shear Bearing Properties (ZSSB)



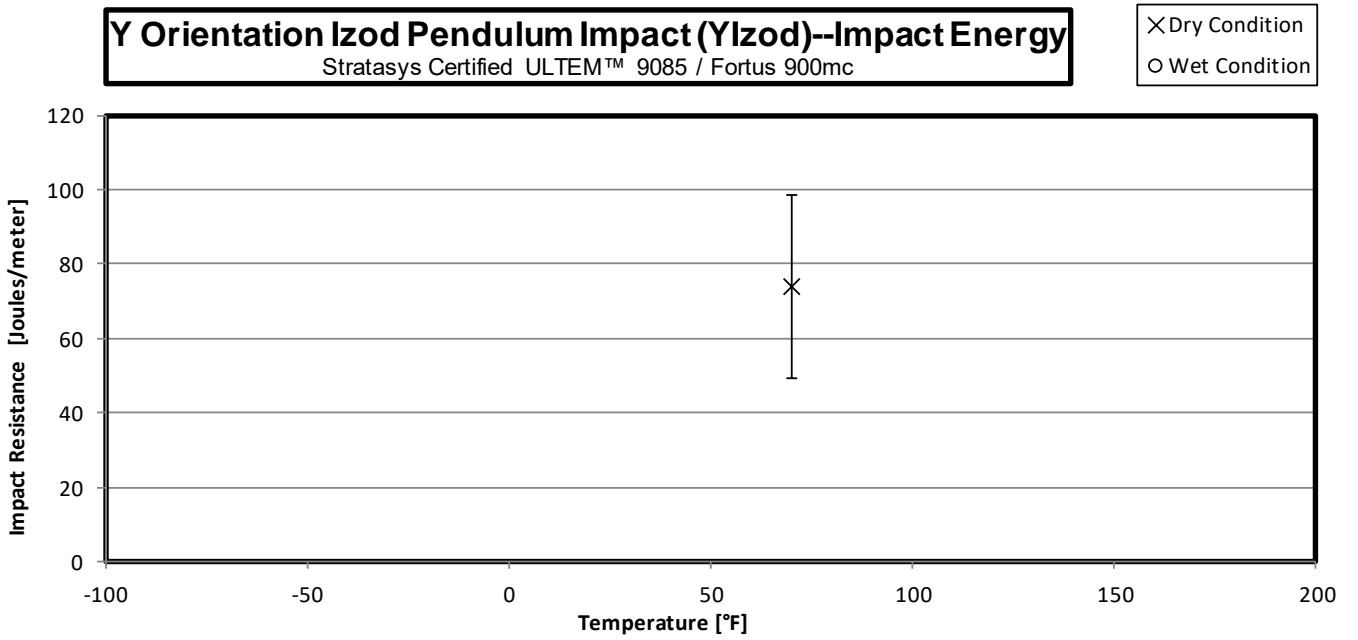
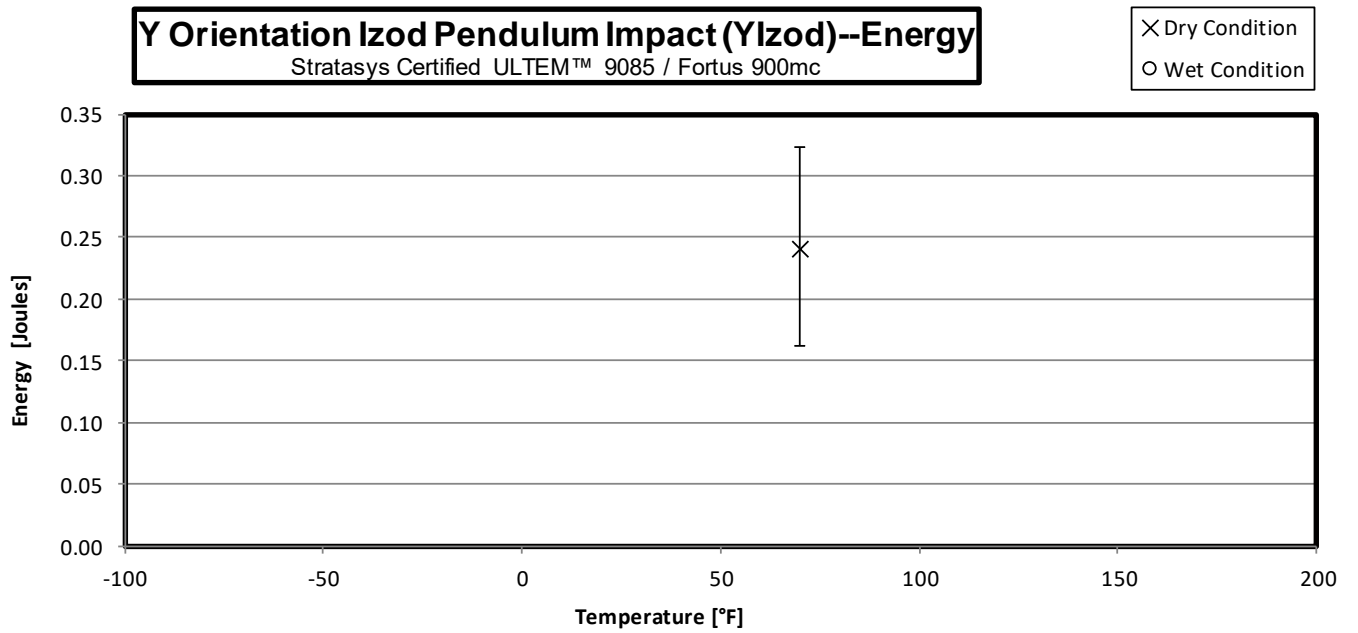
3.33 Z45 Single-Shear Bearing Properties (Z45SSB)



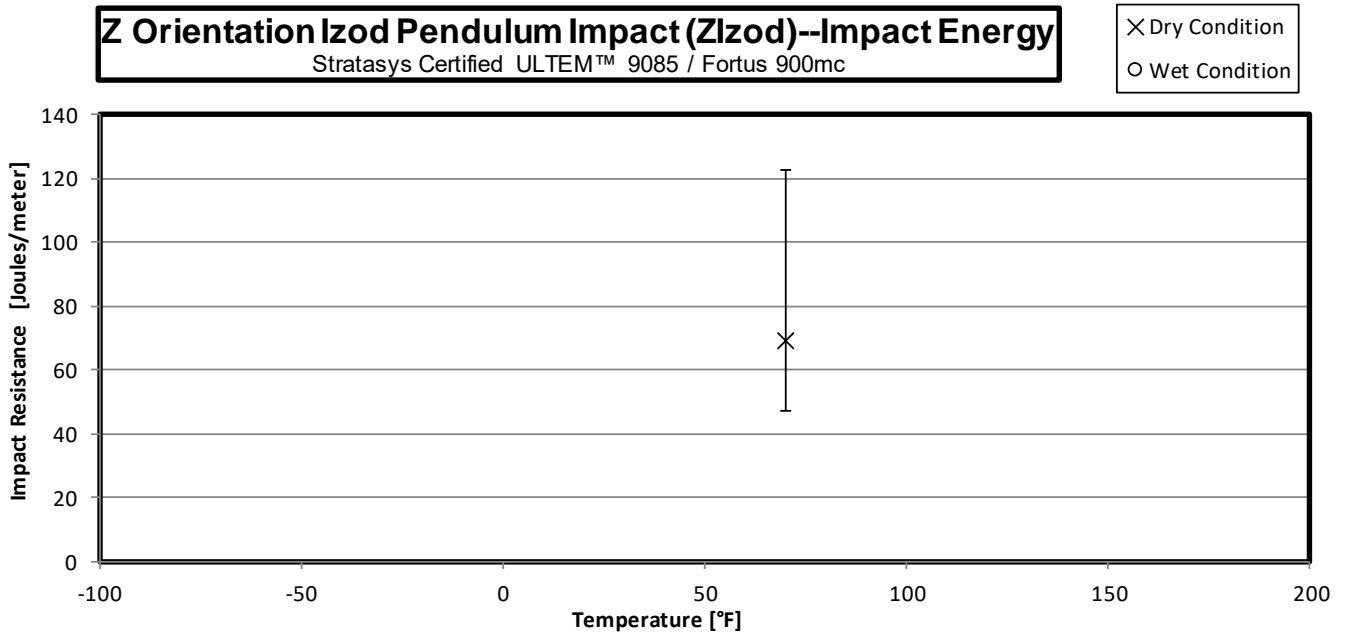
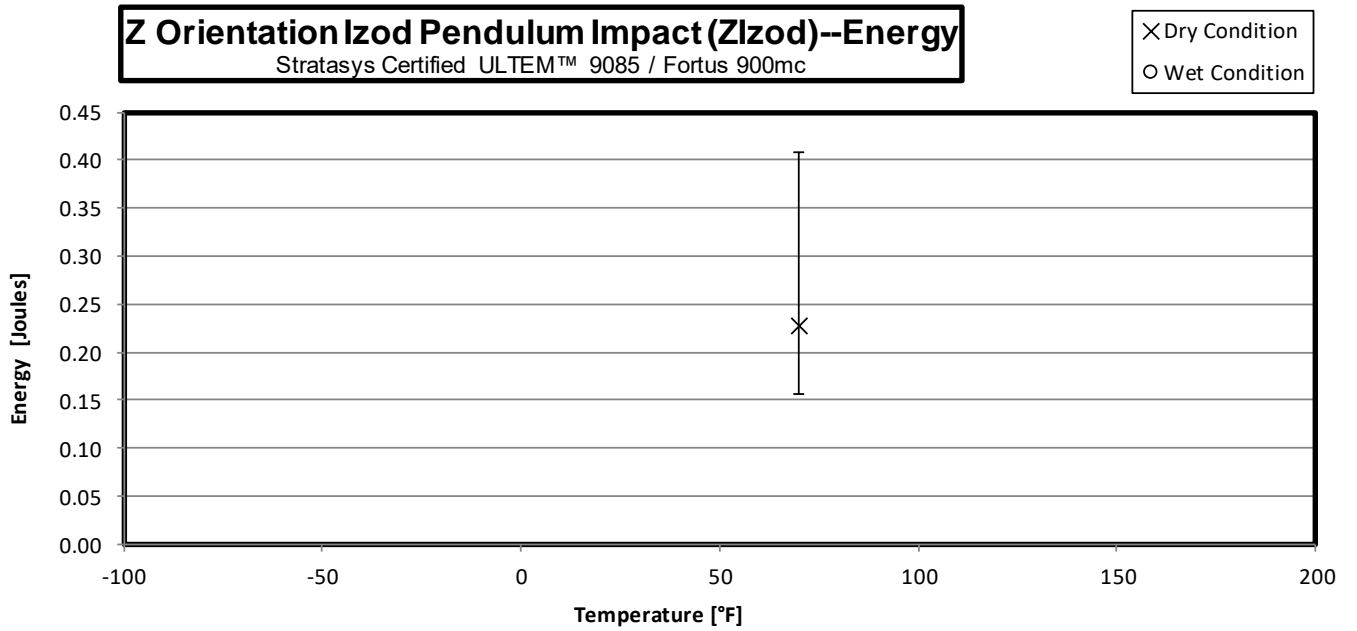
3.34 X Izod Impact Resistance Properties (XIzod) – Reference Only



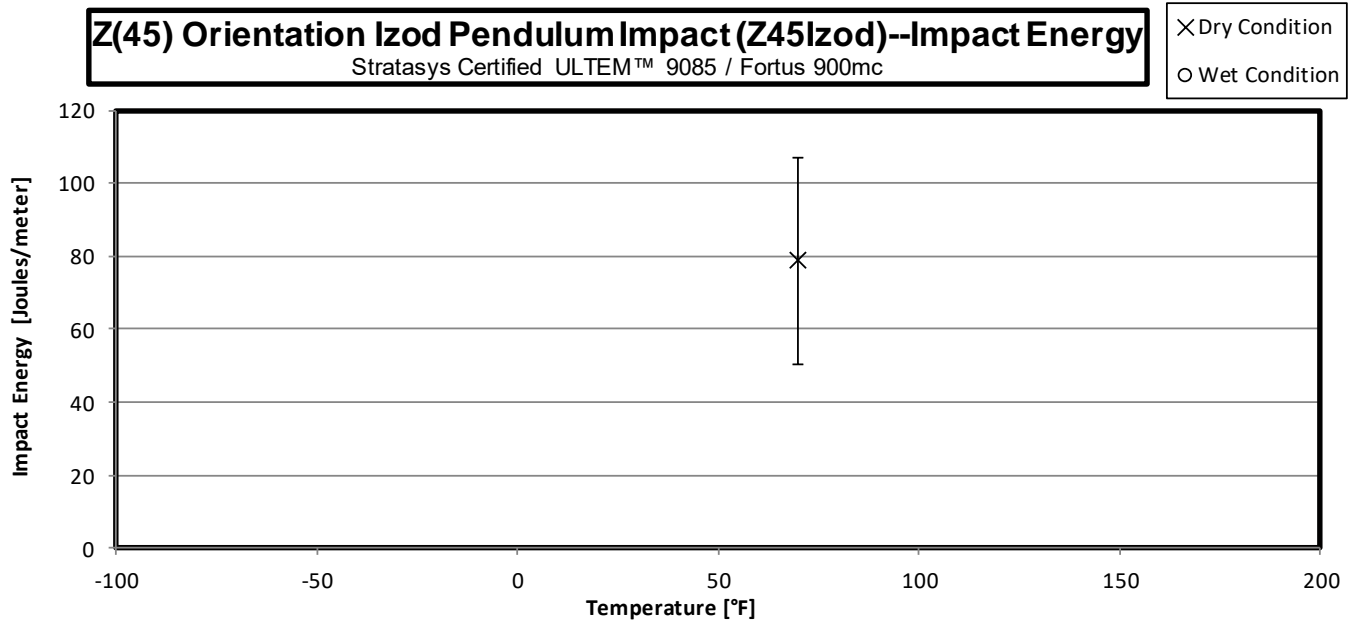
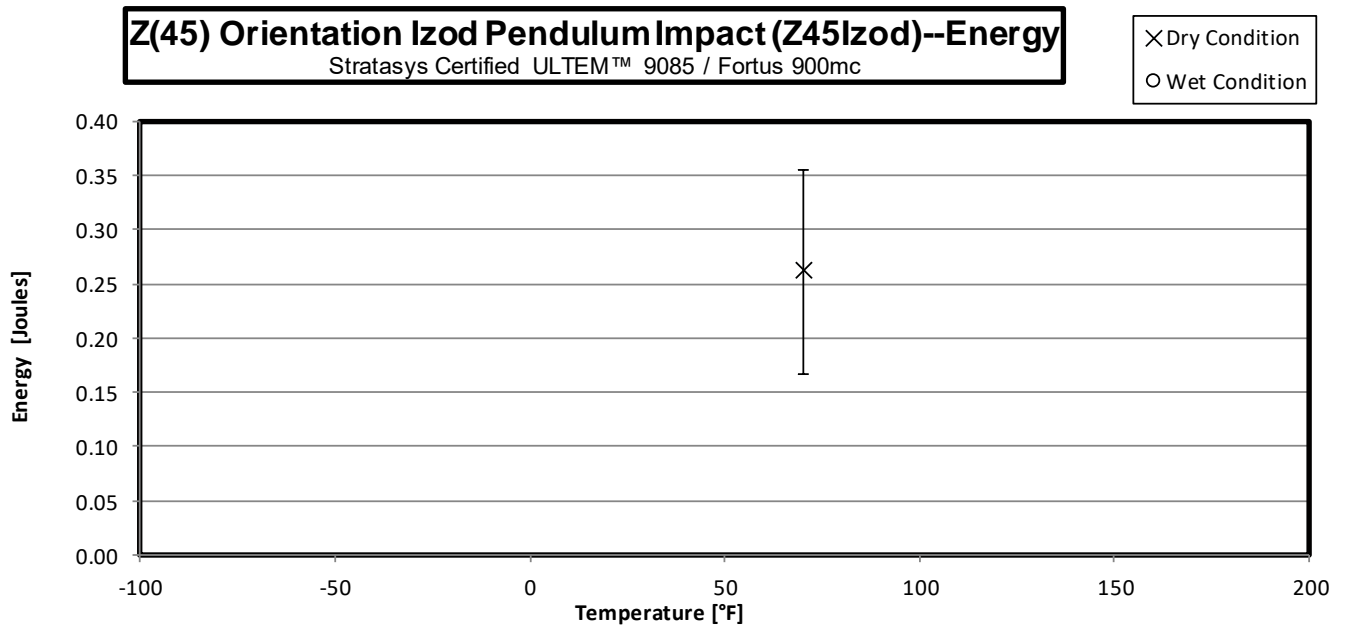
3.35 Y Izod Impact Resistance Properties (YIzod) – Reference Only



3.36 Z Izod Impact Resistance Properties (ZIzod) – Reference Only



3.37 Z45 Izod Impact Resistance Properties (Z45Izod) – Reference Only



4. Raw Data

Excessive specimen deformation was observed for ASTM D695 Compression, ASTM D6484 Open-Hole Compression, and ASTM D6742 Filled-Hole Compression; hence appropriate failure modes were not obtained.

Where bearing failures are concerned, per ASTM D5961-17, section 11.5 dictates that results should not be reported for specimens where cleavage and lateral tension failure modes are observed. In this case, where a non-reinforced polymer material is tested, these failure modes are observed and results should not be disregarded. CII (cleavage) and LII (lateral tension) failure modes are observed predominantly in the Y, Z, and Z45 print directions of the bearing test. These failures appear to be closely associated to the print direction and raster pattern combination for the coupons and may be the inherent behavior of Additively Manufactured ULTEM™ 9085. It is the responsibility of the user, engineers, and relevant authorities to ensure that these failure types are taken into consideration where a part design is concerned.

Continued review of the data has shown that ASTM D6484 (Standard Test Method for Open-Hole Compressive Strength of Polymer Matrix Composite Laminates) is an inappropriate test method for the ULTEM™ 9085 material and FDM process. Modifications to the fixture and strain collection method/device introduced additional variables to the OHC and FHC properties making it difficult to reproduce accurate and precise data necessary for a robust qualification and equivalency program.

4.1 X Tension Properties (XT)

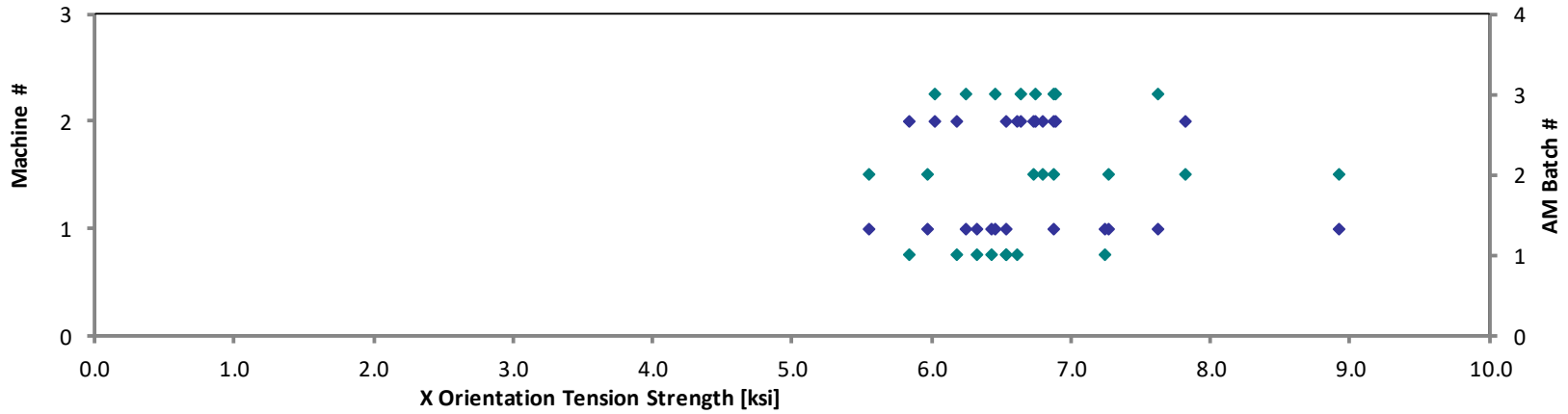
X Orientation Dogbone Tension Properties (XT)--CTD**Strength & Modulus**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

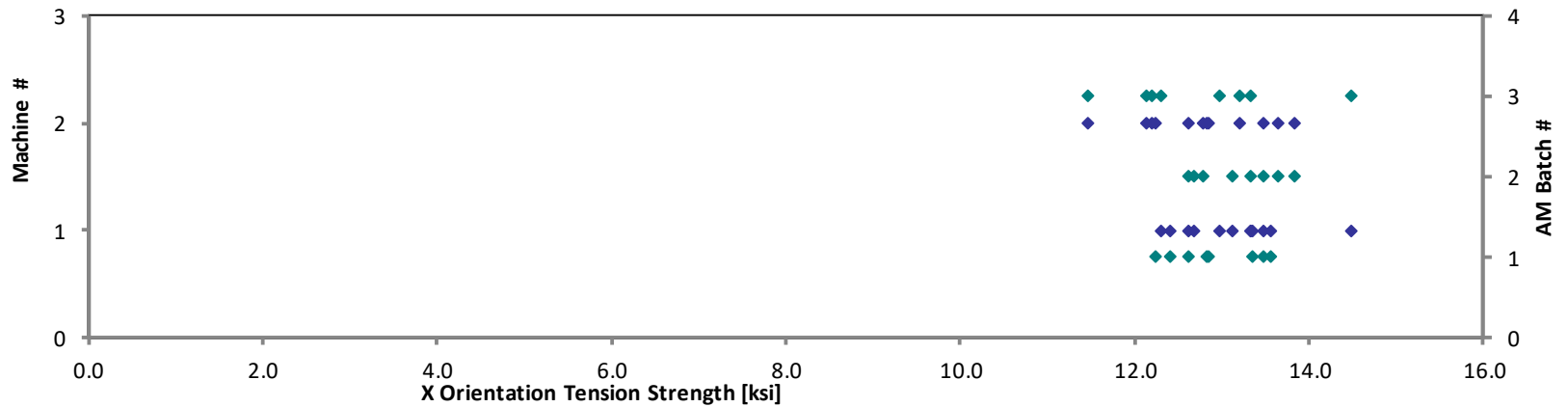
Specimen Number	AM Batch #	Machine #	0.2% Offset Yield Strength [ksj]	Strength [ksj]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-XT-13-CTD-1	1	1	6.425	12.407	0.398	0.128	AWB
NTPAMP001-SY-UM9085-RPM-A-M1-XT-15-CTD-2	1	1	6.530	13.369	0.398	0.127	AWB
NTPAMP001-SY-UM9085-RPM-A-M1-XT-11-CTD-3	1	1	6.328	13.570	0.410	0.127	AWB
NTPAMP001-SY-UM9085-RPM-A-M1-XT-12-CTD-4	1	1	7.250	13.485	0.383	0.127	AWB
NTPAMP001-SY-UM9085-RPM-A-M2-XT-13-CTD-1	1	2	6.176	12.256	0.370	0.129	AWB
NTPAMP001-SY-UM9085-RPM-A-M2-XT-15-CTD-2	1	2	5.840	12.633	0.394	0.128	AWB
NTPAMP001-SY-UM9085-RPM-A-M2-XT-11-CTD-3	1	2	6.611	12.845	0.377	0.128	AWT
NTPAMP001-SY-UM9085-RPM-A-M2-XT-14-CTD-4	1	2	6.537	12.858	0.364	0.128	AWT
NTPAMP001-SY-UM9085-RPM-B-M1-XT-13-CTD-1	2	1	7.271	13.138	0.380	0.128	AWB
NTPAMP001-SY-UM9085-RPM-B-M1-XT-15-CTD-2	2	1	5.557	12.689	0.423	0.128	AWB
NTPAMP001-SY-UM9085-RPM-B-M1-XT-11-CTD-3	2	1	8.917	13.348	0.357	0.128	AWB
NTPAMP001-SY-UM9085-RPM-B-M1-XT-12-CTD-4	2	1	5.967	12.625	0.416	0.128	AWB
NTPAMP001-SY-UM9085-RPM-B-M2-XT-13-CTD-1	2	2	6.734	13.482	0.390	0.128	AWT
NTPAMP001-SY-UM9085-RPM-B-M2-XT-15-CTD-2	2	2	6.872	13.654	0.393	0.128	AWT
NTPAMP001-SY-UM9085-RPM-B-M2-XT-11-CTD-3	2	2	6.794	13.845	0.407	0.127	AWT
NTPAMP001-SY-UM9085-RPM-B-M2-XT-14-CTD-4	2	2	7.817	12.799	0.388	0.128	AWT
NTPAMP001-SY-UM9085-RPM-C-M1-XT-13-CTD-1	3	1	6.246	13.342	0.390	0.128	AWT
NTPAMP001-SY-UM9085-RPM-C-M1-XT-15-CTD-2	3	1	7.620	14.501	0.416	0.126	AWB
NTPAMP001-SY-UM9085-RPM-C-M1-XT-11-CTD-3	3	1	6.881	12.974	0.384	0.128	AWB
NTPAMP001-SY-UM9085-RPM-C-M1-XT-12-CTD-4	3	1	6.451	12.311	0.389	0.127	AWB
NTPAMP001-SY-UM9085-RPM-C-M2-XT-13-CTD-1	3	2	6.024	11.465	0.362	0.128	AWT
NTPAMP001-SY-UM9085-RPM-C-M2-XT-15-CTD-2	3	2	6.751	12.132	0.366	0.127	AGT, AWT
NTPAMP001-SY-UM9085-RPM-C-M2-XT-11-CTD-3	3	2	6.889	13.218	0.388	0.128	AWB, LGB
NTPAMP001-SY-UM9085-RPM-C-M2-XT-14-CTD-4	3	2	6.645	12.205	0.373	0.128	AGM

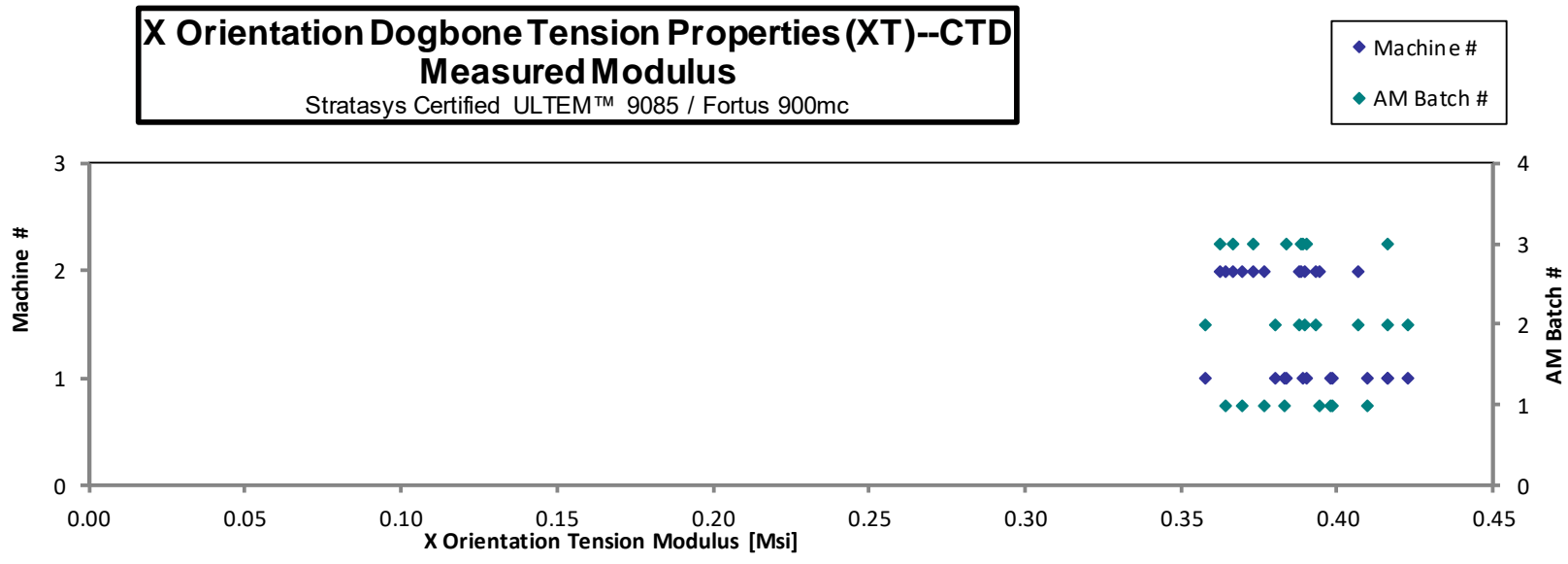
Average	6.714	12.965	0.388	0.128
Standard Dev.	0.710	0.665	0.018	
Coeff. of Var. [%]	10.582	5.131	4.598	
Min.	5.557	11.465	0.357	0.126
Max.	8.917	14.501	0.423	0.129
Number of Spec.	24	24	24	24

X Orientation Dogbone Tension Properties (XT)--CTD
Measured 0.2% Offset Yield Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



X Orientation Dogbone Tension Properties (XT)--CTD
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc





**X Orientation Dogbone Tension Properties (XT)--RTD
Strength & Modulus**

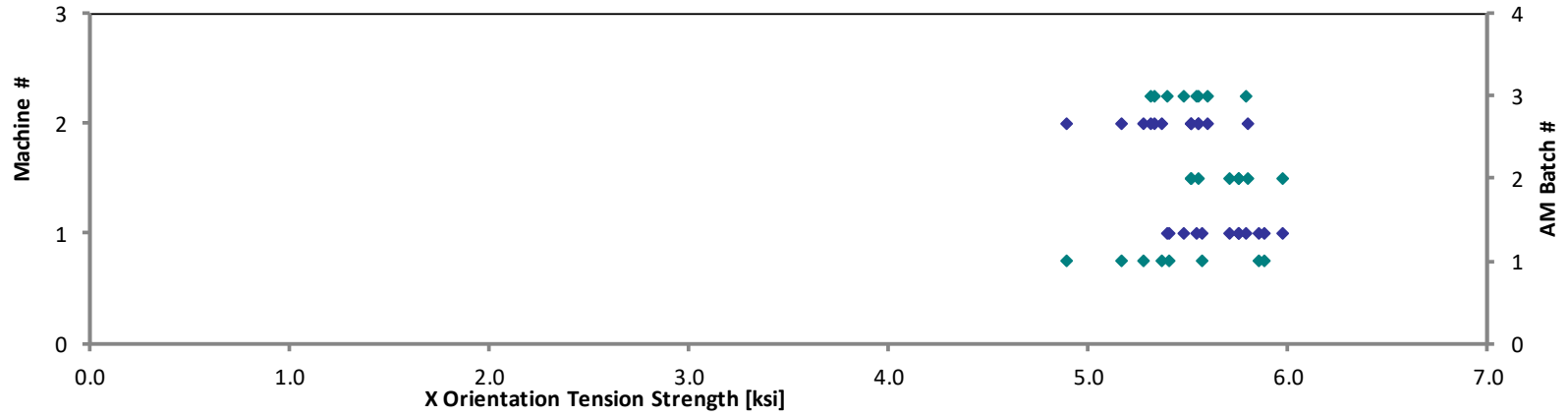
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Yield Strength [ksj]	Strength [ksj]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-XT-13-RTD-1	1	1	5.409	9.640	0.335	0.127	LGT
NTPAMP001-SY-UM9085-RPM-A-M1-XT-15-RTD-2	1	1	5.853	9.924	0.344	0.127	LGT
NTPAMP001-SY-UM9085-RPM-A-M1-XT-11-RTD-3	1	1	5.888	9.972	0.340	0.127	LGT
NTPAMP001-SY-UM9085-RPM-A-M1-XT-12-RTD-4	1	1	5.570	9.776	0.340	0.127	M(A,L)GB
NTPAMP001-SY-UM9085-RPM-A-M2-XT-13-RTD-1	1	2	5.167	9.069	0.323	0.129	LGT
NTPAMP001-SY-UM9085-RPM-A-M2-XT-15-RTD-2	1	2	4.890	8.743	0.316	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-A-M2-XT-11-RTD-3	1	2	5.279	9.428	0.333	0.128	LGB
NTPAMP001-SY-UM9085-RPM-A-M2-XT-14-RTD-4	1	2	5.372	9.498	0.332	0.127	AGT
NTPAMP001-SY-UM9085-RPM-B-M1-XT-13-RTD-1	2	1	5.709	9.832	0.335	0.129	MGB
NTPAMP001-SY-UM9085-RPM-B-M1-XT-15-RTD-2	2	1	5.980	10.143	0.345	0.128	MGB
NTPAMP001-SY-UM9085-RPM-B-M1-XT-11-RTD-3	2	1	5.757	10.024	0.344	0.127	MGB
NTPAMP001-SY-UM9085-RPM-B-M1-XT-12-RTD-4	2	1	5.753	9.975	0.340	0.128	MGB
NTPAMP001-SY-UM9085-RPM-B-M2-XT-13-RTD-1	2	2	5.518	9.573	0.332	0.130	AGB
NTPAMP001-SY-UM9085-RPM-B-M2-XT-15-RTD-2	2	2	5.558	9.874	0.340	0.128	AGB
NTPAMP001-SY-UM9085-RPM-B-M2-XT-11-RTD-3	2	2	5.805	10.072	0.345	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M2-XT-14-RTD-4	2	2	5.517	10.144	0.358	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M1-XT-13-RTD-1	3	1	5.791	9.750	0.329	0.129	LWB
NTPAMP001-SY-UM9085-RPM-C-M1-XT-15-RTD-2	3	1	5.484	9.772	0.335	0.128	LGB
NTPAMP001-SY-UM9085-RPM-C-M1-XT-11-RTD-3	3	1	5.548	9.829	0.336	0.128	LWT
NTPAMP001-SY-UM9085-RPM-C-M1-XT-12-RTD-4	3	1	5.396	9.594	0.329	0.128	LWT
NTPAMP001-SY-UM9085-RPM-C-M2-XT-13-RTD-1	3	2	5.338	9.446	0.333	0.127	LWB
NTPAMP001-SY-UM9085-RPM-C-M2-XT-15-RTD-2	3	2	5.314	9.682	0.336	0.127	LWT
NTPAMP001-SY-UM9085-RPM-C-M2-XT-11-RTD-3	3	2	5.604	9.893	0.342	0.127	AGB
NTPAMP001-SY-UM9085-RPM-C-M2-XT-14-RTD-4	3	2	5.551	9.815	0.341	0.126	LWB

Average	5.544	9.728	0.337	0.128
Standard Dev.	0.252	0.328	0.008	
Coeff. of Var. [%]	4.550	3.369	2.513	
Min.	4.890	8.743	0.316	0.126
Max.	5.980	10.144	0.358	0.130
Number of Spec.	24	24	24	24

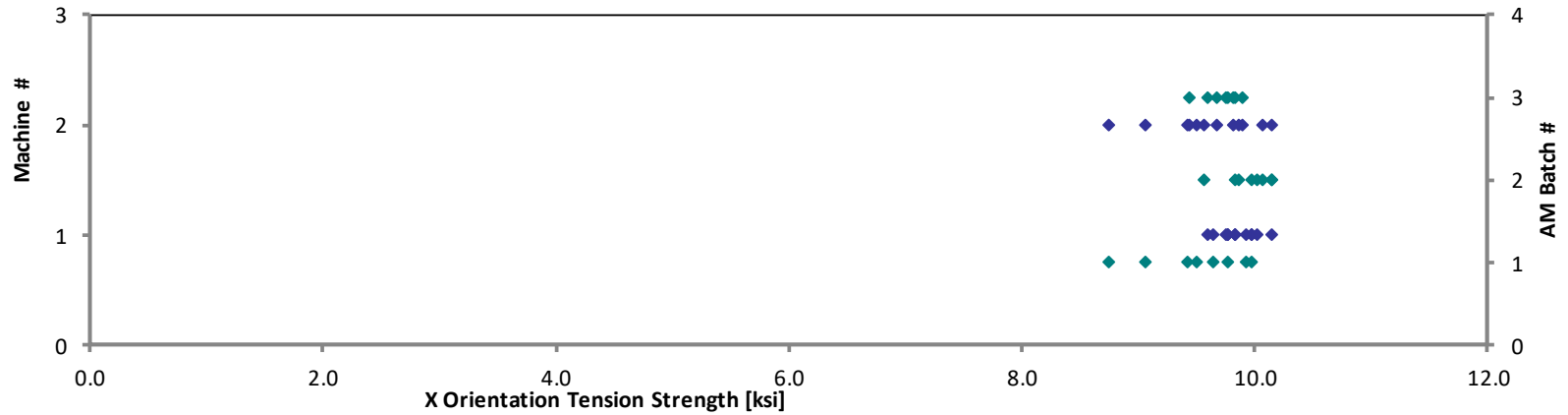
X Orientation Dogbone Tension Properties (XT)--RTD
Measured 0.2% Offset Yield Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



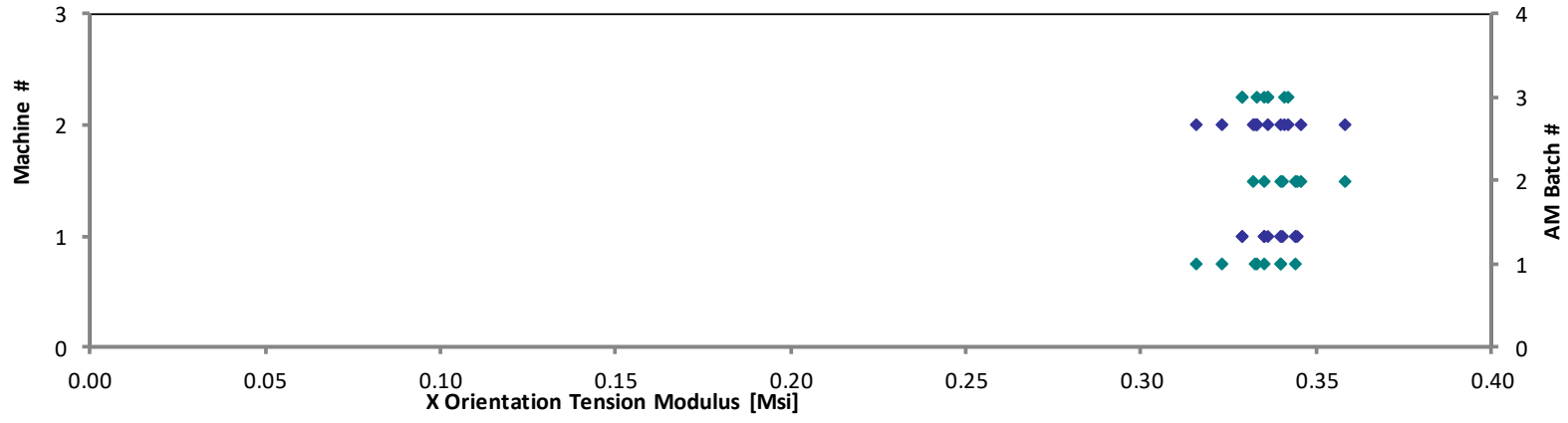
X Orientation Dogbone Tension Properties (XT)--RTD
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



X Orientation Tension Properties (XT)--RTD
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #

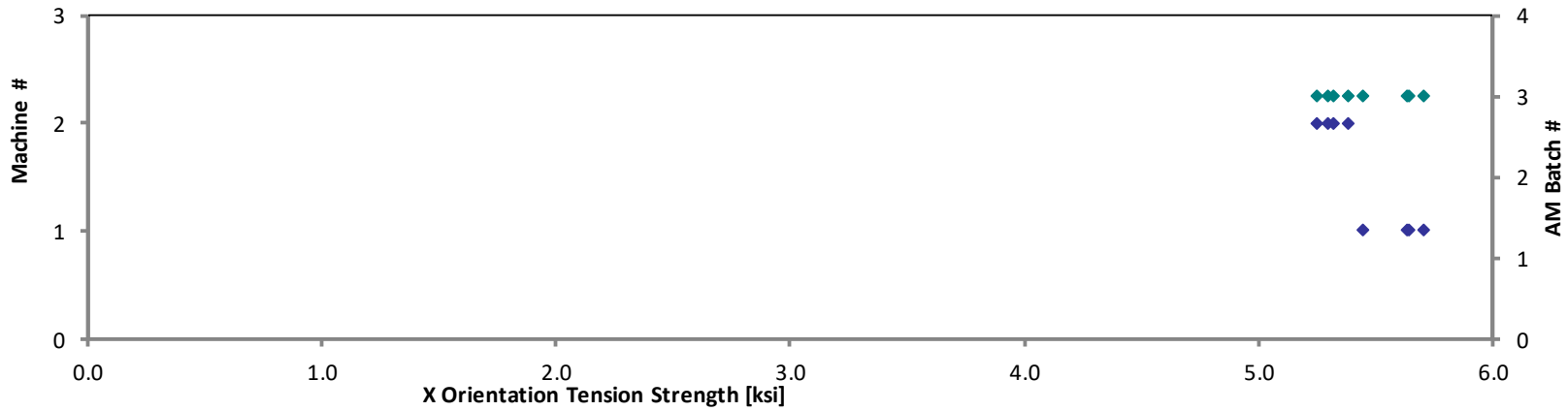


X Orientation Dogbone Tension Properties (XT)--RTW Strength & Modulus Stratasys Certified ULTEM™ 9085 / Fortus 900mc
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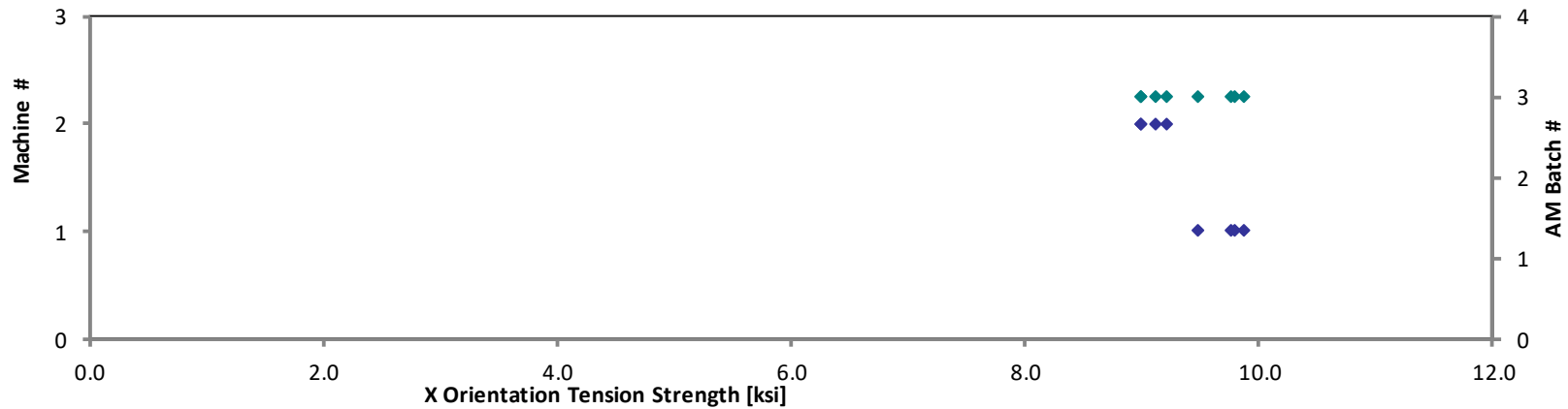
Specimen Number	AM Batch #	Machine #	0.2% Offset Yield Strength [ksi]	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-C-M1-XT-13-RTW-1	3	1	5.449	9.486	0.333	0.128	LWB
NTPAMP001-SY-UM9085-RPM-C-M1-XT-15-RTW-2	3	1	5.634	9.793	0.340	0.127	LWB
NTPAMP001-SY-UM9085-RPM-C-M1-XT-14-RTW-3	3	1	5.643	9.763	0.339	0.127	LWB
NTPAMP001-SY-UM9085-RPM-C-M1-XT-11-RTW-4	3	1	5.705	9.885	0.347	0.128	LWB
NTPAMP001-SY-UM9085-RPM-C-M2-XT-13-RTW-1	3	2	5.298	8.995	0.319	0.127	AWT
NTPAMP001-SY-UM9085-RPM-C-M2-XT-15-RTW-2	3	2	5.321	8.995	0.317	0.127	AWB
NTPAMP001-SY-UM9085-RPM-C-M2-XT-12-RTW-3	3	2	5.383	9.215	0.321	0.127	LGB
NTPAMP001-SY-UM9085-RPM-C-M2-XT-11-RTW-4	3	2	5.252	9.118	0.325	0.128	AWT

Average	5.461	9.406	0.330	0.127
Standard Dev.	0.177	0.372	0.011	
Coeff. of Var. [%]	3.239	3.957	3.372	
Min.	5.252	8.995	0.317	0.127
Max.	5.705	9.885	0.347	0.128
Number of Spec.	8	8	8	8

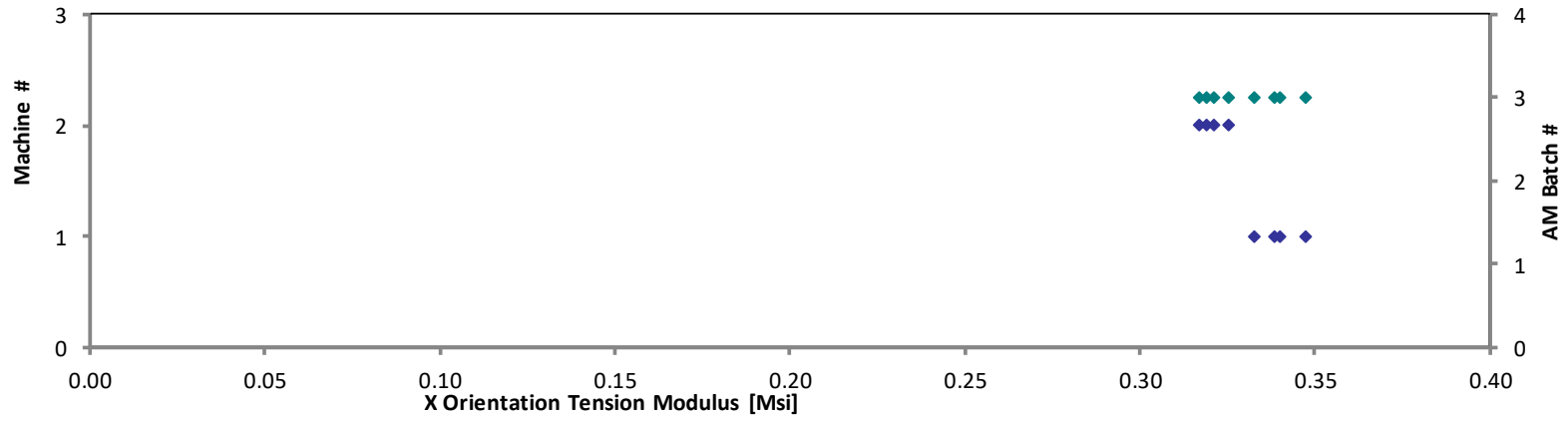
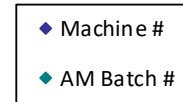
X Orientation Dogbone Tension Properties (XT)--RTW
Measured 0.2% Offset Yield Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



X Orientation Dogbone Tension Properties (XT)--RTW
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



X Orientation Dogbone Tension Properties (XT)--RTW
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



X Orientation Dogbone Tension Properties (XT)--ETW1**Strength & Modulus**

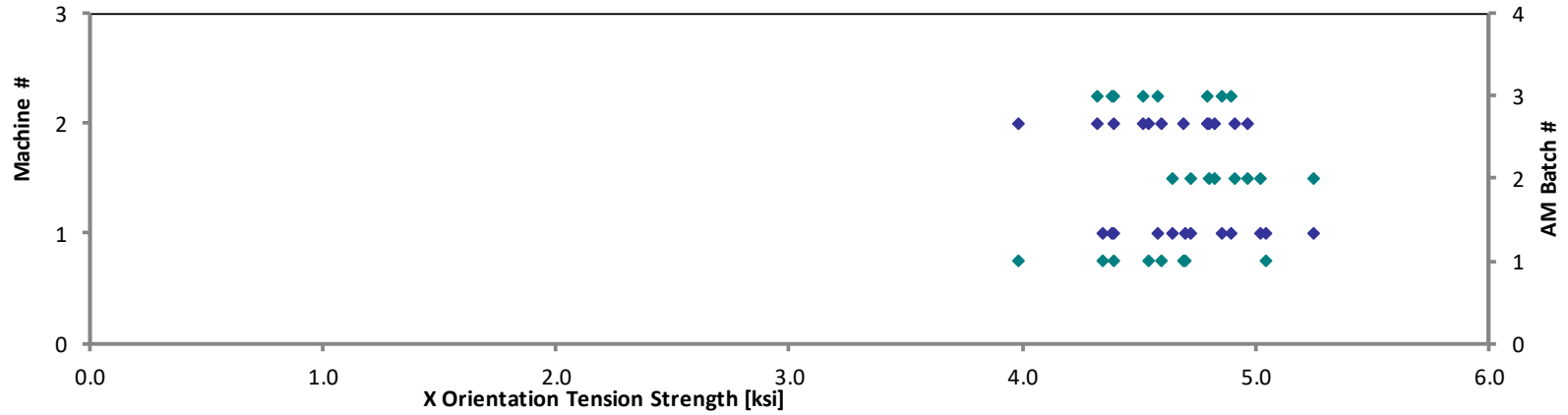
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Yield Strength [ksi]	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-XT-13-ETW1-1	1	1	4.392	6.694	0.311	0.128	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-XT-15-ETW1-2	1	1	5.043	6.797	0.293	0.127	AGM
NTPAMP001-SY-UM9085-RPM-A-M1-XT-11-ETW1-3	1	1	4.342	6.994	0.334	0.127	AGM
NTPAMP001-SY-UM9085-RPM-A-M1-XT-12-ETW1-4	1	1	4.698	6.920	0.319	0.127	AGB
NTPAMP001-SY-UM9085-RPM-A-M2-XT-13-ETW1-1	1	2	4.594	6.582	0.290	0.129	AGM
NTPAMP001-SY-UM9085-RPM-A-M2-XT-15-ETW1-2	1	2	3.982	6.192	0.303	0.129	AGM
NTPAMP001-SY-UM9085-RPM-A-M2-XT-11-ETW1-3	1	2	4.692	6.389	0.286	0.128	LWT
NTPAMP001-SY-UM9085-RPM-A-M2-XT-14-ETW1-4	1	2	4.545	6.129	0.289	0.129	LWT,LAT
NTPAMP001-SY-UM9085-RPM-B-M1-XT-13-ETW1-1	2	1	5.249	7.009	0.293	0.128	AGM
NTPAMP001-SY-UM9085-RPM-B-M1-XT-15-ETW1-2	2	1	4.723	6.981	0.314	0.128	AGM
NTPAMP001-SY-UM9085-RPM-B-M1-XT-11-ETW1-3	2	1	4.646	7.356	0.343	0.127	AGM
NTPAMP001-SY-UM9085-RPM-B-M1-XT-12-ETW1-4	2	1	5.022	7.050	0.305	0.128	AGM
NTPAMP001-SY-UM9085-RPM-B-M2-XT-13-ETW1-1	2	2	4.968	6.861	0.298	0.130	LWB
NTPAMP001-SY-UM9085-RPM-B-M2-XT-15-ETW1-2	2	2	4.911	7.037	0.311	0.128	AGM
NTPAMP001-SY-UM9085-RPM-B-M2-XT-11-ETW1-3	2	2	4.828	7.096	0.315	0.128	AGT
NTPAMP001-SY-UM9085-RPM-B-M2-XT-14-ETW1-4	2	2	4.804	7.022	0.311	0.128	AGM
NTPAMP001-SY-UM9085-RPM-C-M1-XT-13-ETW1-1	3	1	4.385	6.272	0.276	0.136	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-XT-15-ETW1-2	3	1	4.582	6.604	0.286	0.128	LWB
NTPAMP001-SY-UM9085-RPM-C-M1-XT-11-ETW1-3	3	1	4.894	6.863	0.297	0.127	AGM
NTPAMP001-SY-UM9085-RPM-C-M1-XT-12-ETW1-4	3	1	4.858	6.810	0.298	0.127	LGT
NTPAMP001-SY-UM9085-RPM-C-M2-XT-13-ETW1-1	3	2	4.324	6.501	0.289	0.129	LWB
NTPAMP001-SY-UM9085-RPM-C-M2-XT-15-ETW1-2	3	2	4.396	6.580	0.299	0.129	M(A,L)GB
NTPAMP001-SY-UM9085-RPM-C-M2-XT-11-ETW1-3	3	2	4.520	6.630	0.294	0.128	LGB
NTPAMP001-SY-UM9085-RPM-C-M2-XT-14-ETW1-4	3	2	4.798	6.719	0.293	0.128	AGB

Average	4.675	6.754	0.302	0.128
Standard Dev.	0.286	0.308	0.016	
Coeff. of Var. [%]	6.116	4.566	5.172	
Min.	3.982	6.129	0.276	0.127
Max.	5.249	7.356	0.343	0.136
Number of Spec.	24	24	24	24

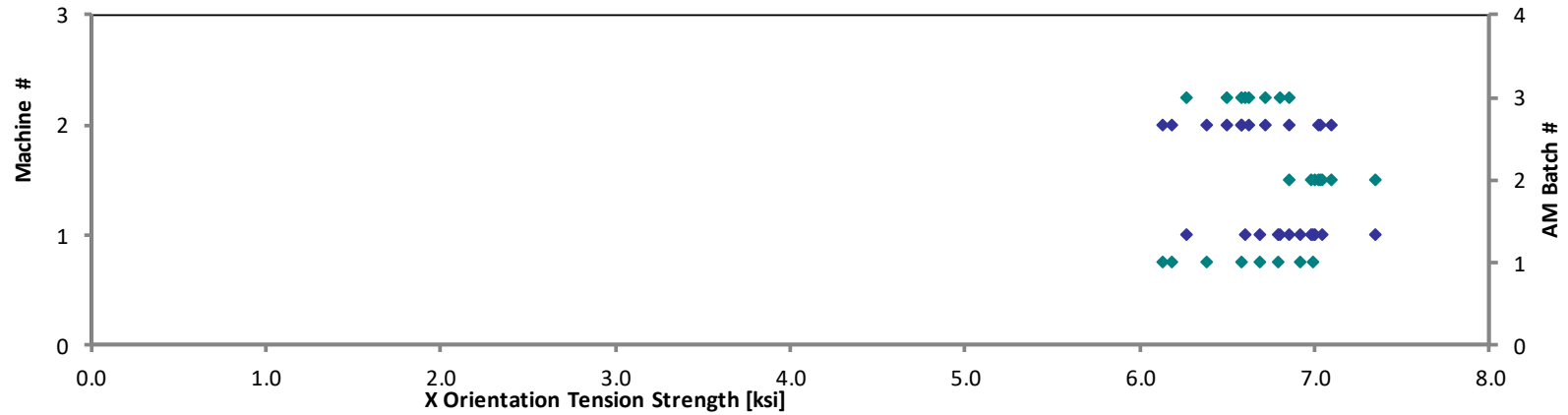
X Orientation Dogbone Tension Properties (XT)--ETW1
Measured 0.2% Offset Yield Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #

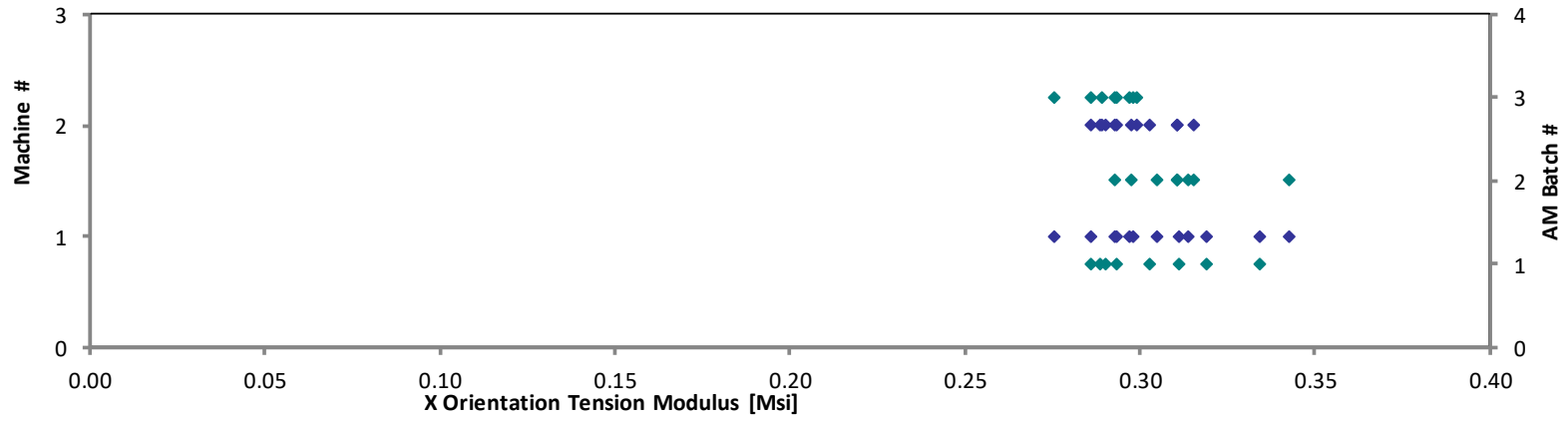
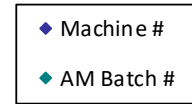


X Orientation Dogbone Tension Properties (XT)--ETW1
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



X Orientation Dogbone Tension Properties (XT)--ETW1
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



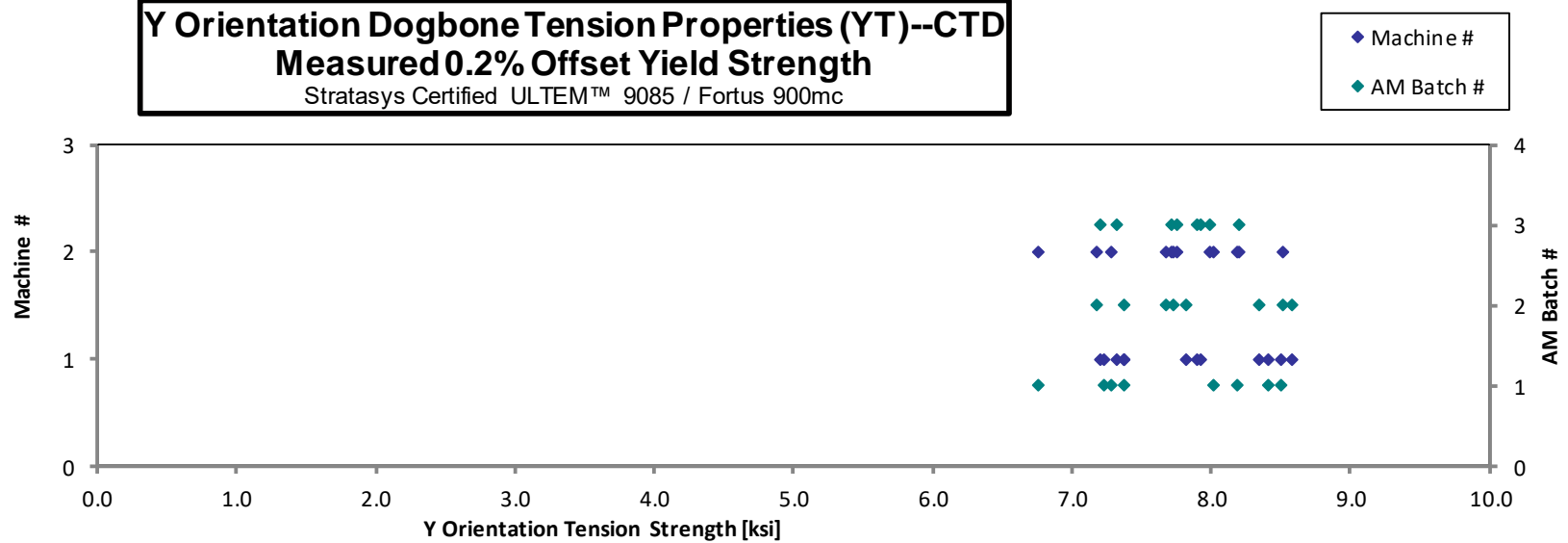
4.2 Y Tension Properties (YT)

Y Orientation Dogbone Tension Properties (YT)--CTD
Strength & Modulus
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

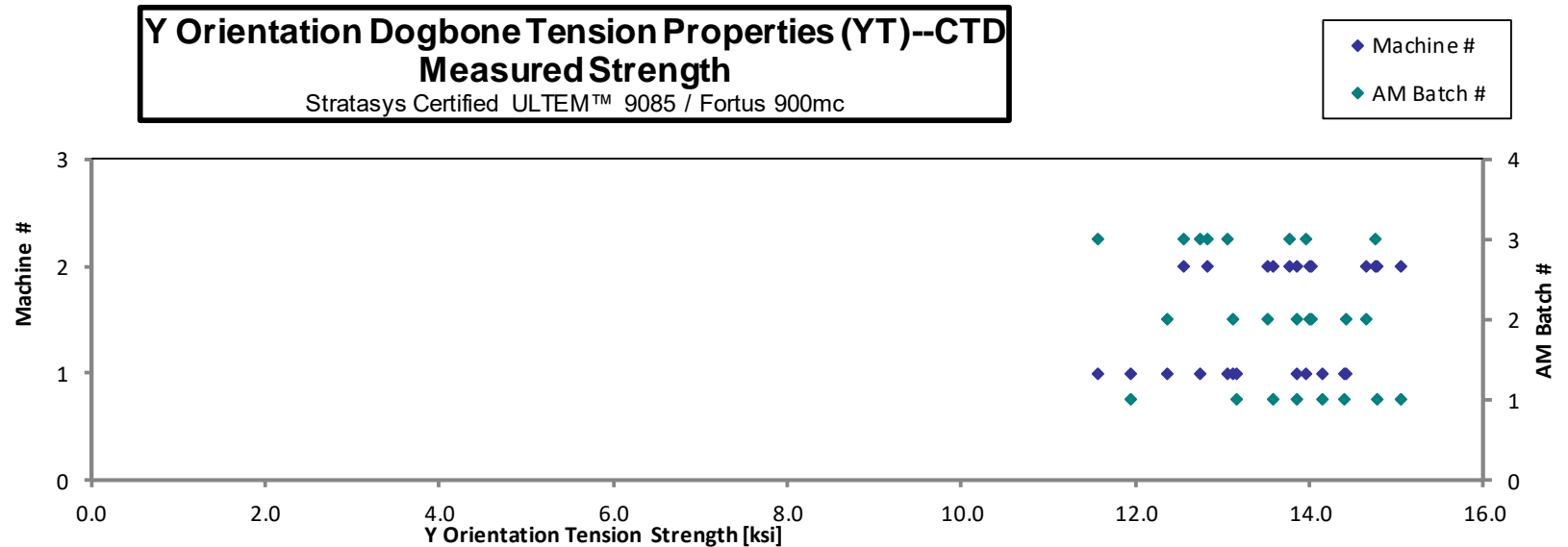
Specimen Number	AM Batch #	Machine #	0.2% Offset Yield Strength [ksi]	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-YT-13-CTD-1	1	1	7.228	14.399	0.441	0.128	AWB
NTPAMP001-SY-UM9085-RPM-A-M1-YT-15-CTD-2	1	1	7.375	14.155	0.449	0.129	AWT
NTPAMP001-SY-UM9085-RPM-A-M1-YT-14-CTD-3	1	1	8.503	13.165	0.420	0.128	AWT, AWB
NTPAMP001-SY-UM9085-RPM-A-M1-YT-11-CTD-4	1	1	8.408	11.945	0.427	0.128	AWB
NTPAMP001-SY-UM9085-RPM-A-M2-YT-13-CTD-1	1	2	8.190	13.581	0.421	0.129	AWT, AWB
NTPAMP001-SY-UM9085-RPM-A-M2-YT-15-CTD-2	1	2	7.288	15.050	0.435	0.129	AWB
NTPAMP001-SY-UM9085-RPM-A-M2-YT-12-CTD-3	1	2	8.015	14.781	0.425	0.129	AWT, AWB
NTPAMP001-SY-UM9085-RPM-A-M2-YT-11-CTD-4	1	2	6.762	13.858	0.444	0.130	AWT
NTPAMP001-SY-UM9085-RPM-B-M1-YT-13-CTD-1	2	1	7.819	13.867	0.429	0.129	AWT
NTPAMP001-SY-UM9085-RPM-B-M1-YT-15-CTD-2	2	1	8.352	14.433	0.426	0.129	AWB
NTPAMP001-SY-UM9085-RPM-B-M1-YT-14-CTD-3	2	1	7.379	13.123	0.455	0.128	AWT
NTPAMP001-SY-UM9085-RPM-B-M1-YT-11-CTD-4	2	1	8.582	12.366	0.424	0.129	LWB
NTPAMP001-SY-UM9085-RPM-B-M2-YT-13-CTD-1	2	2	7.179	14.668	0.443	0.129	AWT
NTPAMP001-SY-UM9085-RPM-B-M2-YT-15-CTD-2	2	2	7.733	13.518	0.432	0.129	AGM
NTPAMP001-SY-UM9085-RPM-B-M2-YT-12-CTD-3	2	2	8.517	14.003	0.422	0.129	AWB
NTPAMP001-SY-UM9085-RPM-B-M2-YT-11-CTD-4	2	2	7.671	14.035	0.432	0.130	AWT
NTPAMP001-SY-UM9085-RPM-C-M1-YT-13-CTD-1	3	1	7.207	13.060	0.432	0.129	M(A,L)WB
NTPAMP001-SY-UM9085-RPM-C-M1-YT-15-CTD-2	3	1	7.931	12.758	0.430	0.128	M(A,L)WB
NTPAMP001-SY-UM9085-RPM-C-M1-YT-14-CTD-3	3	1	7.322	13.973	0.443	0.128	M(A,L)WT
NTPAMP001-SY-UM9085-RPM-C-M1-YT-11-CTD-4	3	1	7.896	11.584	0.410	0.129	M(A,L)WB
NTPAMP001-SY-UM9085-RPM-C-M2-YT-13-CTD-1	3	2	7.992	12.563	0.435	0.129	AWB, LWT
NTPAMP001-SY-UM9085-RPM-C-M2-YT-15-CTD-2	3	2	7.751	13.786	0.437	0.129	M(A,L)GT
NTPAMP001-SY-UM9085-RPM-C-M2-YT-12-CTD-3	3	2	8.198	14.770	0.438	0.129	AGT, LWT
NTPAMP001-SY-UM9085-RPM-C-M2-YT-11-CTD-4	3	2	7.718	12.825	0.430	0.130	M(A,L)WB

Average	7.792	13.594	0.433	0.129
Standard Dev.	0.499	0.926	0.010	
Coeff. of Var. [%]	6.407	6.814	2.370	
Min.	6.762	11.584	0.410	0.128
Max.	8.582	15.050	0.455	0.130
Number of Spec.	24	24	24	24

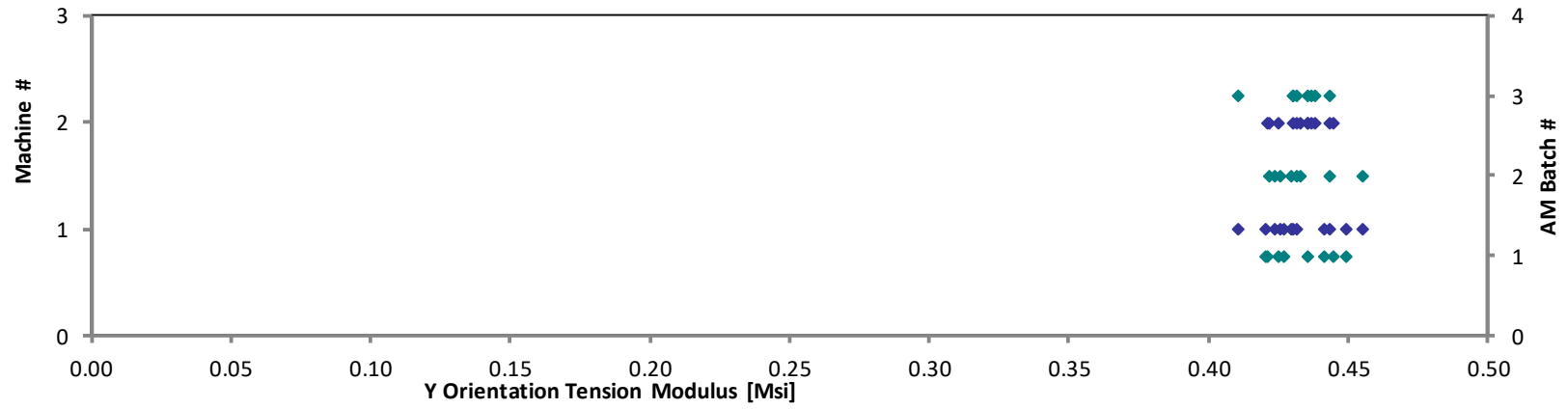
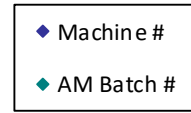
Y Orientation Dogbone Tension Properties (YT)--CTD
Measured 0.2% Offset Yield Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Y Orientation Dogbone Tension Properties (YT)--CTD
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Y Orientation Dogbone Tension Properties (YT)--CTD
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



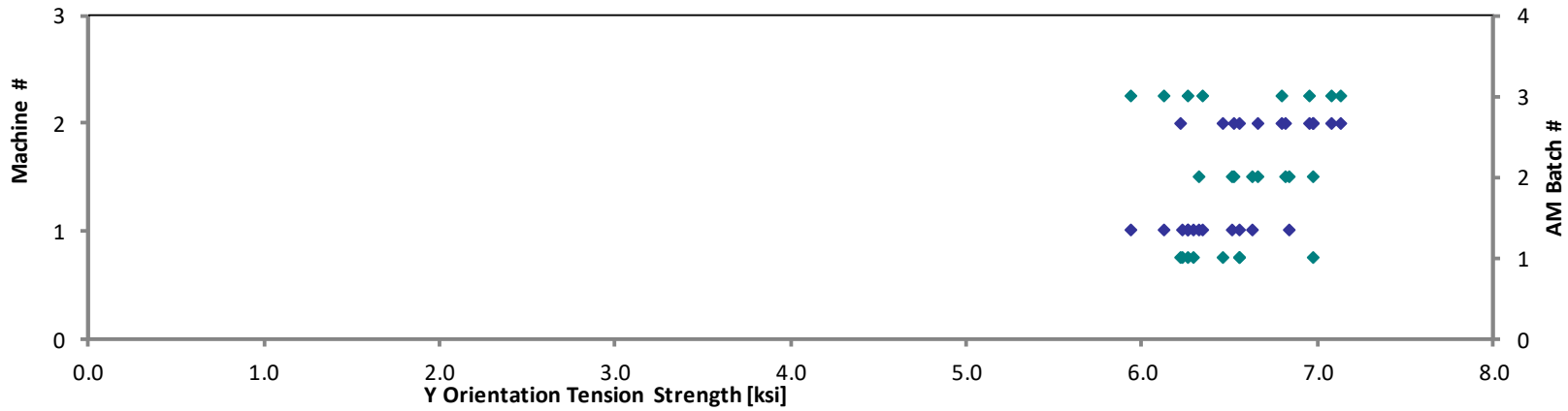
**Y Orientation Dogbone Tension Properties (YT)--RTD
Strength & Modulus**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

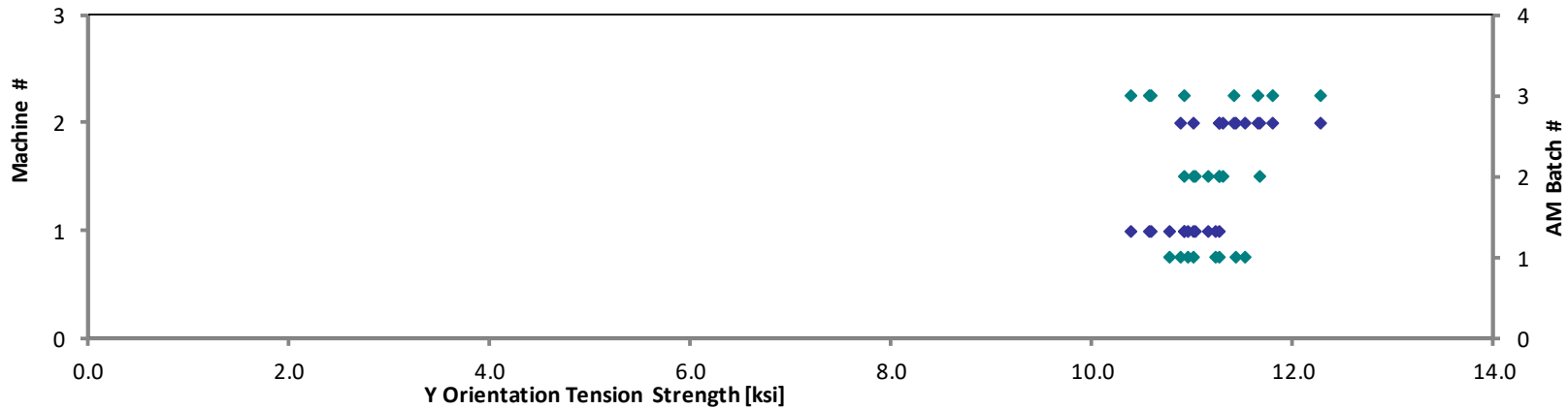
Specimen Number	AM Batch #	Machine #	0.2% Offset Yield Strength [ksi]	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-YT-13-RTD-1	1	1	6.292	11.238	0.383	0.129	LGB
NTPAMP001-SY-UM9085-RPM-A-M1-YT-15-RTD-2	1	1	6.264	10.781	0.372	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-YT-14-RTD-3	1	1	6.234	11.010	0.383	0.129	LGT
NTPAMP001-SY-UM9085-RPM-A-M1-YT-11-RTD-4	1	1	6.557	10.967	0.376	0.129	LGT
NTPAMP001-SY-UM9085-RPM-A-M2-YT-13-RTD-1	1	2	6.460	11.264	0.379	0.128	LGB
NTPAMP001-SY-UM9085-RPM-A-M2-YT-15-RTD-2	1	2	6.219	10.879	0.375	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-YT-12-RTD-3	1	2	6.977	11.443	0.373	0.128	LGB
NTPAMP001-SY-UM9085-RPM-A-M2-YT-11-RTD-4	1	2	6.553	11.538	0.387	0.128	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-YT-13-RTD-1	2	1	6.626	11.159	0.381	0.129	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-YT-15-RTD-2	2	1	6.838	11.271	0.378	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YT-14-RTD-3	2	1	6.514	10.924	0.373	0.129	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-YT-11-RTD-4	2	1	6.326	11.029	0.376	0.130	LGT
NTPAMP001-SY-UM9085-RPM-B-M2-YT-13-RTD-1	2	2	6.971	11.303	0.370	0.129	LGB
NTPAMP001-SY-UM9085-RPM-B-M2-YT-15-RTD-2	2	2	6.527	11.021	0.370	0.129	LGB
NTPAMP001-SY-UM9085-RPM-B-M2-YT-12-RTD-3	2	2	6.816	11.275	0.369	0.129	LGB
NTPAMP001-SY-UM9085-RPM-B-M2-YT-11-RTD-4	2	2	6.660	11.682	0.380	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-YT-13-RTD-1	3	1	6.345	10.915	0.379	0.128	LGB
NTPAMP001-SY-UM9085-RPM-C-M1-YT-15-RTD-2	3	1	6.261	10.577	0.374	0.129	LGB
NTPAMP001-SY-UM9085-RPM-C-M1-YT-14-RTD-3	3	1	5.934	10.588	0.375	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-YT-11-RTD-4	3	1	6.126	10.391	0.366	0.129	LGT
NTPAMP001-SY-UM9085-RPM-C-M2-YT-13-RTD-1	3	2	7.135	11.652	0.380	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YT-15-RTD-2	3	2	6.793	11.412	0.380	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YT-12-RTD-3	3	2	6.958	11.796	0.380	0.129	LGT
NTPAMP001-SY-UM9085-RPM-C-M2-YT-11-RTD-4	3	2	7.086	12.274	0.389	0.127	LGT

Average	6.561	11.183	0.377	0.129
Standard Dev.	0.329	0.427	0.006	
Coeff. of Var. [%]	5.009	3.816	1.520	
Min.	5.934	10.391	0.366	0.127
Max.	7.135	12.274	0.389	0.130
Number of Spec.	24	24	24	24

Y Orientation Dogbone Tension Properties (YT)--RTD
Measured 0.2% Offset Yield Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

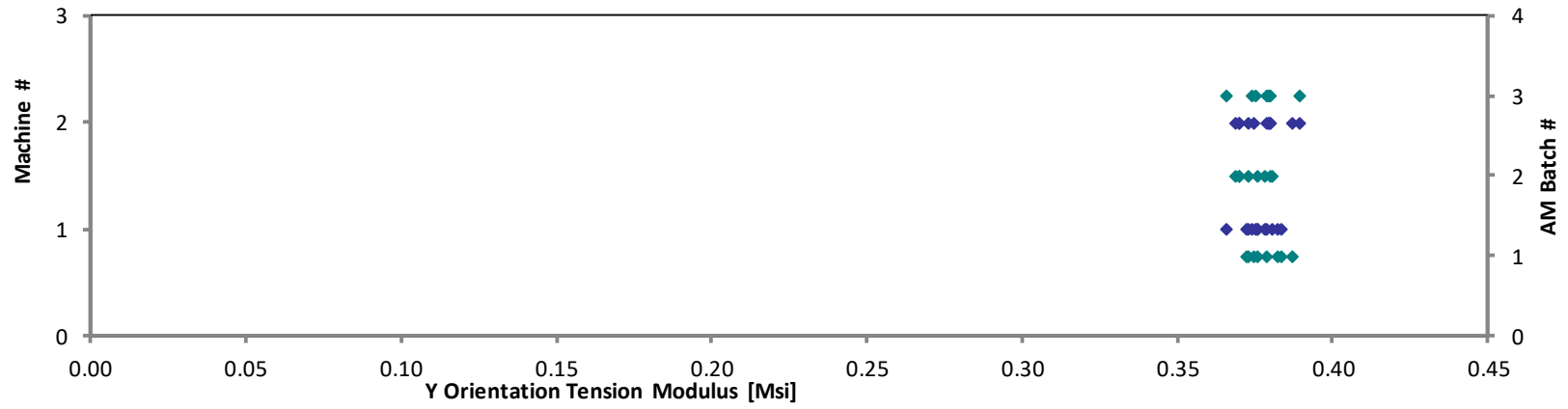


Y Orientation Dogbone Tension Properties (YT)--RTD
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Y Orientation Tension Properties (YT)--RTD
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

- ◆ Machine #
- ◆ AM Batch #

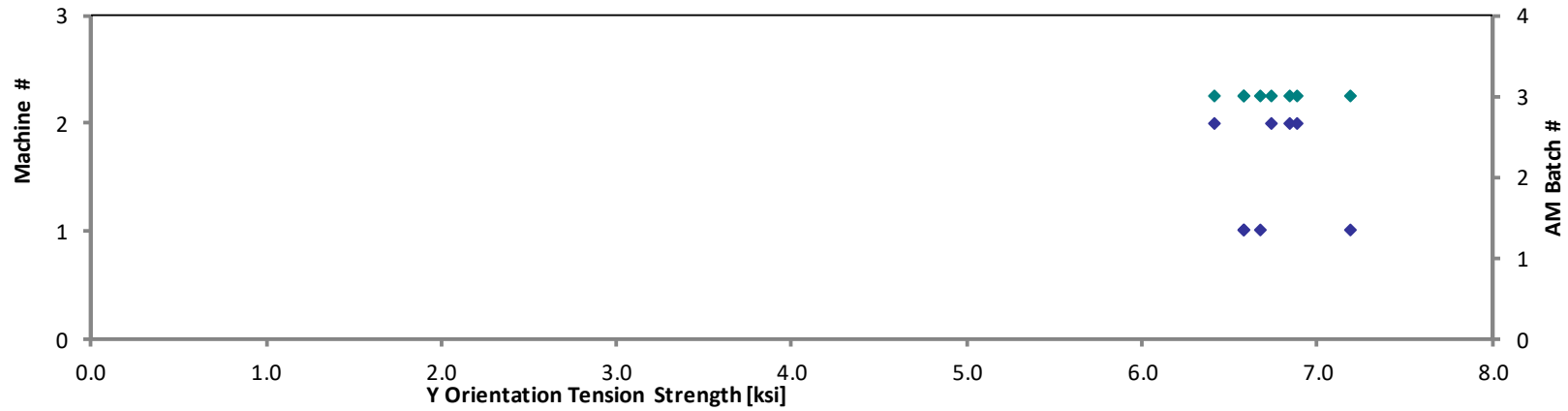


Y Orientation Dogbone Tension Properties (YT)--RTW Strength & Modulus Stratasys Certified ULTEM™ 9085 / Fortus 900mc
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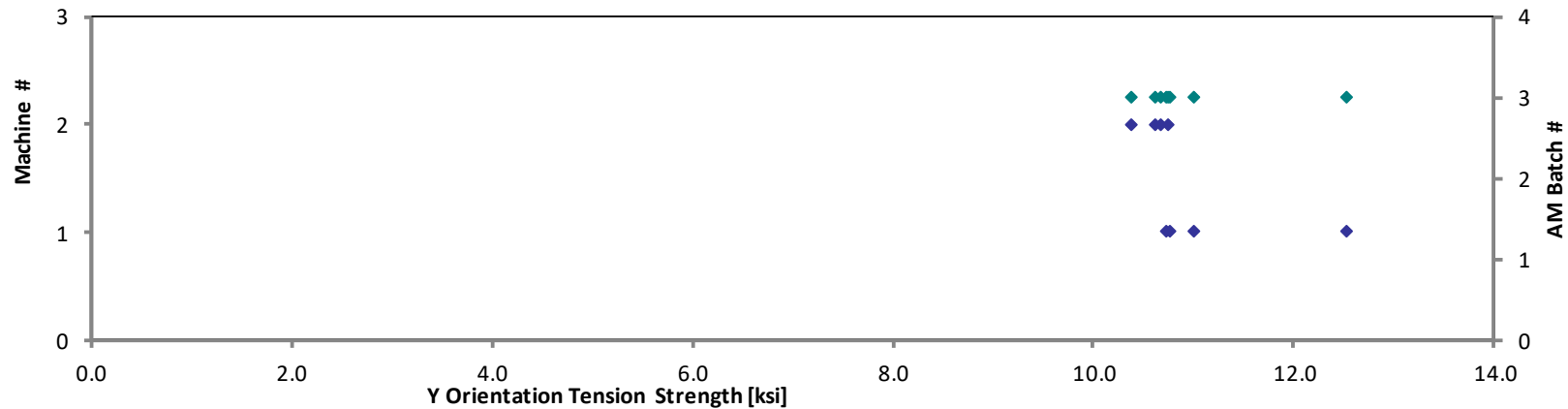
Specimen Number	AM Batch #	Machine #	0.2% Offset Yield Strength [ksi]	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-C-M1-YT-13-RTW-1	3	1	7.187	12.541	0.407	0.128	LGT
NTPAMP001-SY-UM9085-RPM-C-M1-YT-15-RTW-2	3	1	6.582	11.007	0.386	0.128	LGT
NTPAMP001-SY-UM9085-RPM-C-M1-YT-14-RTW-3	3	1	6.678	10.767	0.374	0.129	LGT
NTPAMP001-SY-UM9085-RPM-C-M1-YT-11-RTW-4	3	1	6.586	10.742	0.377	0.129	LGT
NTPAMP001-SY-UM9085-RPM-C-M2-YT-13-RTW-1	3	2	6.410	10.758	0.380	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YT-15-RTW-2	3	2	6.843	10.381	0.356	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YT-12-RTW-3	3	2	6.882	10.679	0.362	0.128	LGB
NTPAMP001-SY-UM9085-RPM-C-M2-YT-11-RTW-4	3	2	6.744	10.622	0.366	0.128	LGB

Average	6.739	10.937	0.376	0.128
Standard Dev.	0.237	0.671	0.016	
Coeff. of Var. [%]	3.514	6.136	4.182	
Min.	6.410	10.381	0.356	0.128
Max.	7.187	12.541	0.407	0.129
Number of Spec.	8	8	8	8

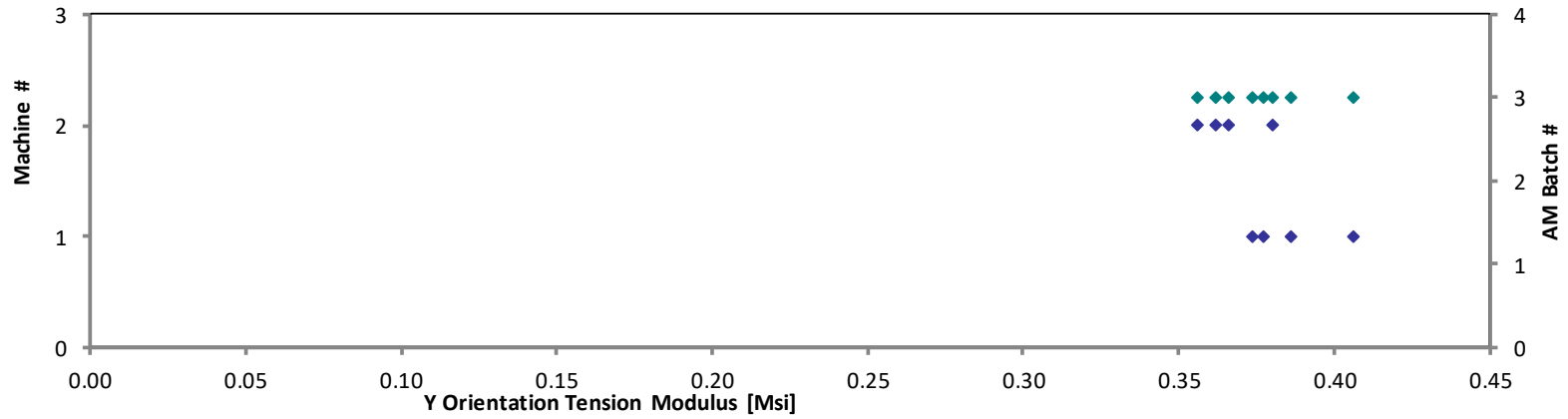
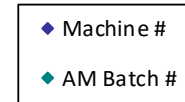
Y Orientation Dogbone Tension Properties (YT)--RTW
Measured 0.2% Offset Yield Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Y Orientation Dogbone Tension Properties (YT)--RTW
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Y Orientation Dogbone Tension Properties (YT)--RTW
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Y Orientation Dogbone Tension Properties (YT)--ETW1
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Strength & Modulus

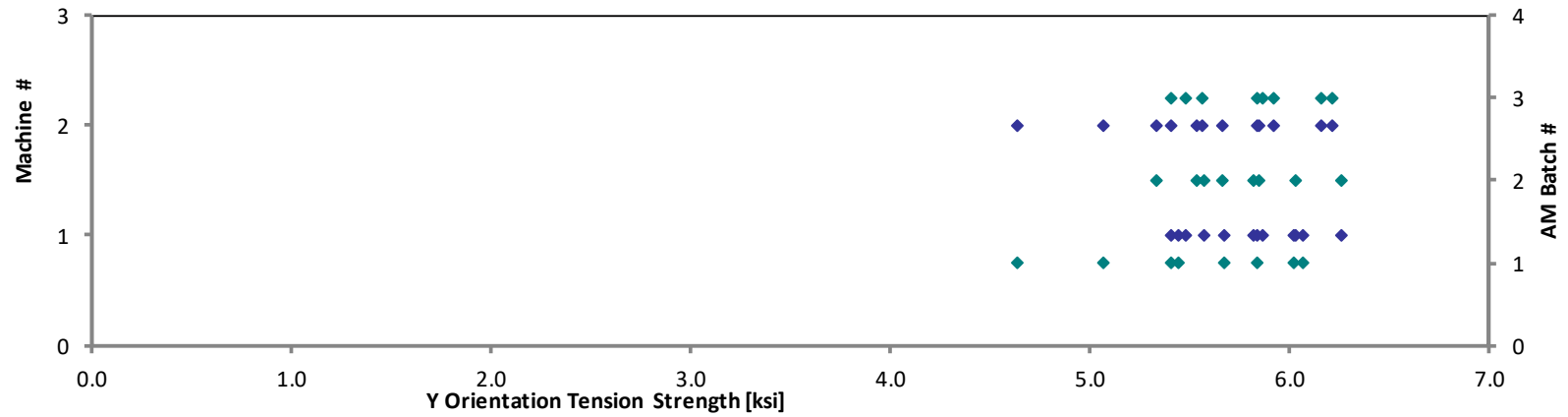
Stratasys Certified ULTEM™ 9085 / Fortus 900mc
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Specimen Number	AM Batch #	Machine #	0.2% Offset Yield Strength [ksi]	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-YT-13-ETW1-1	1	1	5.447	7.937	0.365	0.128	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-YT-15-ETW1-2	1	1	6.075	7.464	0.323	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-YT-14-ETW1-3	1	1	6.028	7.729	0.340	0.128	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-YT-11-ETW1-4	1	1	5.675	7.545	0.346	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-YT-13-ETW1-1	1	2	5.410	7.744	0.349	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-YT-15-ETW1-2	1	2	5.067	7.272	0.341	0.131	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-YT-12-ETW1-3	1	2	4.636	7.340	0.357	0.132	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-YT-11-ETW1-4	1	2	5.844	7.616	0.338	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YT-13-ETW1-1	2	1	5.577	8.048	0.356	0.128	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-YT-15-ETW1-2	2	1	6.033	7.740	0.330	0.130	LGT
NTPAMP001-SY-UM9085-RPM-B-M1-YT-14-ETW1-3	2	1	6.260	8.051	0.335	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YT-11-ETW1-4	2	1	5.825	7.782	0.341	0.129	LGT
NTPAMP001-SY-UM9085-RPM-B-M2-YT-13-ETW1-1	2	2	5.847	7.979	0.345	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YT-15-ETW1-2	2	2	5.339	7.561	0.344	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YT-12-ETW1-3	2	2	5.664	7.651	0.332	0.130	LGT
NTPAMP001-SY-UM9085-RPM-B-M2-YT-11-ETW1-4	2	2	5.541	7.975	0.356	0.129	LGB
NTPAMP001-SY-UM9085-RPM-C-M1-YT-13-ETW1-1	3	1	5.872	7.628	0.332	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-YT-15-ETW1-2	3	1	5.488	7.264	0.322	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-YT-14-ETW1-3	3	1	5.842	7.641	0.330	0.128	LGB
NTPAMP001-SY-UM9085-RPM-C-M1-YT-11-ETW1-4	3	1	5.409	7.373	0.333	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YT-13-ETW1-1	3	2	6.161	7.937	0.330	0.127	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YT-15-ETW1-2	3	2	5.925	7.789	0.328	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YT-12-ETW1-3	3	2	5.570	7.771	0.336	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YT-11-ETW1-4	3	2	6.215	8.140	0.333	0.128	LGB

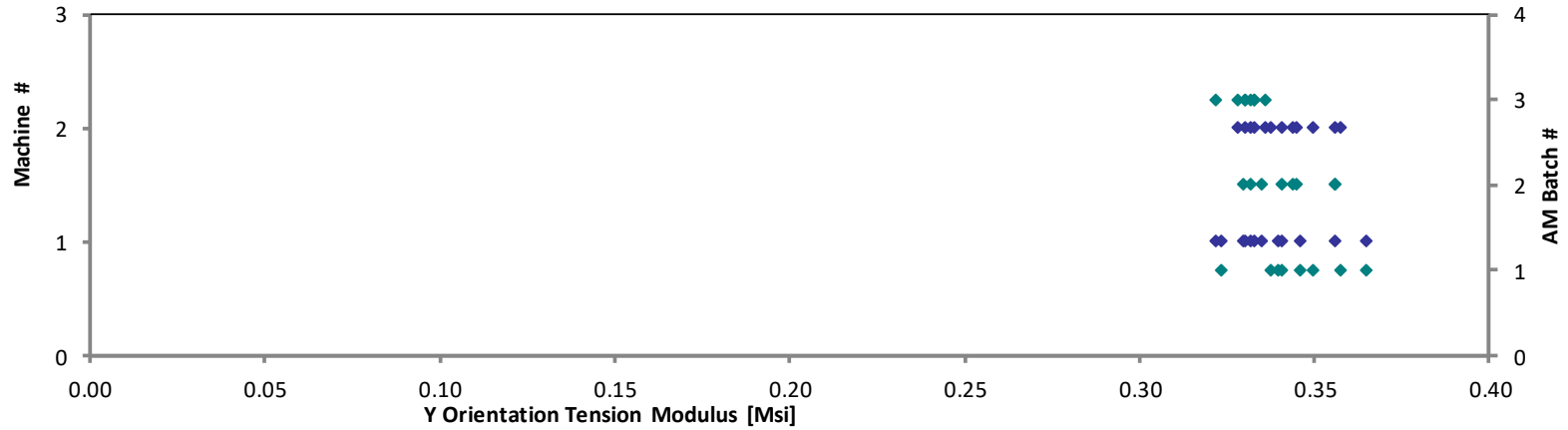
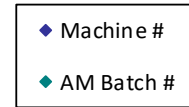
Average	5.698	7.707	0.339	0.129
Standard Dev.	0.379	0.251	0.011	
Coeff. of Var. [%]	6.656	3.261	3.312	
Min.	4.636	7.264	0.322	0.127
Max.	6.260	8.140	0.365	0.132
Number of Spec.	24	24	24	24

Y Orientation Dogbone Tension Properties (YT)--ETW1
Measured 0.2% Offset Yield Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Y Orientation Dogbone Tension Properties (YT)--ETW1
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



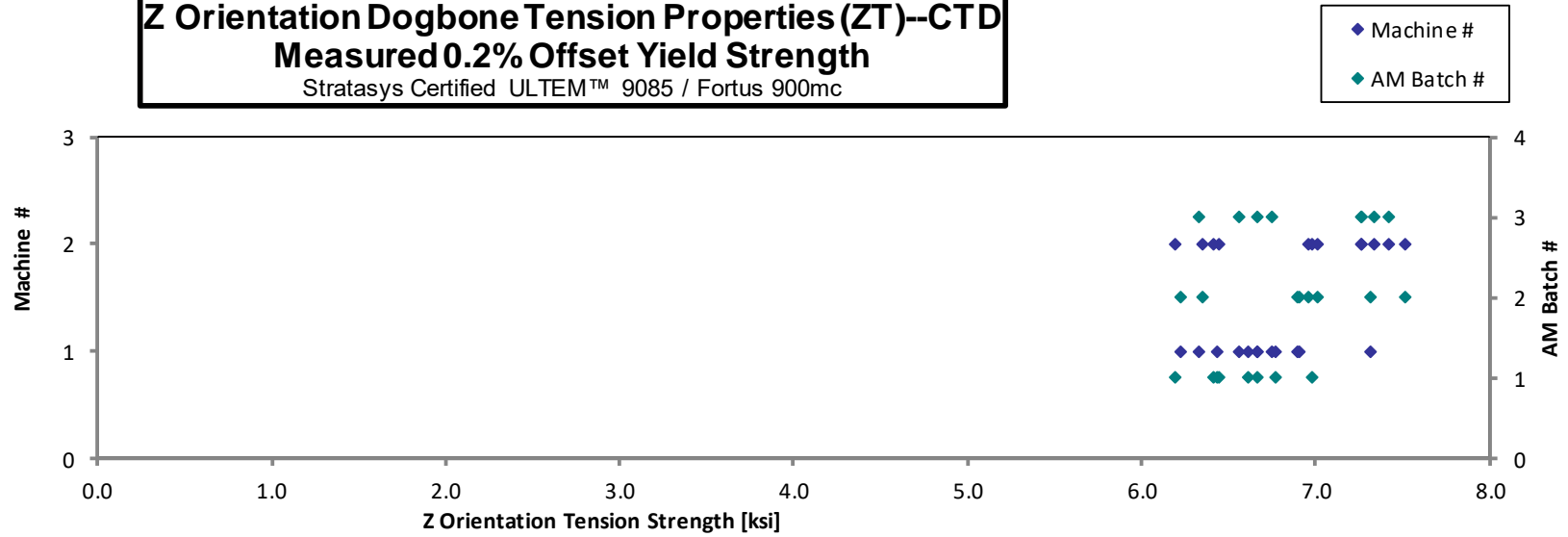
4.3 Z Tension Properties (ZT)

Z Orientation Dogbone Tension Properties (ZT)--CTD Strength & Modulus Stratasys Certified ULTEM™ 9085 / Fortus 900mc
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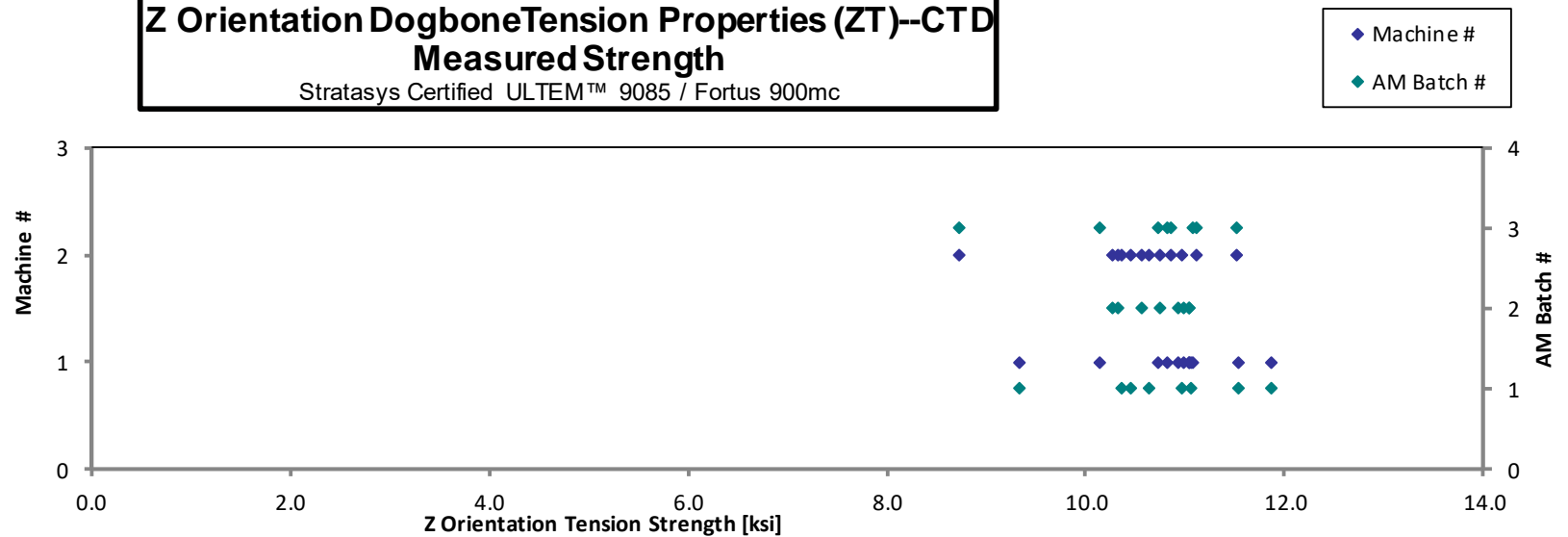
Specimen Number	AM Batch #	Machine #	0.2% Offset Yield Strength [ksi]	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-ZT-13-CTD-1	1	1	6.612	11.068	0.393	0.131	LGB
NTPAMP001-SY-UM9085-RPM-A-M1-ZT-15-CTD-2	1	1	6.671	9.341	0.386	0.131	LGB
NTPAMP001-SY-UM9085-RPM-A-M1-ZT-11-CTD-3	1	1	6.774	11.535	0.401	0.131	LGB
NTPAMP001-SY-UM9085-RPM-A-M1-ZT-12-CTD-4	1	1	6.433	11.880	0.412	0.130	LWB
NTPAMP001-SY-UM9085-RPM-A-M2-ZT-13-CTD-1	1	2	6.445	10.364	0.403	0.129	M(A,L)GB
NTPAMP001-SY-UM9085-RPM-A-M2-ZT-15-CTD-2	1	2	6.194	10.465	0.406	0.130	LGB
NTPAMP001-SY-UM9085-RPM-A-M2-ZT-11-CTD-3	1	2	6.415	10.651	0.395	0.130	LWB
NTPAMP001-SY-UM9085-RPM-A-M2-ZT-14-CTD-4 (R)	1	2	6.982	10.977	0.424	0.129	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-ZT-13-CTD-1	2	1	6.904	10.995	0.378	0.131	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-ZT-15-CTD-2	2	1	6.230	10.936	0.394	0.131	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-ZT-11-CTD-3	2	1	6.892	11.041	0.389	0.130	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-ZT-12-CTD-4	2	1	7.312	11.054	0.380	0.130	LGB
NTPAMP001-SY-UM9085-RPM-B-M2-ZT-13-CTD-1	2	2	6.958	10.339	0.394	0.131	LGB
NTPAMP001-SY-UM9085-RPM-B-M2-ZT-15-CTD-2	2	2	6.356	10.749	0.407	0.130	LWB
NTPAMP001-SY-UM9085-RPM-B-M2-ZT-11-CTD-3	2	2	7.512	10.574	0.383	0.130	LGB
NTPAMP001-SY-UM9085-RPM-B-M2-ZT-14-CTD-4	2	2	7.013	10.280	0.385	0.130	LGT
NTPAMP001-SY-UM9085-RPM-C-M1-ZT-13-CTD-1	3	1	6.327	10.728	0.386	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZT-15-CTD-2	3	1	6.669	10.151	0.377	0.131	LWB
NTPAMP001-SY-UM9085-RPM-C-M1-ZT-11-CTD-3	3	1	6.745	11.084	0.383	0.130	LGB
NTPAMP001-SY-UM9085-RPM-C-M1-ZT-12-CTD-4	3	1	6.565	10.828	0.395	0.130	LGT
NTPAMP001-SY-UM9085-RPM-C-M2-ZT-13-CTD-1	3	2	7.420	11.516	0.400	0.129	LGT
NTPAMP001-SY-UM9085-RPM-C-M2-ZT-15-CTD-2	3	2	7.262	8.730	0.397	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZT-11-CTD-3	3	2	7.342	11.125	0.394	0.128	LGB, LGT, LIT
NTPAMP001-SY-UM9085-RPM-C-M2-ZT-14-CTD-4	3	2	7.265	10.871	0.391	0.128	LGT

Average	6.804	10.720	0.394	0.130
Standard Dev.	0.398	0.667	0.011	
Coeff. of Var. [%]	5.855	6.225	2.854	
Min.	6.194	8.730	0.377	0.128
Max.	7.512	11.880	0.424	0.131
Number of Spec.	24	24	24	24

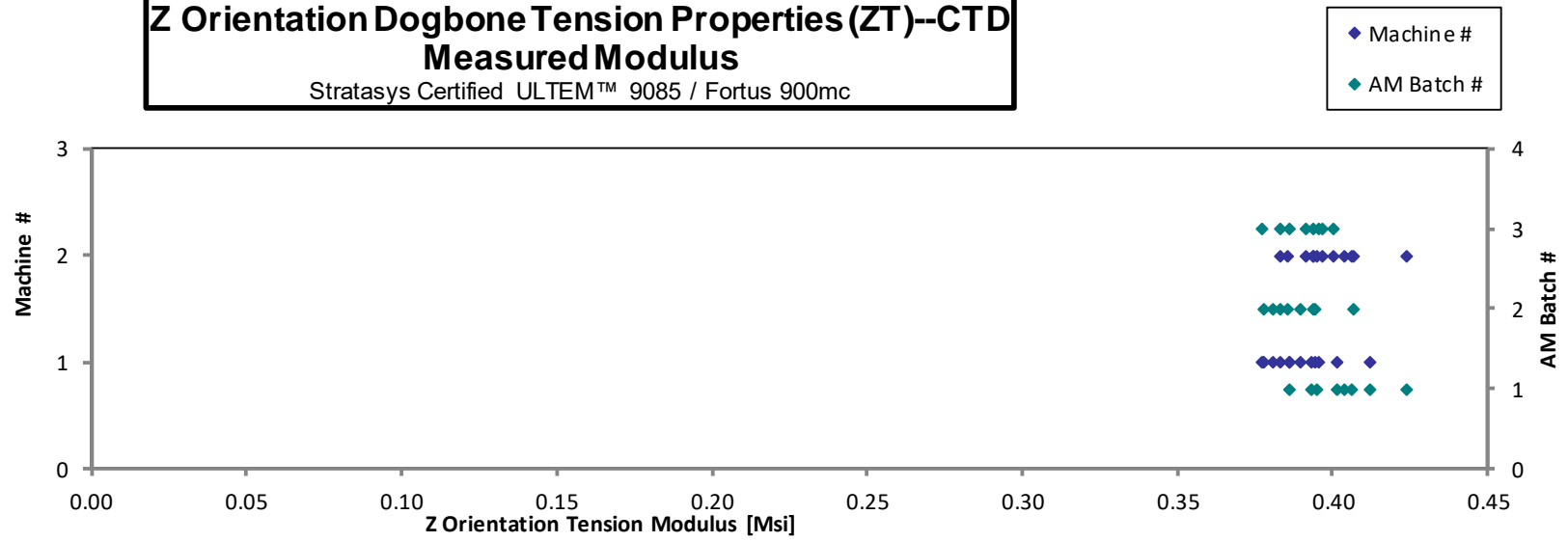
Z Orientation Dogbone Tension Properties (ZT)--CTD
Measured 0.2% Offset Yield Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z Orientation Dogbone Tension Properties (ZT)--CTD
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z Orientation Dogbone Tension Properties (ZT)--CTD
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



**Z Orientation Dogbone Tension Properties (ZT)--RTD
Strength & Modulus**

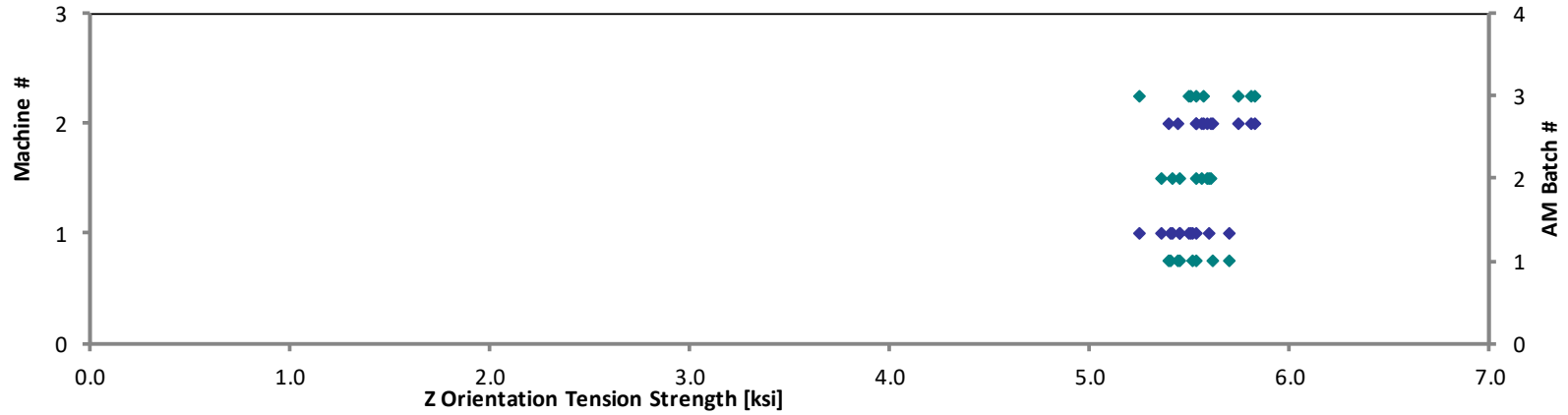
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Yield Strength [ksj]	Strength [ksj]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-ZT-13-RTD-1	1	1	5.515	8.738	0.349	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-ZT-15-RTD-2	1	1	5.409	8.441	0.343	0.131	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-ZT-11-RTD-3	1	1	5.457	8.736	0.346	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-ZT-12-RTD-4	1	1	5.703	8.663	0.344	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZT-13-RTD-1	1	2	5.618	8.545	0.346	0.129	LGB
NTPAMP001-SY-UM9085-RPM-A-M2-ZT-15-RTD-2	1	2	5.398	8.519	0.347	0.129	LGB
NTPAMP001-SY-UM9085-RPM-A-M2-ZT-11-RTD-3	1	2	5.441	8.635	0.349	0.130	LGT
NTPAMP001-SY-UM9085-RPM-A-M2-ZT-14-RTD-4	1	2	5.533	8.342	0.341	0.130	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-ZT-13-RTD-1	2	1	5.604	8.612	0.340	0.131	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-ZT-15-RTD-2	2	1	5.412	8.348	0.338	0.131	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-ZT-11-RTD-3	2	1	5.364	8.540	0.342	0.130	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-ZT-12-RTD-4	2	1	5.450	8.486	0.340	0.131	LGT
NTPAMP001-SY-UM9085-RPM-B-M2-ZT-13-RTD-1	2	2	5.611	8.659	0.356	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZT-15-RTD-2	2	2	5.534	8.591	0.355	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZT-11-RTD-3	2	2	5.594	8.523	0.353	0.129	LGB
NTPAMP001-SY-UM9085-RPM-B-M2-ZT-14-RTD-4	2	2	5.561	8.465	0.350	0.129	LGT
NTPAMP001-SY-UM9085-RPM-C-M1-ZT-13-RTD-1	3	1	5.506	8.496	0.338	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZT-15-RTD-2	3	1	5.255	8.313	0.343	0.130	LGT
NTPAMP001-SY-UM9085-RPM-C-M1-ZT-11-RTD-3	3	1	5.494	8.423	0.339	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZT-12-RTD-4	3	1	5.532	8.417	0.342	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZT-13-RTD-1	3	2	5.814	9.085	0.358	0.130	LGT
NTPAMP001-SY-UM9085-RPM-C-M2-ZT-15-RTD-2	3	2	5.745	8.406	0.352	0.130	LGT
NTPAMP001-SY-UM9085-RPM-C-M2-ZT-11-RTD-3	3	2	5.571	8.351	0.357	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZT-14-RTD-4	3	2	5.832	8.874	0.351	0.130	LGB

Average	5.540	8.550	0.347	0.130
Standard Dev.	0.139	0.182	0.006	
Coeff. of Var. [%]	2.506	2.126	1.842	
Min.	5.255	8.313	0.338	0.129
Max.	5.832	9.085	0.358	0.131
Number of Spec.	24	24	24	24

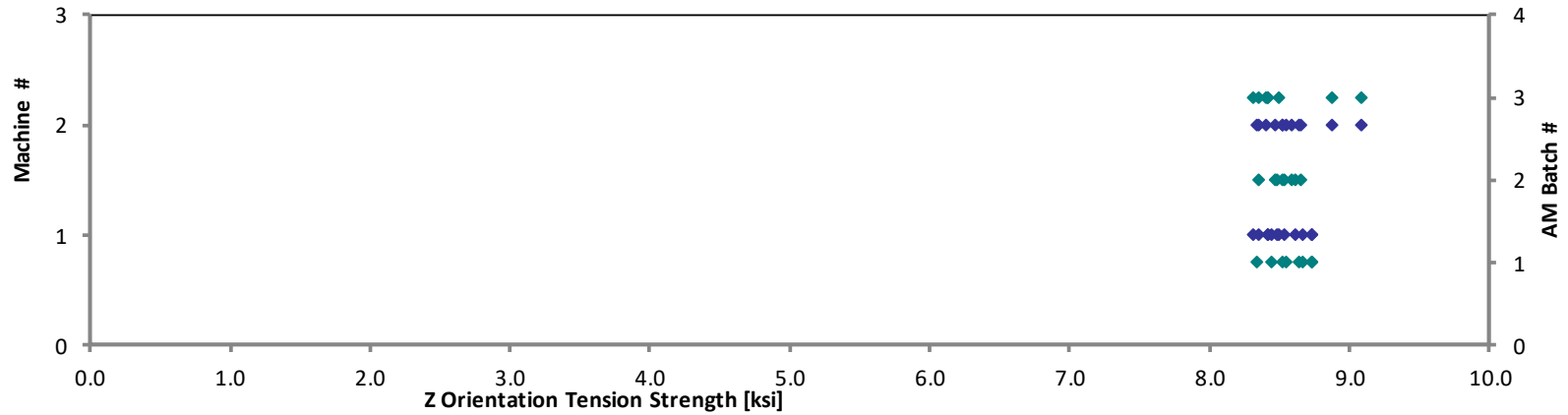
Z Orientation Dogbone Tension Properties (ZT)--RTD
Measured 0.2% Offset Yield Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #

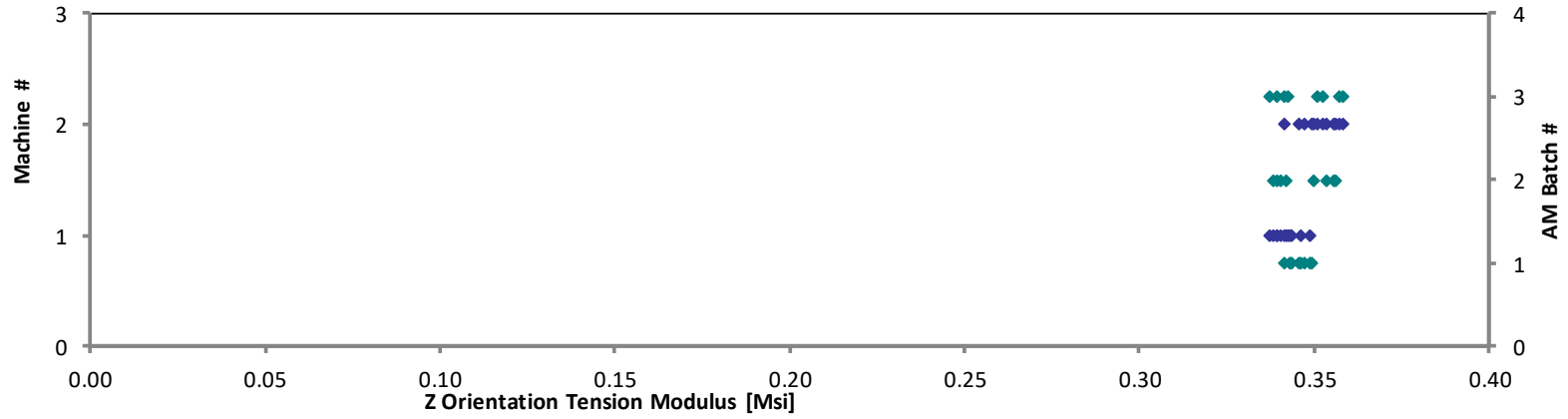
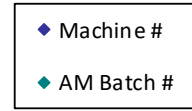


Z Orientation Dogbone Tension Properties (ZT)--RTD
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Z Orientation Tension Properties (ZT)--RTD
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

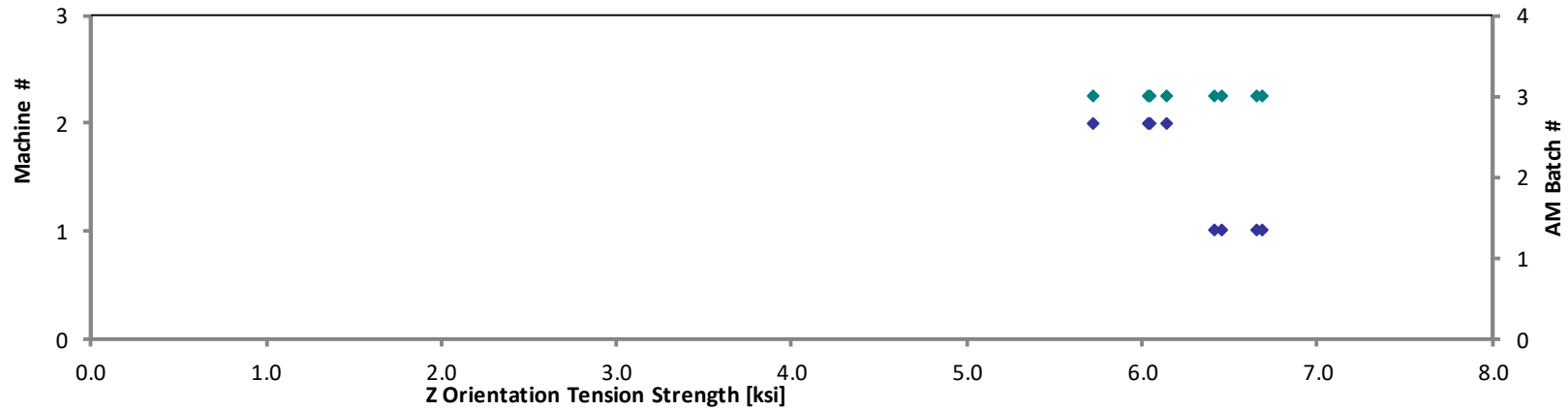


Z Orientation Dogbone Tension Properties (ZT)--RTW Strength & Modulus Stratasys Certified ULTEM™ 9085 / Fortus 900mc
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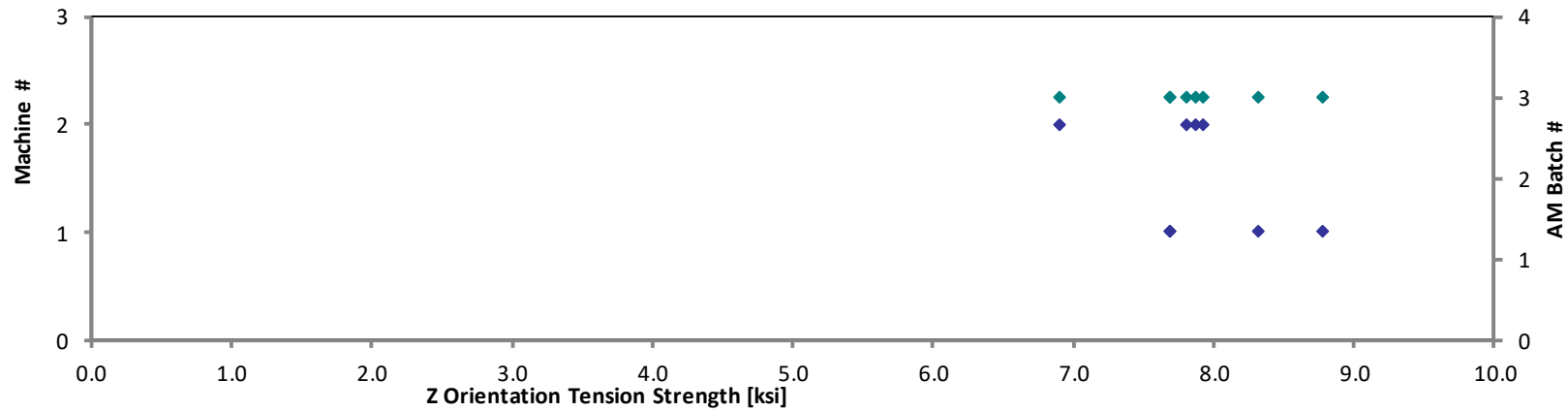
Specimen Number	AM Batch #	Machine #	0.2% Offset Yield Strength [ksi]	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-C-M1-ZT-13-RTW-1	3	1	6.414	8.322	0.367	0.129	LGB
NTPAMP001-SY-UM9085-RPM-C-M1-ZT-15-RTW-2	3	1	6.456	8.776	0.366	0.129	LGB
NTPAMP001-SY-UM9085-RPM-C-M1-ZT-12-RTW-3	3	1	6.687	7.699	0.360	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZT-11-RTW-4	3	1	6.655	7.693	0.352	0.130	LGB
NTPAMP001-SY-UM9085-RPM-C-M2-ZT-13-RTW-1	3	2	6.043	6.912	0.355	0.130	LWB
NTPAMP001-SY-UM9085-RPM-C-M2-ZT-15-RTW-2	3	2	6.036	7.808	0.350	0.130	LGB
NTPAMP001-SY-UM9085-RPM-C-M2-ZT-14-RTW-3	3	2	5.724	7.874	0.372	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZT-11-RTW-4	3	2	6.141	7.924	0.350	0.130	LGM

Average	6.270	7.876	0.359	0.130
Standard Dev.	0.338	0.536	0.008	
Coeff. of Var. [%]	5.388	6.805	2.365	
Min.	5.724	6.912	0.350	0.129
Max.	6.687	8.776	0.372	0.130
Number of Spec.	8	8	8	8

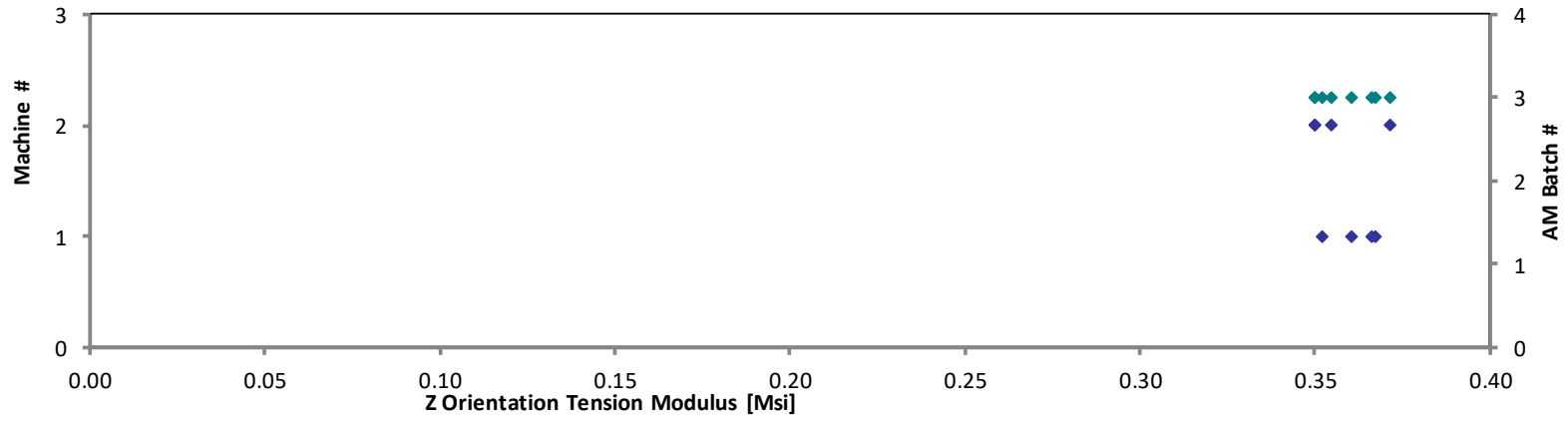
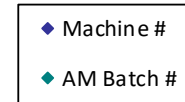
Z Orientation Dogbone Tension Properties (ZT)--RTW
Measured 0.2% Offset Yield Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z Orientation Dogbone Tension Properties (ZT)--RTW
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z Orientation Dogbone Tension Properties (ZT)--RTW
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z Orientation Dogbone Tension Properties (ZT)--ETW1
Strength & Modulus
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

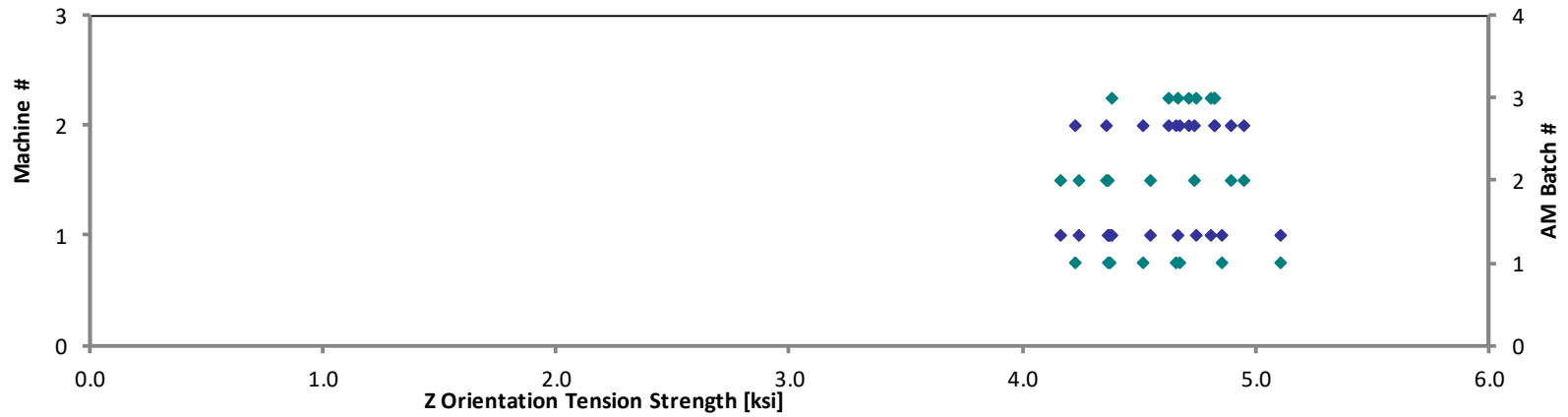
Specimen Number	AM Batch #	Machine #	0.2% Offset Yield Strength [ksi]	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-ZT-13-ETW1-1	1	1	4.855	5.287	0.300	0.131	LGB
NTPAMP001-SY-UM9085-RPM-A-M1-ZT-15-ETW1-2	1	1	5.108	5.381	0.290	0.130	LGT
NTPAMP001-SY-UM9085-RPM-A-M1-ZT-11-ETW1-3	1	1	4.372	5.287	0.325	0.130	LGT
NTPAMP001-SY-UM9085-RPM-A-M1-ZT-12-ETW1-4	1	1	4.374	5.364	0.331	0.130	LGT
NTPAMP001-SY-UM9085-RPM-A-M2-ZT-13-ETW1-1	1	2	4.661	5.066	0.301	0.130	LGT
NTPAMP001-SY-UM9085-RPM-A-M2-ZT-15-ETW1-2	1	2	4.680	5.212	0.305	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZT-11-ETW1-3	1	2	4.226	4.902	0.320	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZT-14-ETW1-4*	1	2	4.520	5.042	0.310	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZT-13-ETW1-1	2	1	4.247	5.502	0.314	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZT-15-ETW1-2	2	1	4.367	5.542	0.306	0.132	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZT-11-ETW1-3	2	1	4.162	5.353	0.329	0.131	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-ZT-12-ETW1-4	2	1	4.552	5.719	0.317	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZT-13-ETW1-1	2	2	4.364	5.476	0.326	0.130	LGT
NTPAMP001-SY-UM9085-RPM-B-M2-ZT-15-ETW1-2	2	2	4.897	5.317	0.301	0.130	LGT
NTPAMP001-SY-UM9085-RPM-B-M2-ZT-11-ETW1-3	2	2	4.742	5.368	0.307	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZT-14-ETW1-4	2	2	4.953	5.499	0.297	0.130	LGB
NTPAMP001-SY-UM9085-RPM-C-M1-ZT-13-ETW1-1	3	1	4.388	5.443	0.297	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZT-15-ETW1-2	3	1	4.667	5.376	0.294	0.130	LGT
NTPAMP001-SY-UM9085-RPM-C-M1-ZT-11-ETW1-3	3	1	4.749	5.666	0.297	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZT-12-ETW1-4	3	1	4.810	5.678	0.297	0.129	LGT
NTPAMP001-SY-UM9085-RPM-C-M2-ZT-13-ETW1-1	3	2	4.719	5.625	0.303	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZT-15-ETW1-2	3	2	4.825	5.628	0.304	0.130	LGT
NTPAMP001-SY-UM9085-RPM-C-M2-ZT-11-ETW1-3	3	2	4.631	5.653	0.307	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZT-14-ETW1-4	3	2	4.824	5.605	0.299	0.130	LGB

*Strain range used was 2000 - 4000 microstrain

Average	4.612	5.416	0.307	0.130
Standard Dev.	0.253	0.215	0.012	
Coeff. of Var. [%]	5.485	3.966	3.789	
Min.	4.162	4.902	0.290	0.129
Max.	5.108	5.719	0.331	0.132
Number of Spec.	24	24	24	24

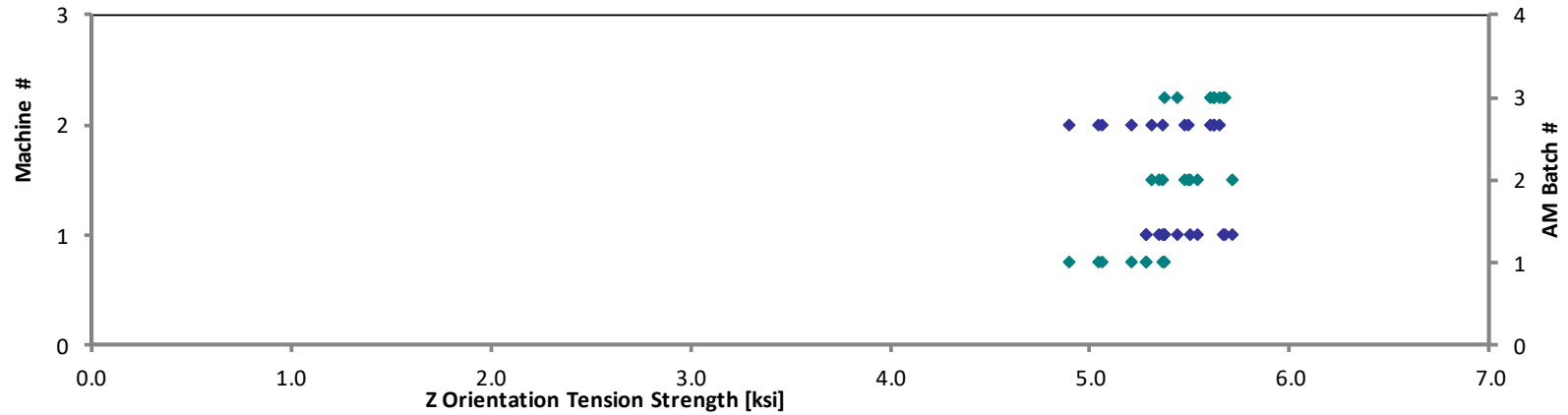
Z Orientation Dogbone Tension Properties (ZT)--ETW1
Measured 0.2% Offset Yield Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #

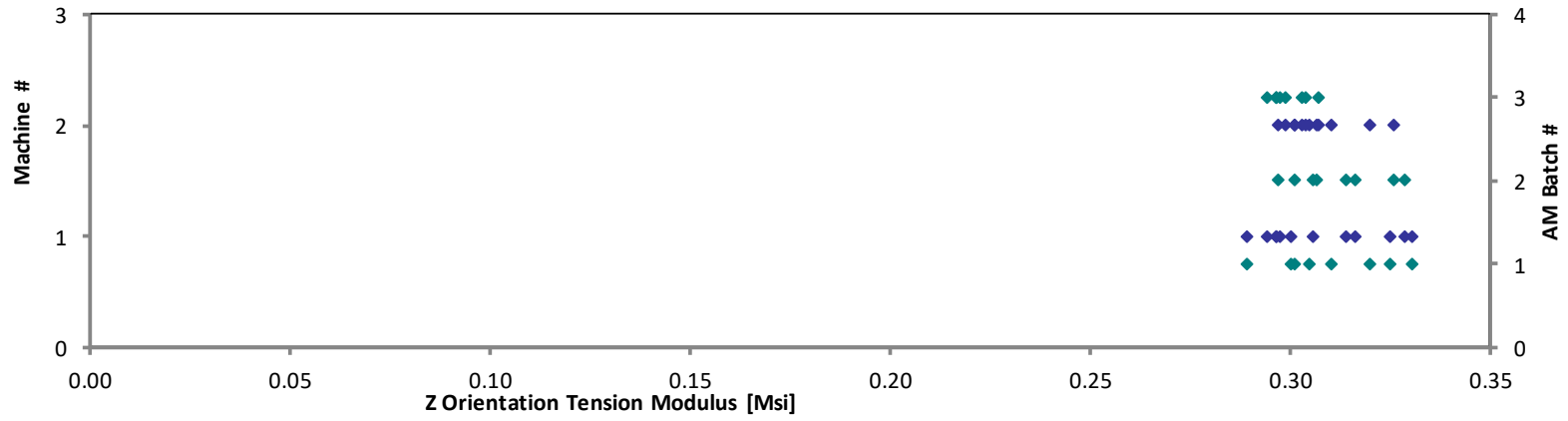
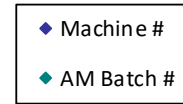


Z Orientation Dogbone Tension Properties (ZT)--ETW1
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Z Orientation Dogbone Tension Properties (ZT)--ETW1
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



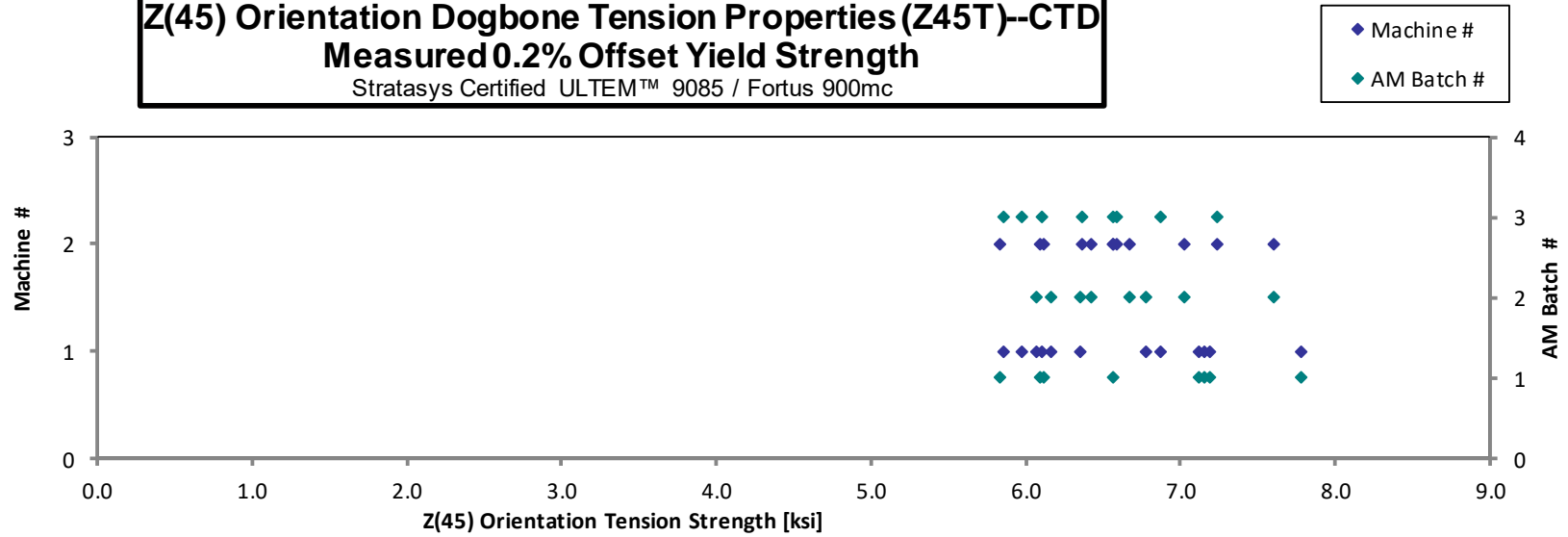
4.4 Z45 Tension Properties (Z45T)

Z(45) Orientation Dogbone Tension Properties (Z45T)--CTD
Strength & Modulus
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

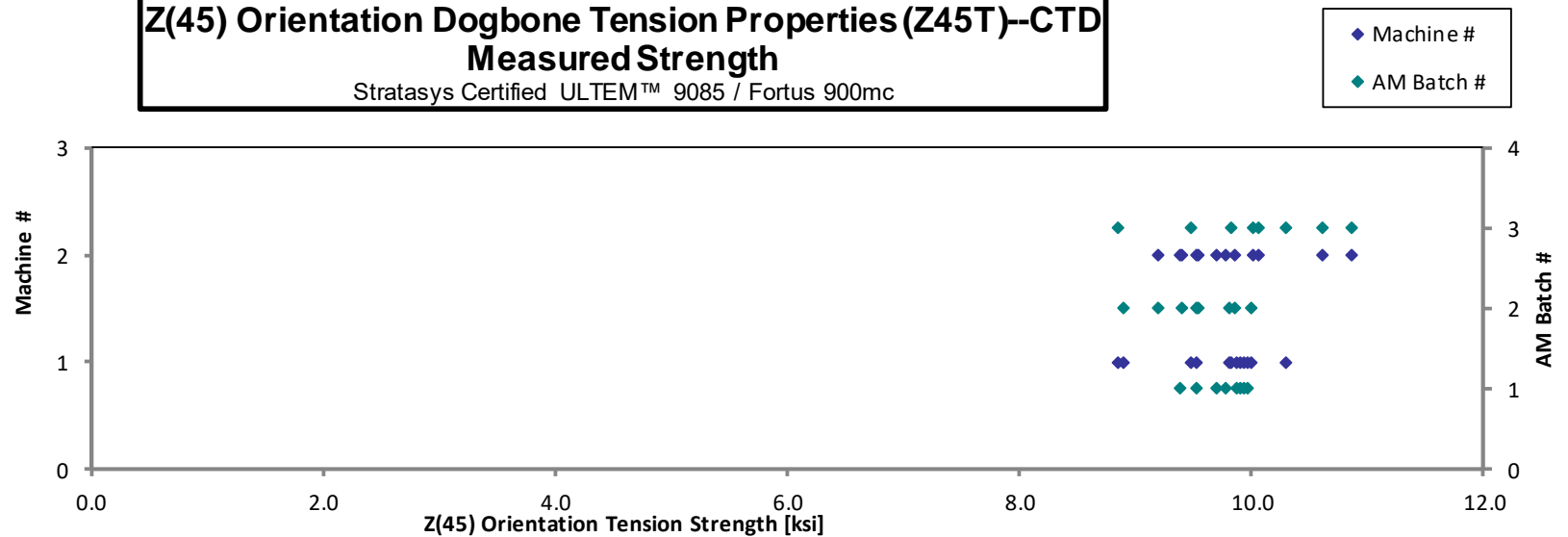
Specimen Number	AM Batch #	Machine #	0.2% Offset Yield Strength [ksi]	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-Z45T-13-CTD-1	1	1	7.196	9.977	0.371	0.132	LGT
NTPAMP001-SY-UM9085-RPM-A-M1-Z45T-15-CTD-2	1	1	7.118	9.938	0.375	0.131	LGT
NTPAMP001-SY-UM9085-RPM-A-M1-Z45T-14-CTD-3	1	1	7.780	9.912	0.353	0.131	LGT
NTPAMP001-SY-UM9085-RPM-A-M1-Z45T-11-CTD-4	1	1	7.158	9.881	0.371	0.131	LGT
NTPAMP001-SY-UM9085-RPM-A-M2-Z45T-13-CTD-1	1	2	6.121	9.786	0.389	0.130	LGT
NTPAMP001-SY-UM9085-RPM-A-M2-Z45T-15-CTD-2	1	2	6.568	9.398	0.380	0.130	LWB
NTPAMP001-SY-UM9085-RPM-A-M2-Z45T-12-CTD-3	1	2	5.837	9.525	0.383	0.131	LGB
NTPAMP001-SY-UM9085-RPM-A-M2-Z45T-11-CTD-4	1	2	6.090	9.711	0.390	0.130	LWB
NTPAMP001-SY-UM9085-RPM-B-M1-Z45T-13-CTD-1	2	1	6.353	9.818	0.382	0.130	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-Z45T-15-CTD-2	2	1	6.071	10.001	0.395	0.130	LGT
NTPAMP001-SY-UM9085-RPM-B-M1-Z45T-14-CTD-3	2	1	6.774	8.905	0.366	0.132	LWB
NTPAMP001-SY-UM9085-RPM-B-M1-Z45T-11-CTD-4	2	1	6.165	9.526	0.387	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45T-13-CTD-1	2	2	7.029	9.554	0.348	0.131	LGT
NTPAMP001-SY-UM9085-RPM-B-M2-Z45T-15-CTD-2	2	2	6.676	9.865	0.387	0.130	LWB
NTPAMP001-SY-UM9085-RPM-B-M2-Z45T-12-CTD-3	2	2	7.610	9.199	0.377	0.130	LWB
NTPAMP001-SY-UM9085-RPM-B-M2-Z45T-11-CTD-4	2	2	6.423	9.405	0.393	0.130	LWB
NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-13-CTD-1	3	1	6.872	9.824	0.377	0.131	LGT
NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-15-CTD-2	3	1	5.856	10.301	0.424	0.130	LWT
NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-14-CTD-3	3	1	6.107	8.848	0.398	0.131	LGB
NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-11-CTD-4	3	1	5.971	9.486	0.399	0.131	LGB
NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-13-CTD-1	3	2	6.360	10.877	0.418	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-15-CTD-2	3	2	7.241	10.621	0.395	0.131	LGT
NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-12-CTD-3	3	2	6.594	10.064	0.415	0.129	LGT
NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-11-CTD-4	3	2	6.561	10.022	0.405	0.130	LGT

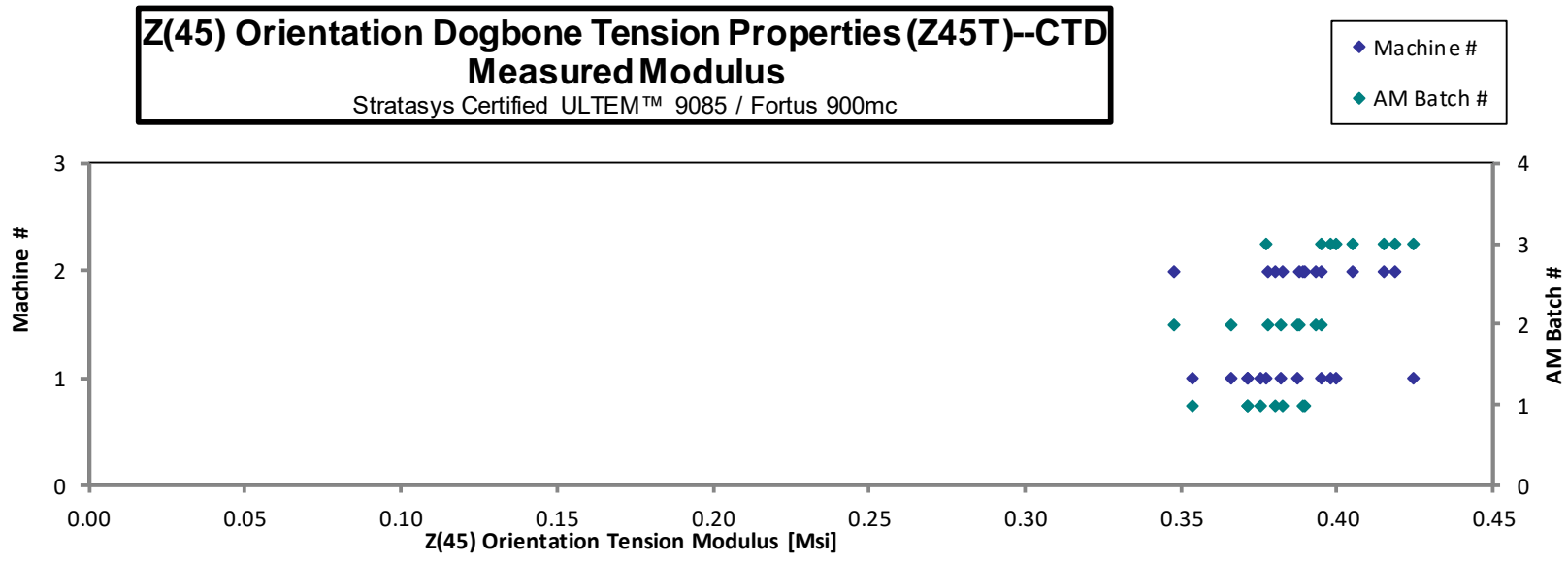
Average	6.606	9.768	0.387	0.131
Standard Dev.	0.549	0.466	0.019	
Coeff. of Var. [%]	8.314	4.773	4.808	
Min.	5.837	8.848	0.348	0.129
Max.	7.780	10.877	0.424	0.132
Number of Spec.	24	24	24	24

Z(45) Orientation Dogbone Tension Properties (Z45T)--CTD
Measured 0.2% Offset Yield Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z(45) Orientation Dogbone Tension Properties (Z45T)--CTD
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



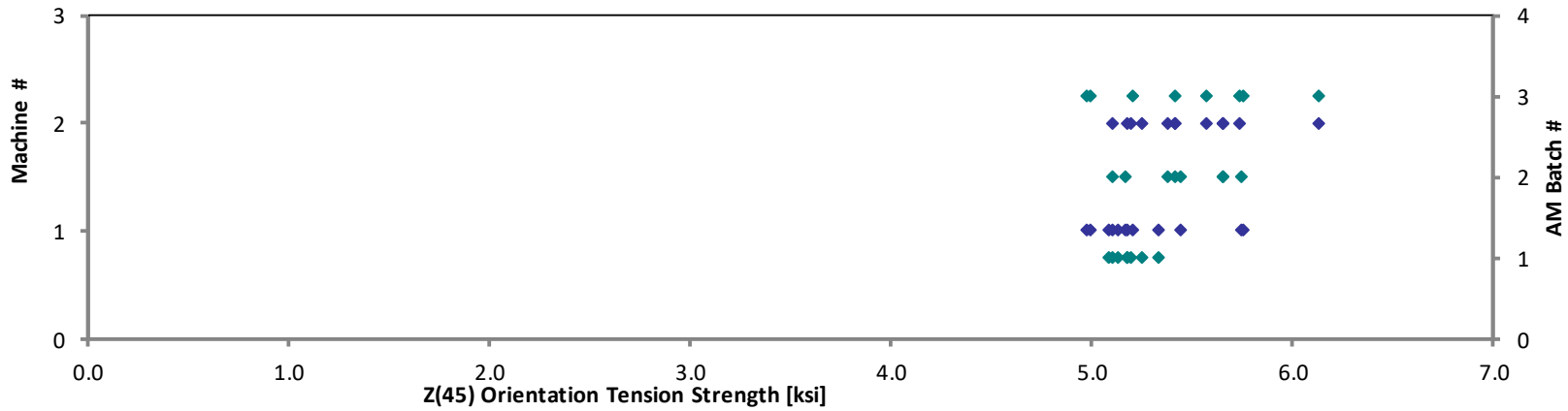


Z(45) Orientation Dogbone Tension Properties (Z45T)--RTD
Strength & Modulus
 Stratasy Certified ULTEM™ 9085 / Fortus 900mc

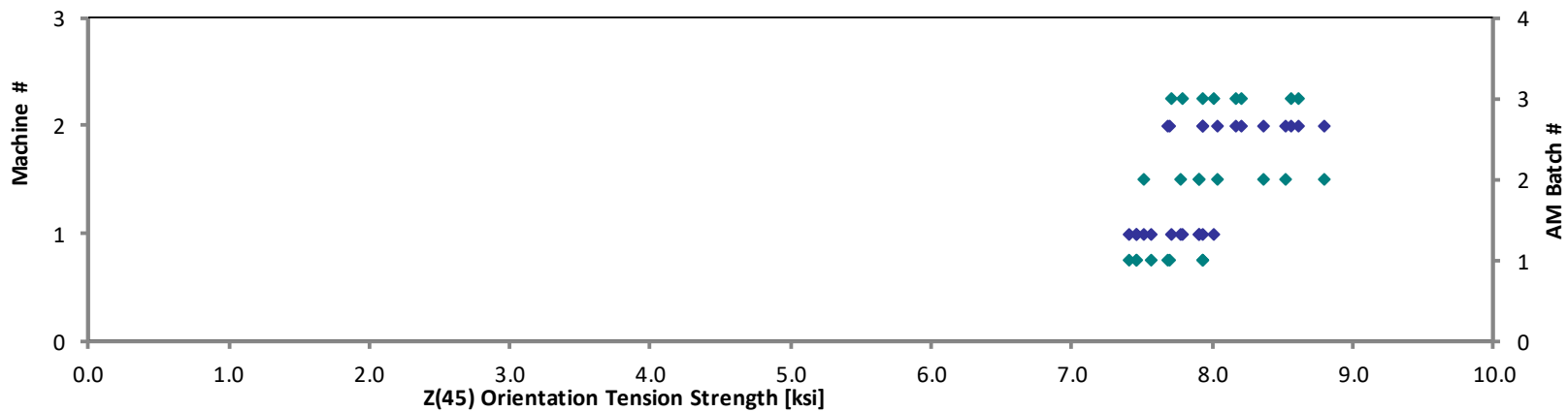
Specimen Number	AM Batch #	Machine #	0.2% Offset Yield Strength [ksi]	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-Z45T-13-RTD-1	1	1	5.331	7.459	0.351	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45T-15-RTD-2	1	1	5.083	7.415	0.356	0.130	LWB
NTPAMP001-SY-UM9085-RPM-A-M1-Z45T-14-RTD-3	1	1	5.128	7.568	0.348	0.131	LWB
NTPAMP001-SY-UM9085-RPM-A-M1-Z45T-11-RTD-4	1	1	5.176	7.463	0.350	0.130	LWB
NTPAMP001-SY-UM9085-RPM-A-M2-Z45T-13-RTD-1	1	2	5.181	7.928	0.334	0.132	LGT
NTPAMP001-SY-UM9085-RPM-A-M2-Z45T-15-RTD-2	1	2	5.247	7.938	0.337	0.132	LGT
NTPAMP001-SY-UM9085-RPM-A-M2-Z45T-12-RTD-3	1	2	5.197	7.683	0.342	0.130	LGT
NTPAMP001-SY-UM9085-RPM-A-M2-Z45T-11-RTD-4	1	2	5.106	7.697	0.338	0.131	LGT
NTPAMP001-SY-UM9085-RPM-B-M1-Z45T-13-RTD-1	2	1	5.444	7.775	0.321	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45T-15-RTD-2	2	1	5.165	7.908	0.336	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45T-14-RTD-3	2	1	5.106	7.906	0.330	0.132	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45T-11-RTD-4	2	1	5.747	7.520	0.304	0.132	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45T-13-RTD-1	2	2	5.652	8.518	0.348	0.132	LGT
NTPAMP001-SY-UM9085-RPM-B-M2-Z45T-15-RTD-2	2	2	5.656	8.792	0.356	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45T-12-RTD-3	2	2	5.419	8.045	0.355	0.131	LGB
NTPAMP001-SY-UM9085-RPM-B-M2-Z45T-11-RTD-4	2	2	5.380	8.371	0.355	0.131	LGB
NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-13-RTD-1	3	1	5.756	7.785	0.319	0.132	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-15-RTD-2	3	1	4.998	7.937	0.338	0.132	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-14-RTD-3	3	1	5.204	8.012	0.340	0.132	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-11-RTD-4	3	1	4.976	7.705	0.337	0.132	LGT
NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-13-RTD-1	3	2	5.741	8.617	0.346	0.132	LGT
NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-15-RTD-2	3	2	5.574	8.563	0.352	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-12-RTD-3	3	2	5.412	8.165	0.356	0.131	LGT
NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-11-RTD-4	3	2	6.129	8.208	0.329	0.131	LGM

Average	5.367	7.957	0.341	0.131
Standard Dev.	0.294	0.391	0.014	
Coeff. of Var. [%]	5.470	4.908	3.973	
Min.	4.976	7.415	0.304	0.130
Max.	6.129	8.792	0.356	0.132
Number of Spec.	24	24	24	24

Z(45) Orientation Dogbone Tension Properties (Z45T)--RTD
Measured 0.2% Offset Yield Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

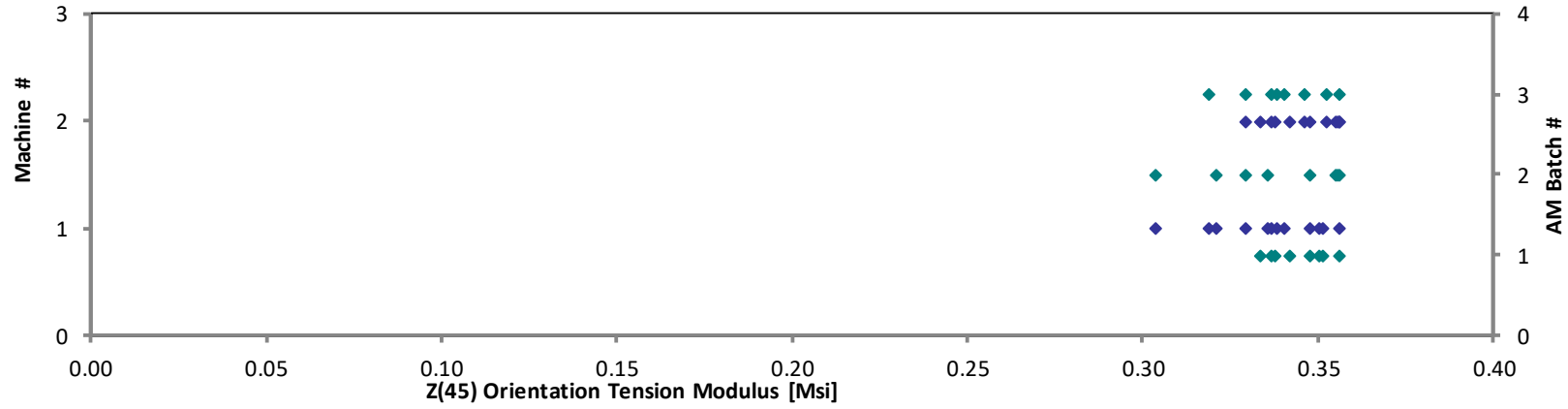


Z(45) Orientation Dogbone Tension Properties (Z45T)--RTD
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z(45) Orientation Tension Properties (Z45T)--RTD
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

- ◆ Machine #
- ◆ AM Batch #

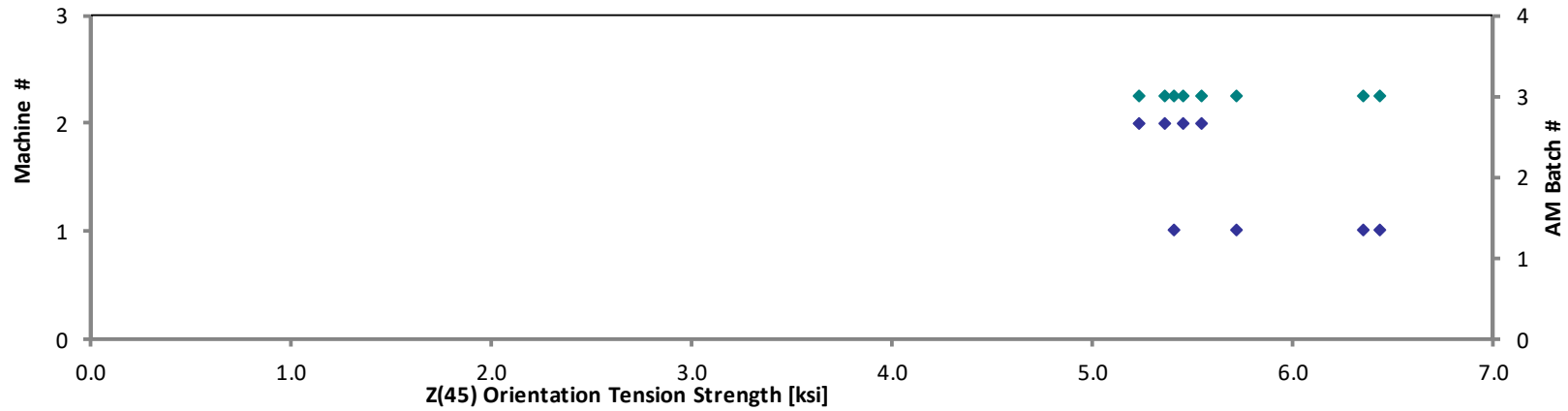


Z(45) Orientation Dogbone Tension Properties (Z45T)--RTW
Strength & Modulus
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

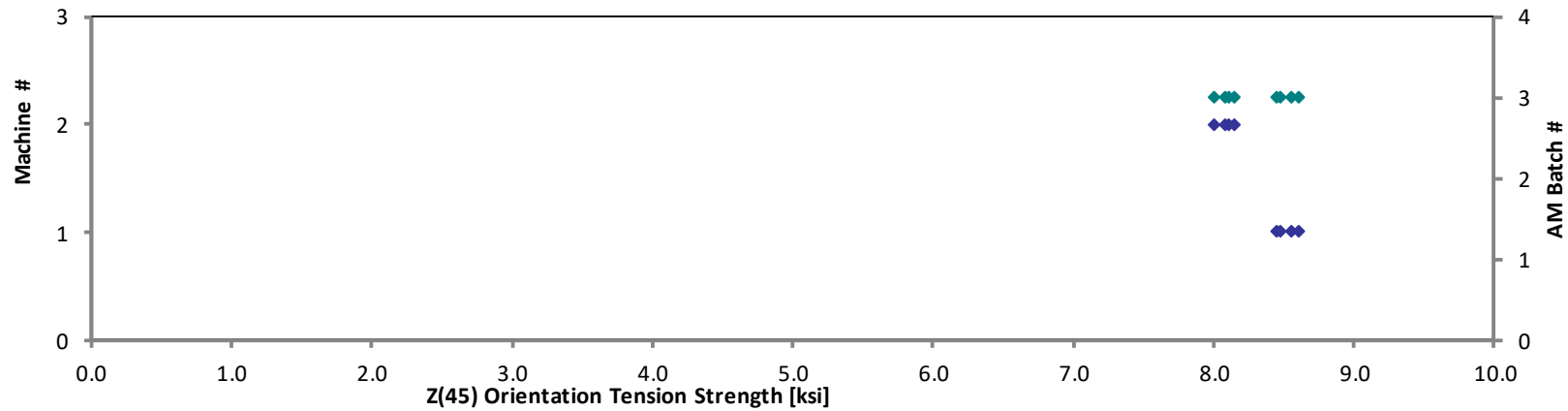
Specimen Number	AM Batch #	Machine #	0.2% Offset Yield Strength [ksi]	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-13-RTW-1	3	1	5.410	8.559	0.363	0.133	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-15-RTW-2	3	1	6.358	8.606	0.334	0.132	LWB
NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-12-RTW-3	3	1	6.443	8.482	0.337	0.132	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-11-RTW-4	3	1	5.719	8.448	0.358	0.132	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-13-RTW-1	3	2	5.457	8.090	0.351	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-15-RTW-2	3	2	5.549	8.147	0.344	0.131	LGT
NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-14-RTW-3	3	2	5.365	8.008	0.343	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-11-RTW-4	3	2	5.237	8.115	0.360	0.130	LWT

Average	5.692	8.307	0.349	0.131
Standard Dev.	0.459	0.240	0.011	
Coeff. of Var. [%]	8.067	2.886	3.132	
Min.	5.237	8.008	0.334	0.130
Max.	6.443	8.606	0.363	0.133
Number of Spec.	8	8	8	8

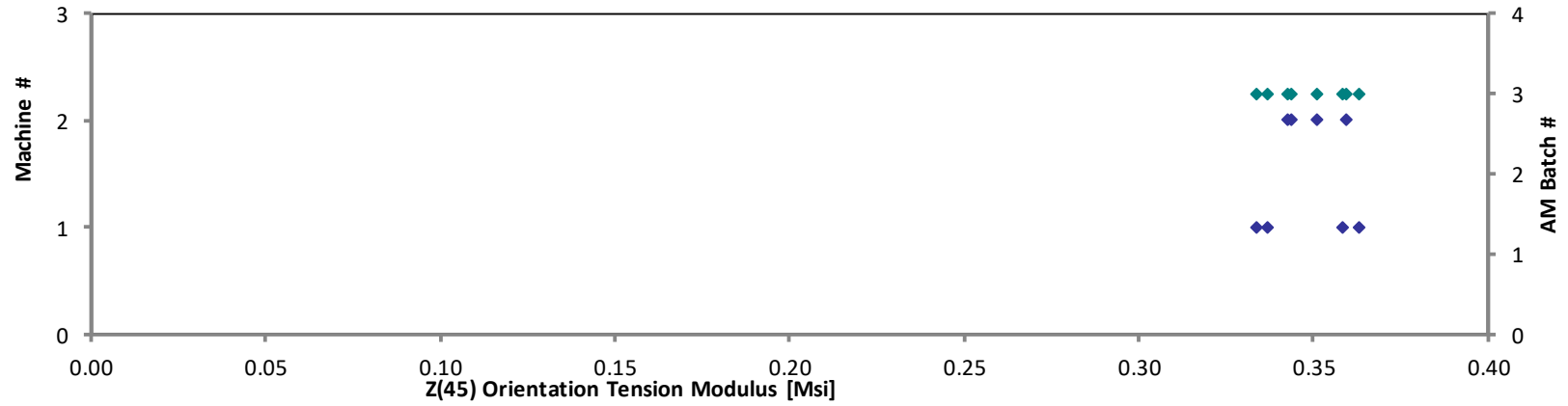
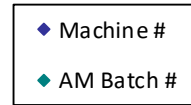
Z(45) Orientation Dogbone Tension Properties (Z45T)--RTW
Measured 0.2% Offset Yield Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z(45) Orientation Dogbone Tension Properties (Z45T)--RTW
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z(45) Orientation Dogbone Tension Properties (Z45T)--RTW
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



**Z(45) Orientation Dogbone Tension Properties (Z45T)--ETW1
Strength & Modulus**

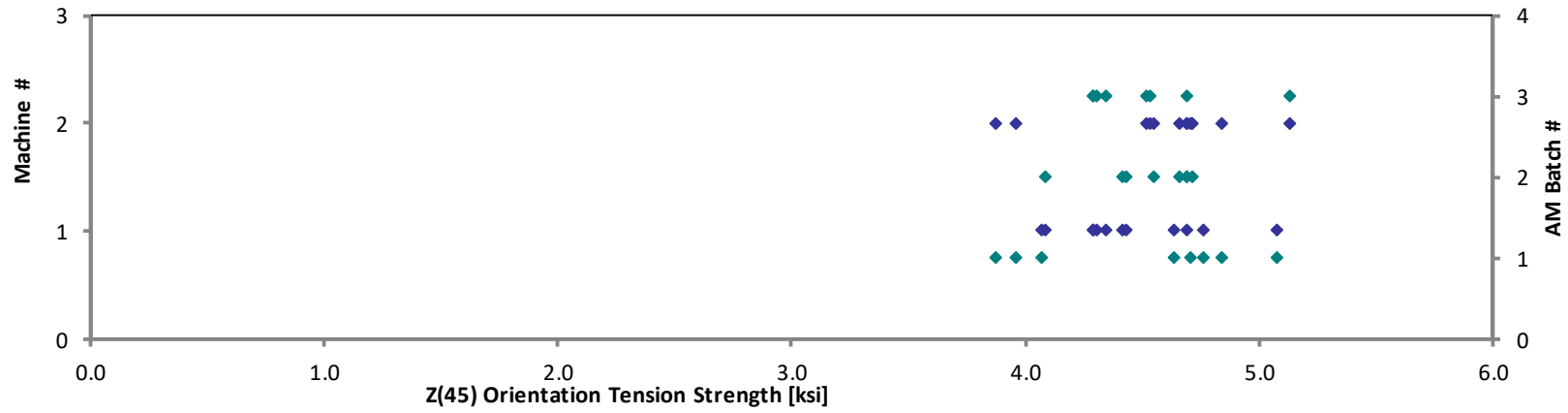
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Yield Strength [ksij]	Strength [ksij]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-Z45T-13-ETW1-1	1	1	4.068	5.649	0.335	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45T-15-ETW1-2	1	1	4.634	5.803	0.319	0.131	LWT
NTPAMP001-SY-UM9085-RPM-A-M1-Z45T-14-ETW1-3	1	1	5.081	5.856	0.293	0.132	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45T-11-ETW1-4	1	1	4.761	5.726	0.318	0.131	LWT
NTPAMP001-SY-UM9085-RPM-A-M2-Z45T-13-ETW1-1	1	2	4.709	5.583	0.300	0.130	LGB
NTPAMP001-SY-UM9085-RPM-A-M2-Z45T-15-ETW1-2	1	2	3.871	5.530	0.338	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45T-12-ETW1-3	1	2	4.840	5.621	0.299	0.130	LGB
NTPAMP001-SY-UM9085-RPM-A-M2-Z45T-11-ETW1-4	1	2	3.961	5.729	0.335	0.130	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-Z45T-13-ETW1-1	2	1	4.087	5.508	0.313	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45T-15-ETW1-2	2	1	4.418	5.603	0.302	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45T-14-ETW1-3	2	1	4.435	5.861	0.304	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45T-11-ETW1-4	2	1	4.693	5.707	0.294	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45T-13-ETW1-1	2	2	4.664	6.020	0.317	0.130	LGT
NTPAMP001-SY-UM9085-RPM-B-M2-Z45T-15-ETW1-2	2	2	4.689	6.055	0.314	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45T-12-ETW1-3	2	2	4.554	6.042	0.330	0.130	LGT
NTPAMP001-SY-UM9085-RPM-B-M2-Z45T-11-ETW1-4	2	2	4.718	6.037	0.316	0.131	LGT
NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-13-ETW1-1	3	1	4.292	5.383	0.303	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-15-ETW1-2	3	1	4.290	5.779	0.310	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-14-ETW1-3	3	1	4.342	5.647	0.304	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-11-ETW1-4	3	1	4.307	5.769	0.300	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-13-ETW1-1	3	2	4.538	5.883	0.315	0.130	LGB
NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-15-ETW1-2	3	2	5.135	6.074	0.290	0.130	LGB
NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-12-ETW1-3	3	2	4.519	6.172	0.322	0.130	LGB
NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-11-ETW1-4	3	2	4.695	6.034	0.304	0.131	LGM

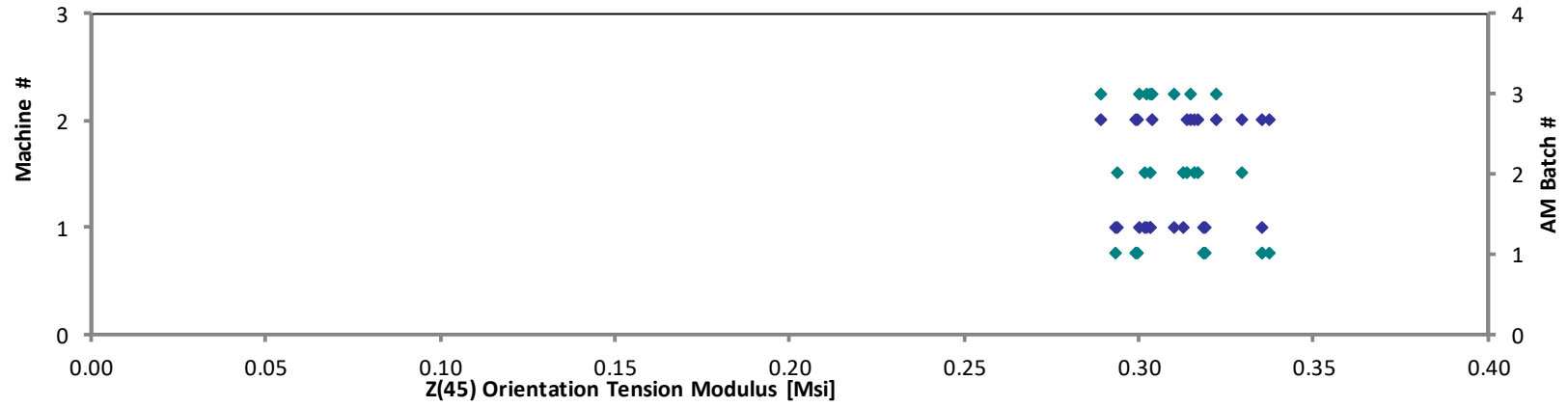
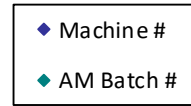
Average	4.513	5.795	0.311	0.130
Standard Dev.	0.321	0.211	0.014	
Coeff. of Var. [%]	7.124	3.646	4.398	
Min.	3.871	5.383	0.290	0.130
Max.	5.135	6.172	0.338	0.132
Number of Spec.	24	24	24	24

Z(45) Orientation DogboneTension Properties (Z45T)--ETW1
Measured 0.2%Offset Yield Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Z(45) Orientation Dogbone Tension Properties (Z45T)--ETW1
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



4.5 X Compression Properties (XC)

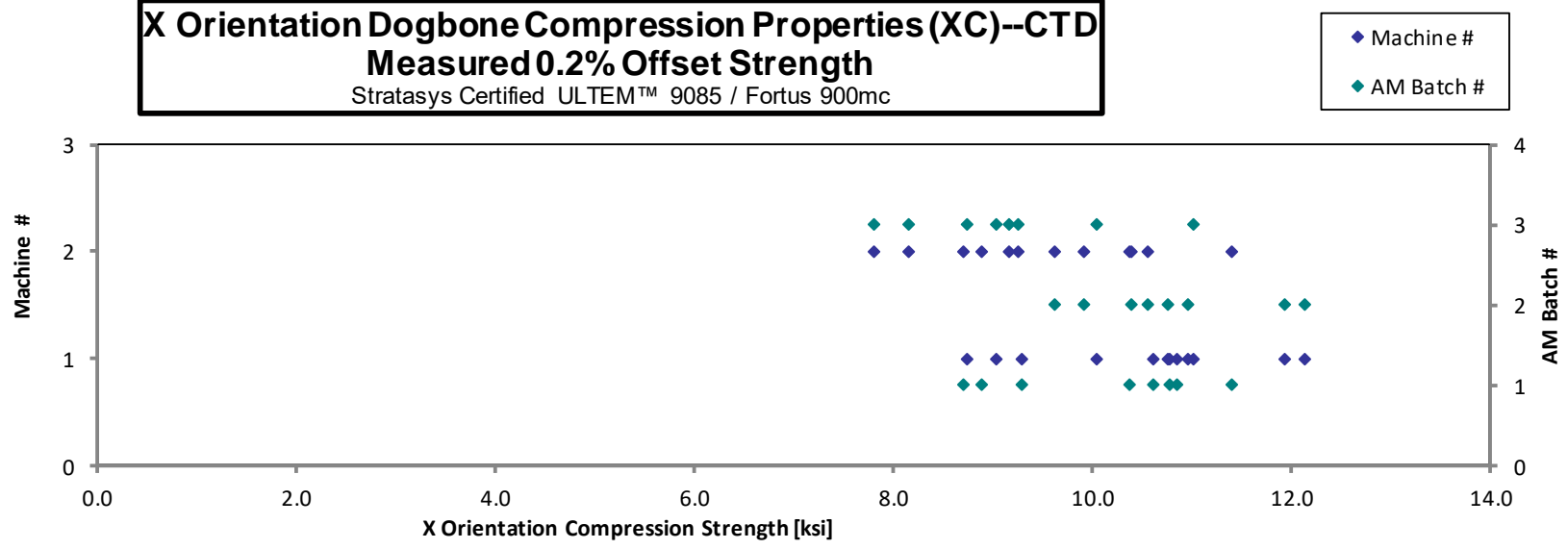
**X Orientation Dogbone Compression Properties (XC)--CTD
Strength & Modulus**

Stratays Certified ULTEM™ 9085 / Fortus 900mc

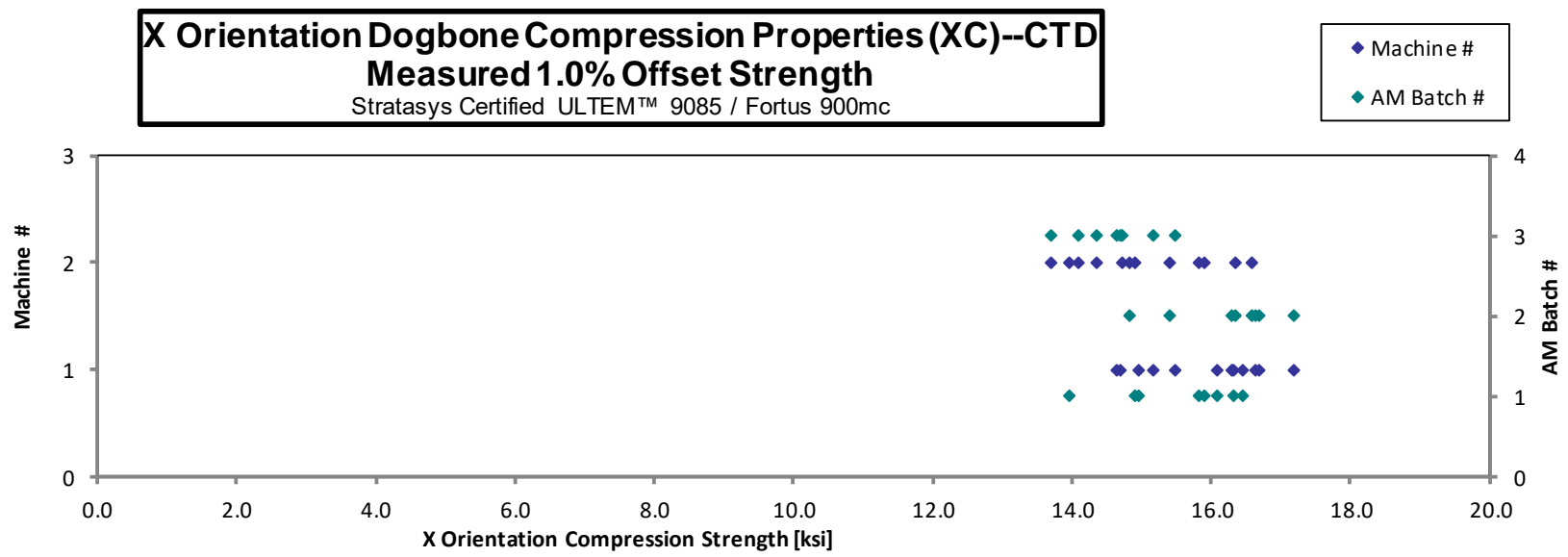
Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-XC-13-CTD-1	1	1	9.300	14.954	0.395	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-XC-15-CTD-2	1	1	10.860	16.336	0.407	0.127
NTPAMP001-SY-UM9085-RPM-A-M1-XC-12-CTD-3	1	1	10.781	16.100	0.400	0.127
NTPAMP001-SY-UM9085-RPM-A-M1-XC-11-CTD-4	1	1	10.618	16.455	0.419	0.127
NTPAMP001-SY-UM9085-RPM-A-M2-XC-13-CTD-1	1	2	11.405	15.814	0.375	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-XC-15-CTD-2	1	2	10.383	15.905	0.395	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-XC-14-CTD-3	1	2	8.884	13.959	0.378	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-XC-11-CTD-4	1	2	8.714	14.916	0.429	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-XC-13-CTD-1	2	1	12.136	17.188	0.384	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-XC-15-CTD-2	2	1	11.946	16.651	0.370	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-XC-12-CTD-3	2	1	10.759	16.307	0.402	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-XC-11-CTD-4	2	1	10.972	16.689	0.397	0.128
NTPAMP001-SY-UM9085-RPM-B-M2-XC-13-CTD-1	2	2	9.625	14.826	0.398	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-XC-15-CTD-2	2	2	9.921	15.412	0.411	0.128
NTPAMP001-SY-UM9085-RPM-B-M2-XC-14-CTD-3	2	2	10.567	16.573	0.419	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-XC-11-CTD-4	2	2	10.399	16.360	0.429	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-XC-13-CTD-1	3	1	8.751	14.709	0.402	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-XC-15-CTD-2	3	1	10.046	15.169	0.390	0.127
NTPAMP001-SY-UM9085-RPM-C-M1-XC-12-CTD-3	3	1	9.046	14.633	0.395	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-XC-11-CTD-4	3	1	11.018	15.497	0.366	0.127
NTPAMP001-SY-UM9085-RPM-C-M2-XC-13-CTD-1	3	2	9.260	14.365	0.376	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-XC-15-CTD-2	3	2	8.165	13.699	0.397	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-XC-14-CTD-3	3	2	9.163	14.728	0.397	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-XC-11-CTD-4	3	2	7.811	14.088	0.430	0.128

Average	10.022	15.472	0.398	0.128
Standard Dev.	1.154	0.987	0.018	
Coeff. of Var. [%]	11.518	6.382	4.578	
Min.	7.811	13.699	0.366	0.127
Max.	12.136	17.188	0.430	0.129
Number of Spec.	24	24	24	24

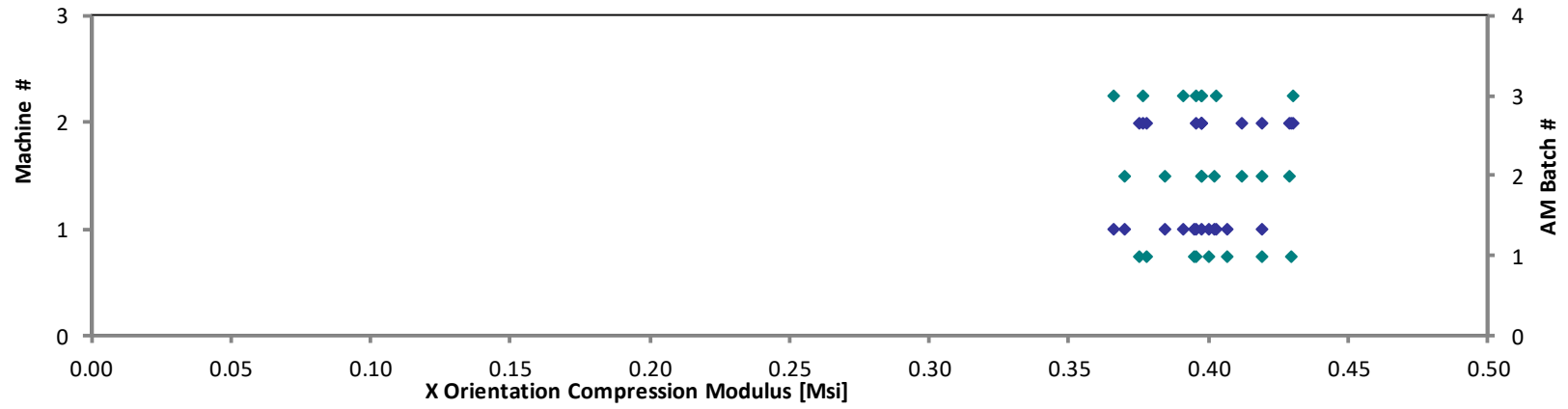
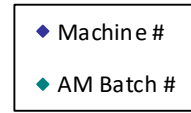
X Orientation Dogbone Compression Properties (XC)--CTD
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



X Orientation Dogbone Compression Properties (XC)--CTD
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



X Orientation Dogbone Compression Properties (XC)--CTD
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



**X Orientation Dogbone Compression Properties (XC)--RTD
Strength & Modulus**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

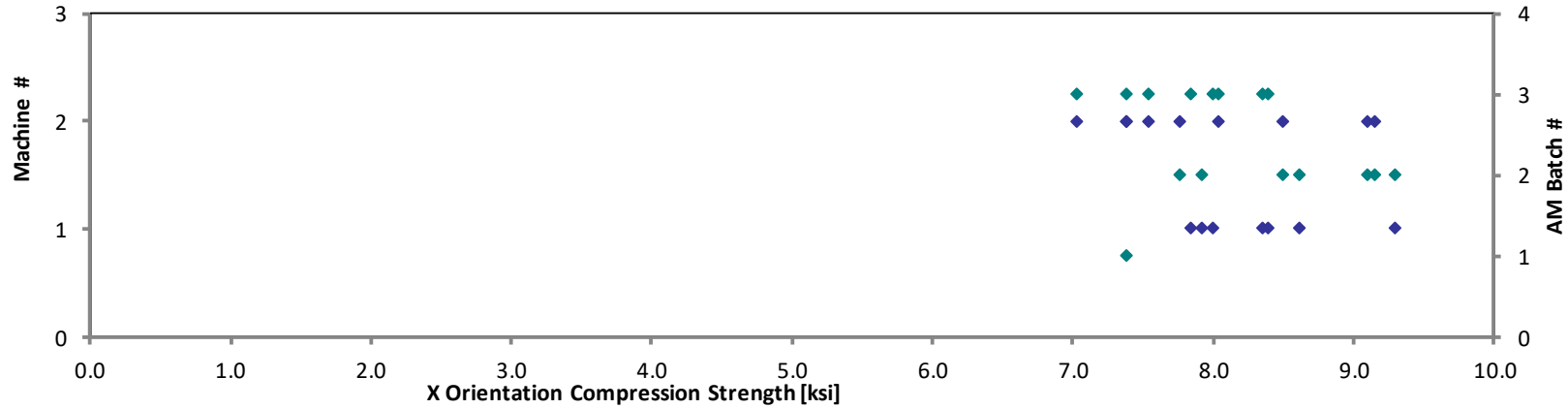
Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-XC-13-RTD-1 (R)	1	1	7.596	12.657	0.416	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-XC-15-RTD-2 (R)	1	1	7.534	12.430	0.412	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-XC-12-RTD-3 (R)	1	1	7.374	12.003	0.405	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-XC-11-RTD-4	1	1	8.833	13.245	0.387	0.127
NTPAMP001-SY-UM9085-RPM-A-M2-XC-13-RTD-1	1	2	7.917	12.366	0.398	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-XC-15-RTD-2	1	2	7.622	12.302	0.398	0.127
NTPAMP001-SY-UM9085-RPM-A-M2-XC-14-RTD-3	1	2	7.915	11.901	0.381	0.127
NTPAMP001-SY-UM9085-RPM-A-M2-XC-11-RTD-4 (R)	1	2	7.379	12.063	0.395	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-XC-13-RTD-1 (R)*	2	1				
NTPAMP001-SY-UM9085-RPM-B-M1-XC-15-RTD-2	2	1	8.613	12.758	0.392	0.127
NTPAMP001-SY-UM9085-RPM-B-M1-XC-12-RTD-3	2	1	7.920	12.169	0.383	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-XC-11-RTD-4	2	1	9.300	12.959	0.377	0.128
NTPAMP001-SY-UM9085-RPM-B-M2-XC-13-RTD-1	2	2	7.767	12.260	0.396	0.128
NTPAMP001-SY-UM9085-RPM-B-M2-XC-15-RTD-2	2	2	8.495	12.113	0.373	0.127
NTPAMP001-SY-UM9085-RPM-B-M2-XC-14-RTD-3	2	2	9.148	12.762	0.386	0.127
NTPAMP001-SY-UM9085-RPM-B-M2-XC-11-RTD-4	2	2	9.107	12.724	0.383	0.127
NTPAMP001-SY-UM9085-RPM-C-M1-XC-13-RTD-1	3	1	7.999	12.233	0.384	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-XC-15-RTD-2	3	1	8.396	13.176	0.397	0.127
NTPAMP001-SY-UM9085-RPM-C-M1-XC-12-RTD-3	3	1	7.840	11.989	0.373	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-XC-11-RTD-4	3	1	8.348	13.185	0.390	0.127
NTPAMP001-SY-UM9085-RPM-C-M2-XC-13-RTD-1	3	2	7.027	10.673	0.354	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-XC-15-RTD-2	3	2	7.384	11.004	0.352	0.128
NTPAMP001-SY-UM9085-RPM-C-M2-XC-14-RTD-3	3	2	7.535	11.347	0.359	0.128
NTPAMP001-SY-UM9085-RPM-C-M2-XC-11-RTD-4	3	2	8.044	11.510	0.355	0.128

*Data not obtained due to extensometer slip during test

Average	8.048	12.253	0.385	0.128
Standard Dev.	0.630	0.671	0.018	
Coeff. of Var. [%]	7.822	5.474	4.602	
Min.	7.027	10.673	0.352	0.127
Max.	9.300	13.245	0.416	0.129
Number of Spec.	23	23	23	23

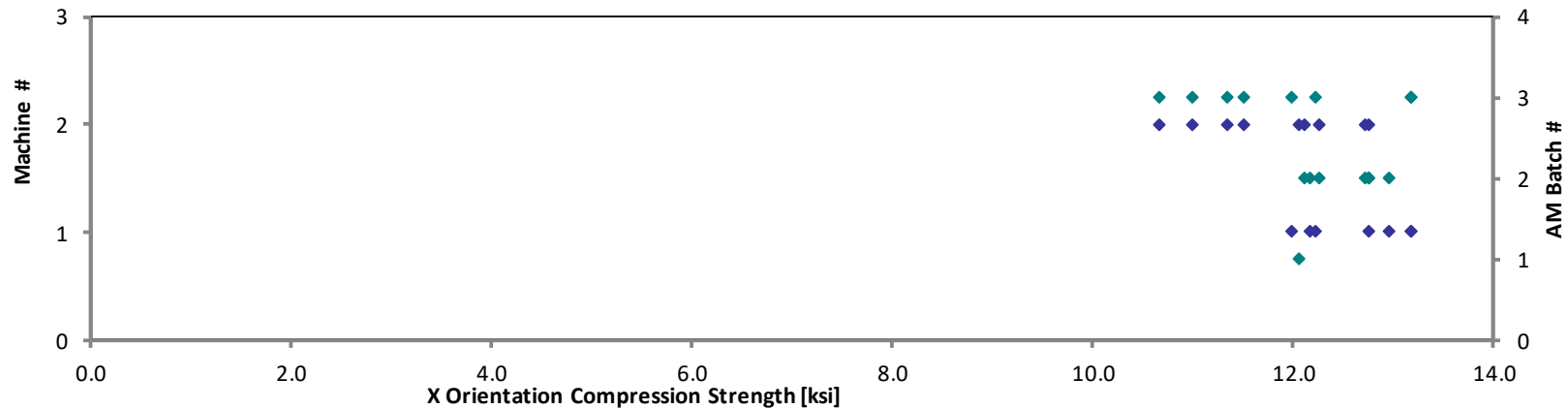
X Orientation Dogbone Compression Properties (XC)--RTD
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #

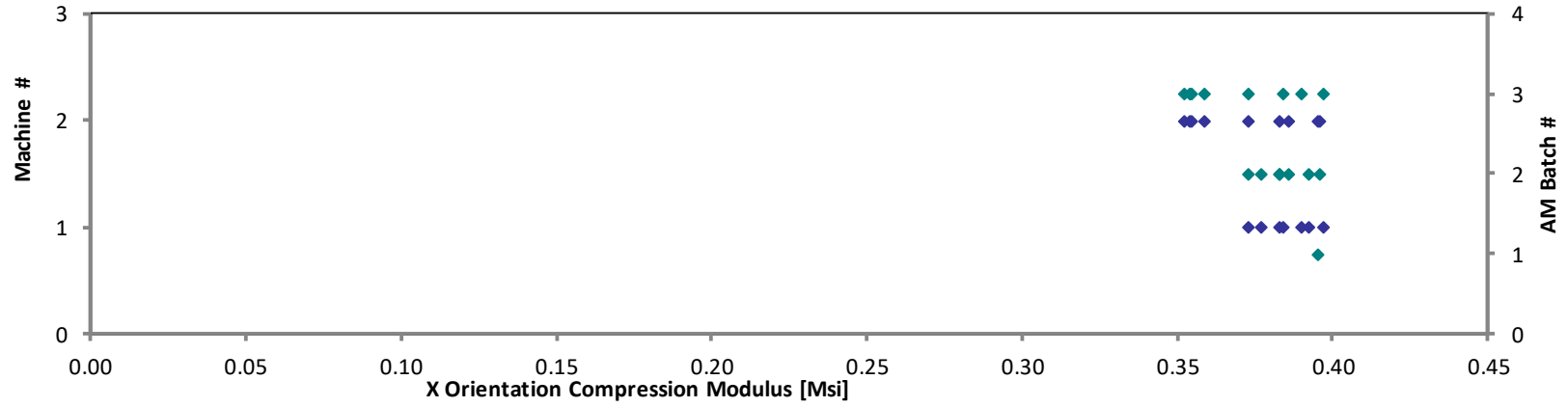
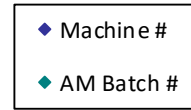


X Orientation Dogbone Compression Properties (XC)--RTD
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



X Orientation Compression Properties (XC)--RTD
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



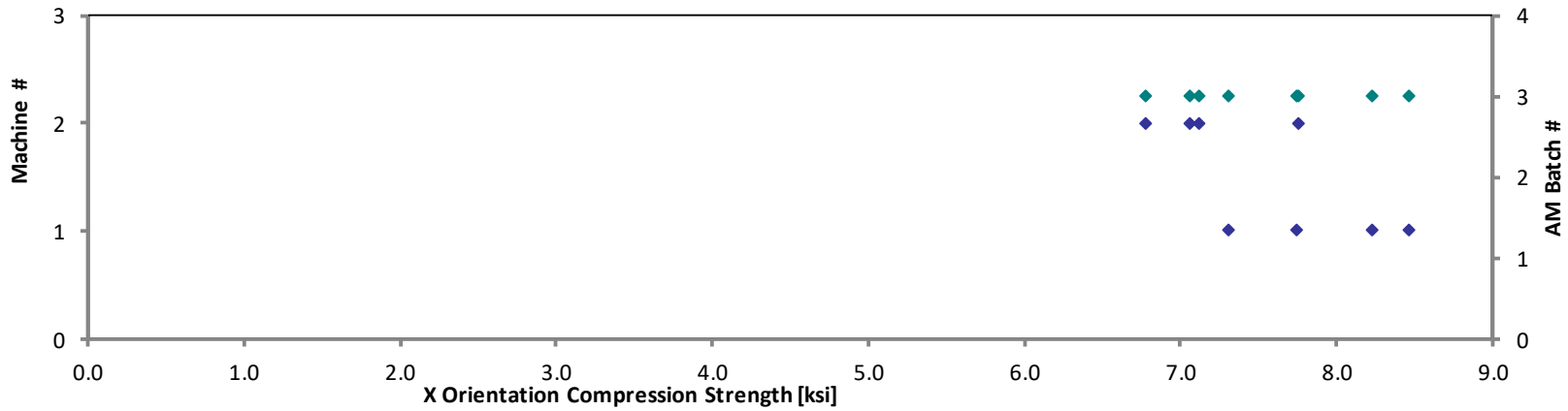
X Orientation Dogbone Compression Properties (XC)--RTW Strength & Modulus Stratasys Certified ULTEM™ 9085 / Fortus 900mc
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Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-C-M1-XC-13-RTW-1*	3	1	7.750	13.133	0.497	0.127
NTPAMP001-SY-UM9085-RPM-C-M1-XC-15-RTW-2	3	1	8.233	12.445	0.389	0.127
NTPAMP001-SY-UM9085-RPM-C-M1-XC-14-RTW-3	3	1	8.472	12.393	0.390	0.126
NTPAMP001-SY-UM9085-RPM-C-M1-XC-11-RTW-4	3	1	7.314	11.818	0.402	0.127
NTPAMP001-SY-UM9085-RPM-C-M2-XC-13-RTW-1	3	2	7.056	12.048	0.443	0.128
NTPAMP001-SY-UM9085-RPM-C-M2-XC-15-RTW-2	3	2	7.118	12.469	0.470	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-XC-12-RTW-3	3	2	7.763	12.872	0.449	0.128
NTPAMP001-SY-UM9085-RPM-C-M2-XC-11-RTW-4	3	2	6.775	10.720	0.383	0.128

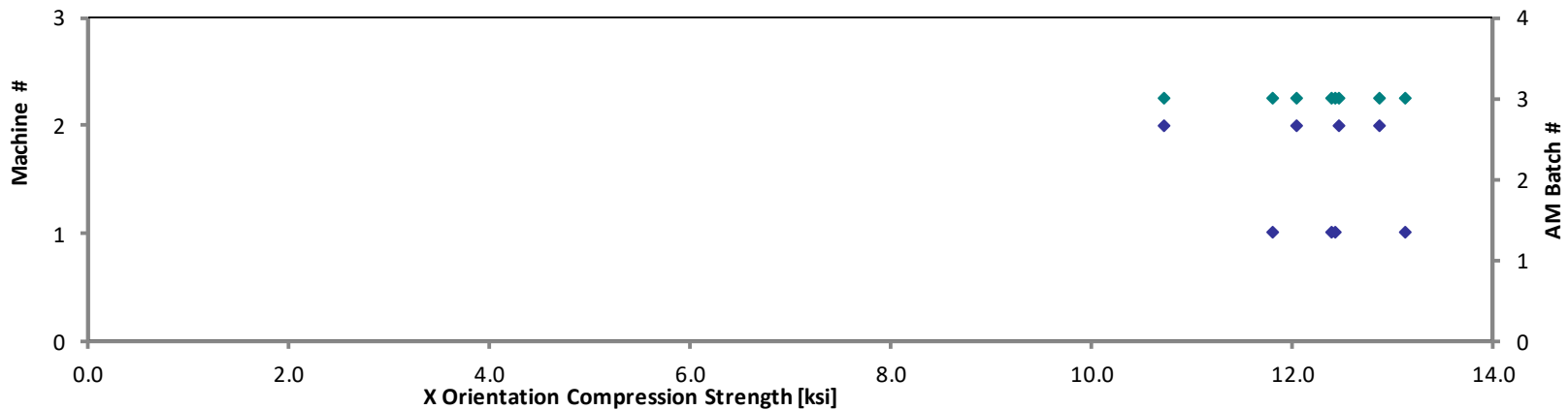
*Buckling occurred on sample

Average	7.560	12.237	0.428	0.127
Standard Dev.	0.596	0.741	0.043	
Coeff. of Var. [%]	7.886	6.052	10.012	
Min.	6.775	10.720	0.383	0.126
Max.	8.472	13.133	0.497	0.129
Number of Spec.	8	8	8	8

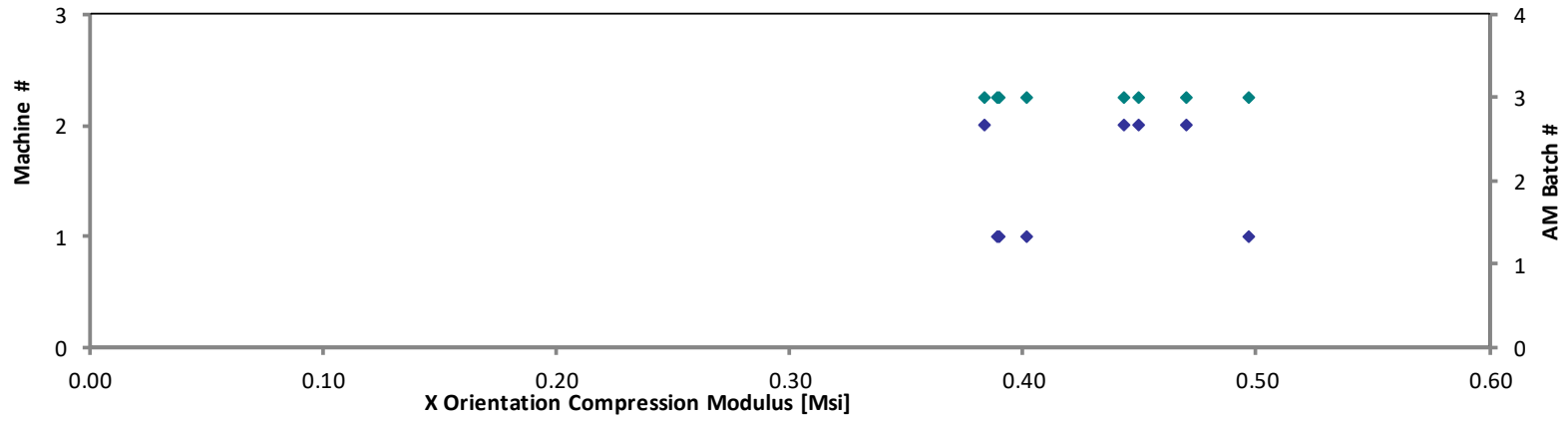
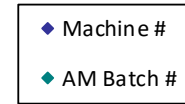
X Orientation Dogbone Compression Properties (XC)--RTW
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



X Orientation Dogbone Compression Properties (XC)--RTW
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



X Orientation Dogbone Compression Properties (XC)--RTW
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

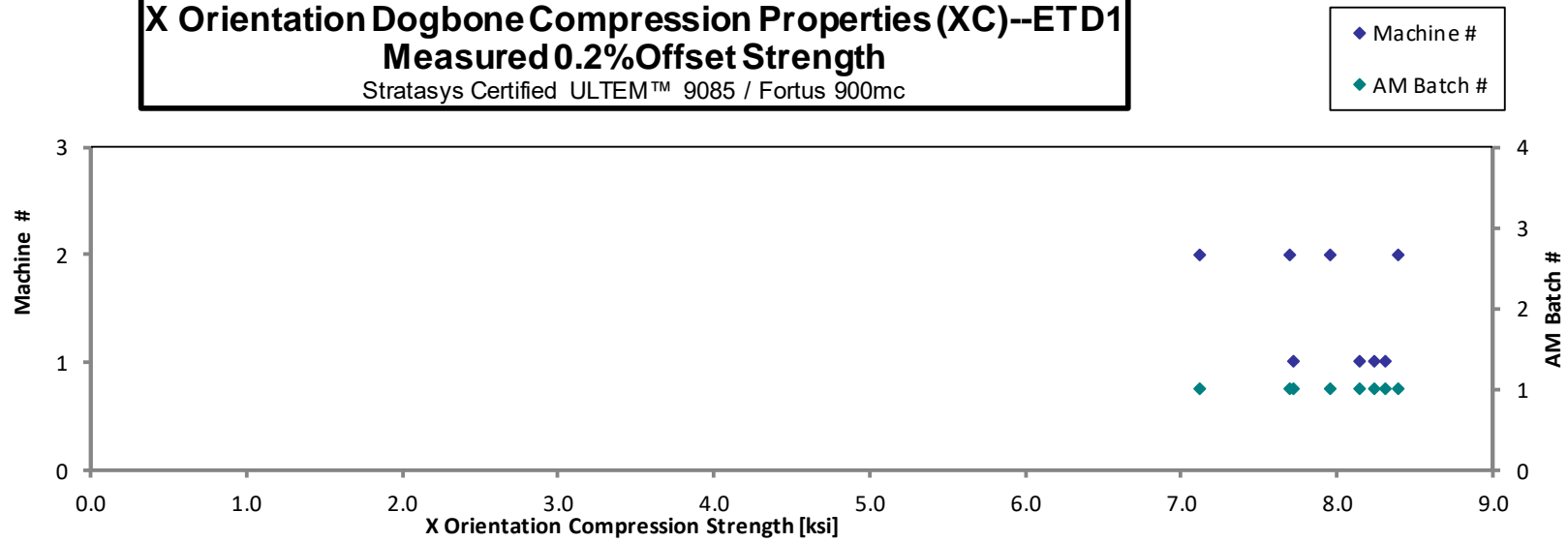


X Orientation Dogbone Compression Properties (XC)--ETD1 Strength & Modulus Stratasys Certified ULTEM™ 9085 / Fortus 900mc

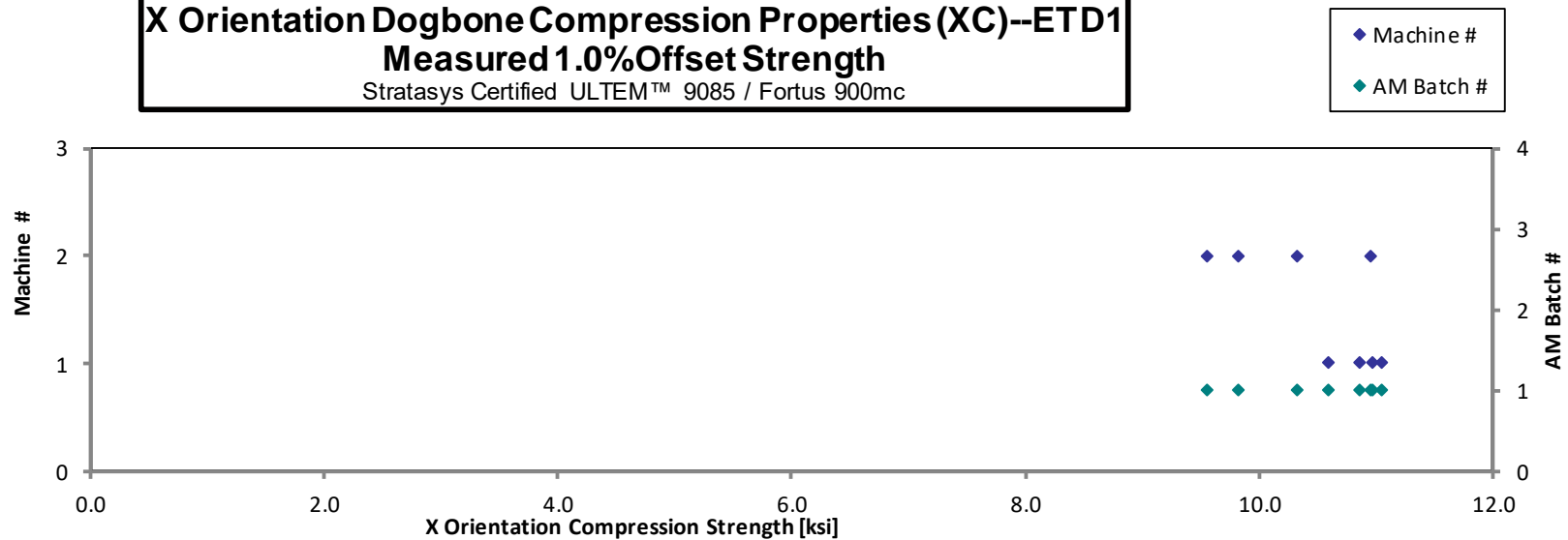
Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-XC-13-ETD1-1	1	1	8.147	10.872	0.368	0.127
NTPAMP001-SY-UM9085-RPM-A-M1-XC-15-ETD1-2	1	1	8.245	10.980	0.362	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-XC-12-ETD1-3	1	1	7.729	10.592	0.373	0.126
NTPAMP001-SY-UM9085-RPM-A-M1-XC-11-ETD1-4	1	1	8.311	11.048	0.371	0.126
NTPAMP001-SY-UM9085-RPM-A-M2-XC-13-ETD1-1	1	2	7.964	10.336	0.333	0.127
NTPAMP001-SY-UM9085-RPM-A-M2-XC-15-ETD1-2	1	2	7.122	9.554	0.350	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-XC-14-ETD1-3	1	2	8.395	10.952	0.355	0.127
NTPAMP001-SY-UM9085-RPM-A-M2-XC-11-ETD1-4	1	2	7.700	9.826	0.325	0.128

Average	7.952	10.520	0.355	0.127
Standard Dev.	0.423	0.568	0.018	
Coeff. of Var. [%]	5.318	5.396	5.001	
Min.	7.122	9.554	0.325	0.126
Max.	8.395	11.048	0.373	0.128
Number of Spec.	8	8	8	8

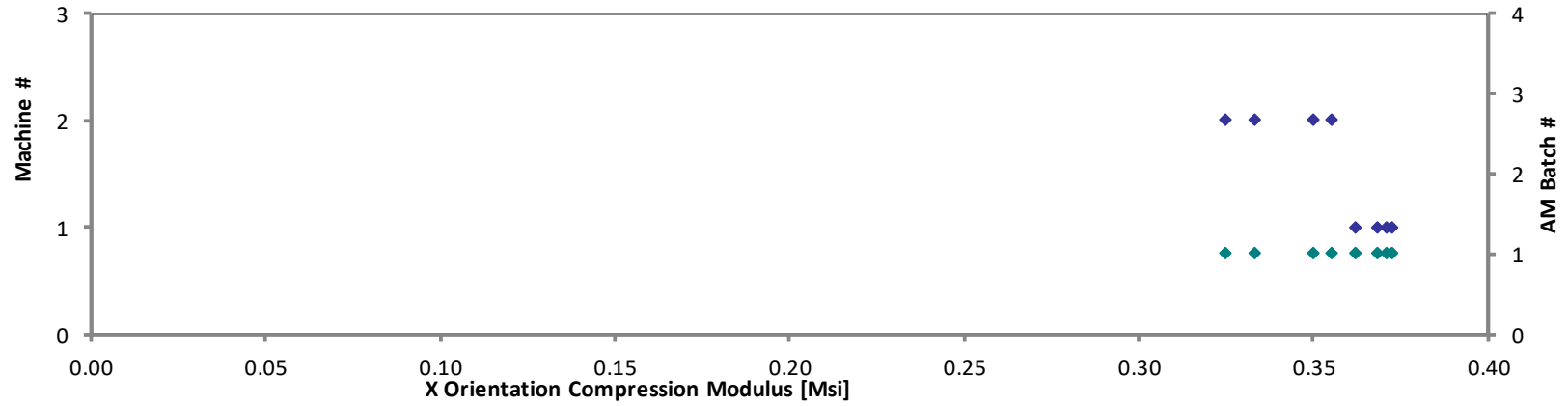
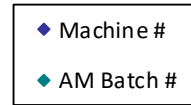
X Orientation Dogbone Compression Properties (XC)--ETD1
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



X Orientation Dogbone Compression Properties (XC)--ETD1
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



X Orientation Dogbone Compression Properties (XC)--ETD1
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



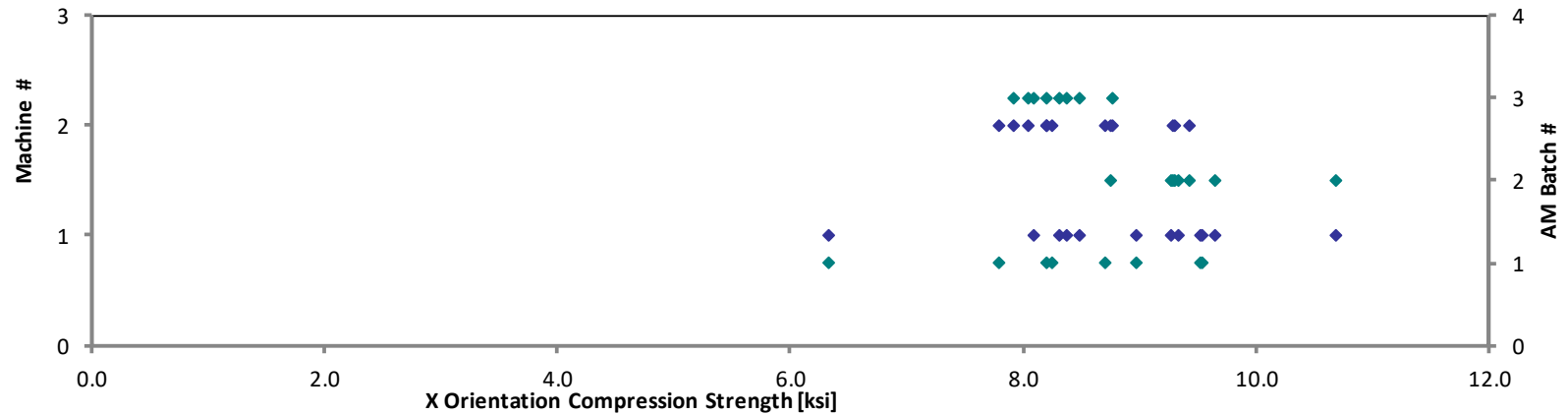
X Orientation Dogbone Compression Properties (XC)--ETW1
Strength & Modulus
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-XC-13-ETW1-1 (R)	1	1	6.337	9.632	0.389	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-XC-15-ETW1-2	1	1	8.972	11.850	0.421	0.126
NTPAMP001-SY-UM9085-RPM-A-M1-XC-12-ETW1-3	1	1	9.534	11.256	0.377	0.127
NTPAMP001-SY-UM9085-RPM-A-M1-XC-11-ETW1-4	1	1	9.548	11.783	0.444	0.126
NTPAMP001-SY-UM9085-RPM-A-M2-XC-13-ETW1-1	1	2	8.247	11.474	0.450	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-XC-15-ETW1-2	1	2	8.209	11.587	0.433	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-XC-14-ETW1-3	1	2	7.792	11.599	0.483	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-XC-11-ETW1-4	1	2	8.711	11.691	0.463	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-XC-13-ETW1-1	2	1	9.339	12.869	0.462	0.127
NTPAMP001-SY-UM9085-RPM-B-M1-XC-15-ETW1-2	2	1	9.274	12.813	0.473	0.127
NTPAMP001-SY-UM9085-RPM-B-M1-XC-12-ETW1-3	2	1	10.689	14.122	0.464	0.127
NTPAMP001-SY-UM9085-RPM-B-M1-XC-11-ETW1-4	2	1	9.654	13.041	0.451	0.127
NTPAMP001-SY-UM9085-RPM-B-M2-XC-13-ETW1-1	2	2	9.297	12.315	0.450	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-XC-15-ETW1-2	2	2	8.762	11.733	0.466	0.128
NTPAMP001-SY-UM9085-RPM-B-M2-XC-14-ETW1-3	2	2	9.428	13.031	0.456	0.128
NTPAMP001-SY-UM9085-RPM-B-M2-XC-11-ETW1-4	2	2	9.306	12.445	0.448	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-XC-13-ETW1-1	3	1	8.372	11.087	0.368	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-XC-15-ETW1-2	3	1	8.310	11.462	0.353	0.127
NTPAMP001-SY-UM9085-RPM-C-M1-XC-12-ETW1-3	3	1	8.483	11.527	0.386	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-XC-11-ETW1-4	3	1	8.093	11.158	0.369	0.128
NTPAMP001-SY-UM9085-RPM-C-M2-XC-13-ETW1-1	3	2	7.918	10.900	0.415	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-XC-15-ETW1-2	3	2	8.054	11.089	0.384	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-XC-14-ETW1-3	3	2	8.197	11.340	0.415	0.128
NTPAMP001-SY-UM9085-RPM-C-M2-XC-11-ETW1-4	3	2	8.776	11.785	0.407	0.128

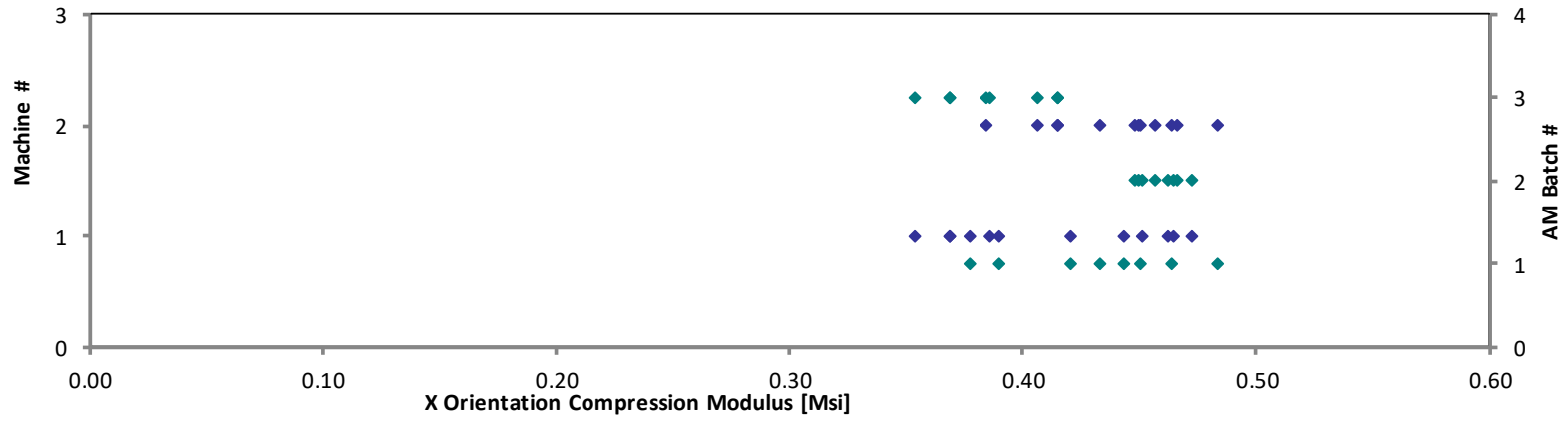
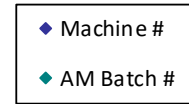
Average	8.721	11.816	0.426	0.128
Standard Dev.	0.864	0.912	0.039	
Coeff. of Var. [%]	9.904	7.720	9.076	
Min.	6.337	9.632	0.353	0.126
Max.	10.689	14.122	0.483	0.129
Number of Spec.	24	24	24	24

X Orientation Dogbone Compression Properties (XC)--ETW1
Measured 0.2% Offset Strength
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
 ◆ AM Batch #



X Orientation Dogbone Compression Properties (XC)--ETW1
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



4.6 Y Compression Properties (YC)

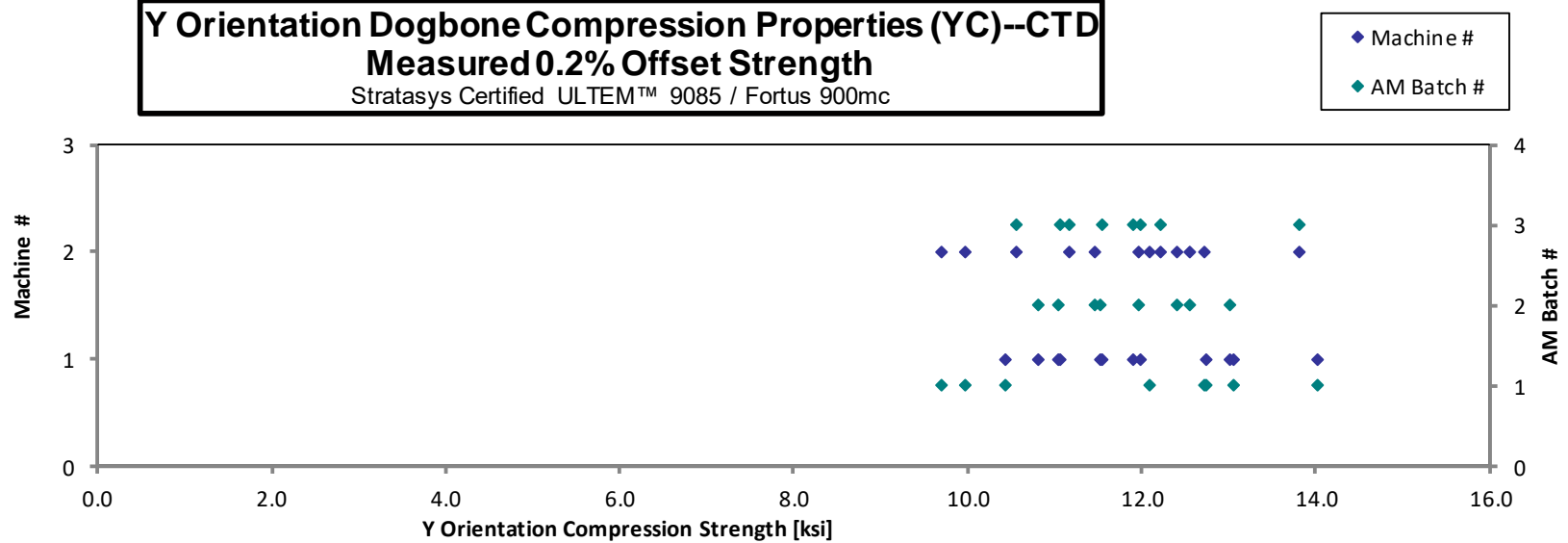
**Y Orientation Dogbone Compression Properties (YC)--CTD
Strength & Modulus**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

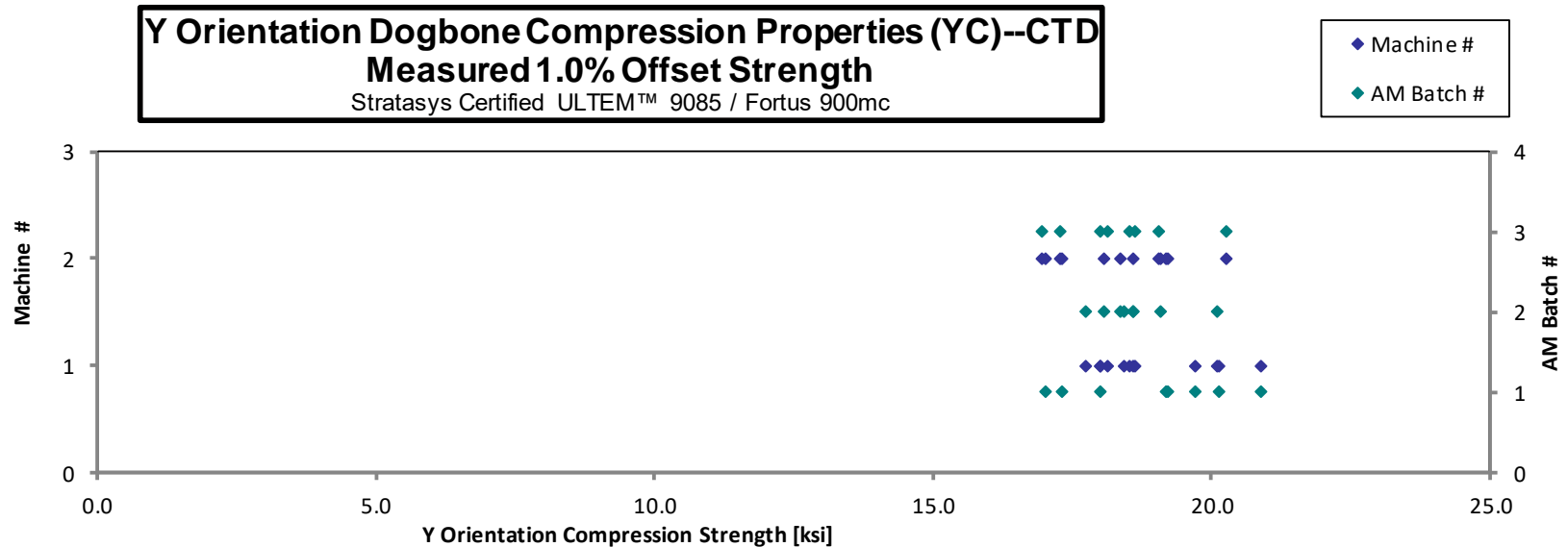
Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-YC-13-CTD-1	1	1	10.439	17.995	0.468	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-YC-15-CTD-2	1	1	13.060	20.906	0.455	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-YC-14-CTD-3	1	1	14.021	19.704	0.429	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-YC-11-CTD-4	1	1	12.749	20.155	0.457	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-YC-13-CTD-1	1	2	12.097	19.178	0.428	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-YC-15-CTD-2	1	2	12.721	19.234	0.463	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-YC-12-CTD-3	1	2	9.703	17.019	0.440	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-YC-11-CTD-4	1	2	9.981	17.324	0.447	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-YC-13-CTD-1	2	1	10.810	17.754	0.449	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-YC-15-CTD-2	2	1	11.529	18.600	0.456	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-YC-14-CTD-3	2	1	13.027	20.125	0.459	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-YC-11-CTD-4	2	1	11.034	18.444	0.460	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YC-13-CTD-1	2	2	12.414	18.387	0.419	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YC-15-CTD-2	2	2	11.471	18.070	0.440	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YC-12-CTD-3	2	2	11.959	18.589	0.433	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YC-11-CTD-4	2	2	12.554	19.086	0.432	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-YC-13-CTD-1	3	1	11.912	18.646	0.429	0.127
NTPAMP001-SY-UM9085-RPM-C-M1-YC-15-CTD-2	3	1	11.984	18.551	0.427	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-YC-14-CTD-3	3	1	11.072	18.156	0.444	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-YC-11-CTD-4	3	1	11.555	18.007	0.425	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YC-13-CTD-1	3	2	11.167	16.960	0.471	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YC-15-CTD-2	3	2	10.563	17.301	0.437	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YC-12-CTD-3	3	2	12.211	19.049	0.431	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YC-11-CTD-4	3	2	13.817	20.280	0.438	0.130

Average	11.827	18.647	0.443	0.129
Standard Dev.	1.122	1.057	0.015	
Coeff. of Var. [%]	9.483	5.671	3.347	
Min.	9.703	16.960	0.419	0.127
Max.	14.021	20.906	0.471	0.130
Number of Spec.	24	24	24	24

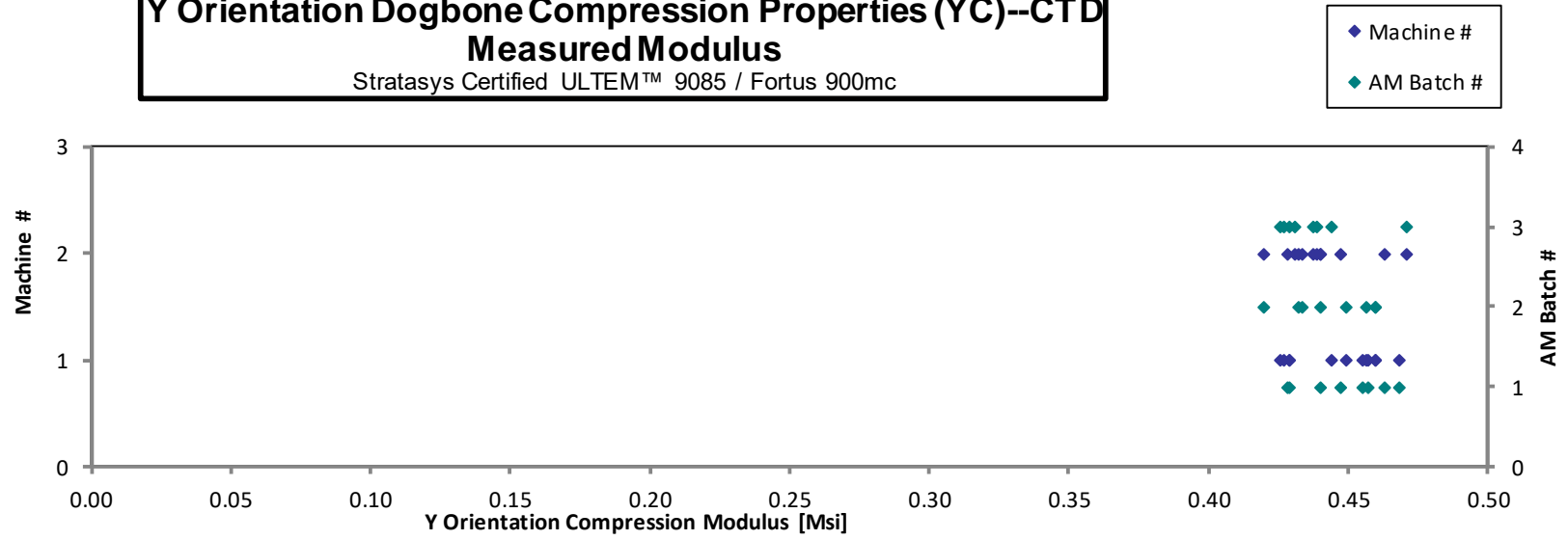
Y Orientation Dogbone Compression Properties (YC)--CTD
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Y Orientation Dogbone Compression Properties (YC)--CTD
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Y Orientation Dogbone Compression Properties (YC)--CTD
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



**Y Orientation Dogbone Compression Properties (YC)--RTD
Strength & Modulus**

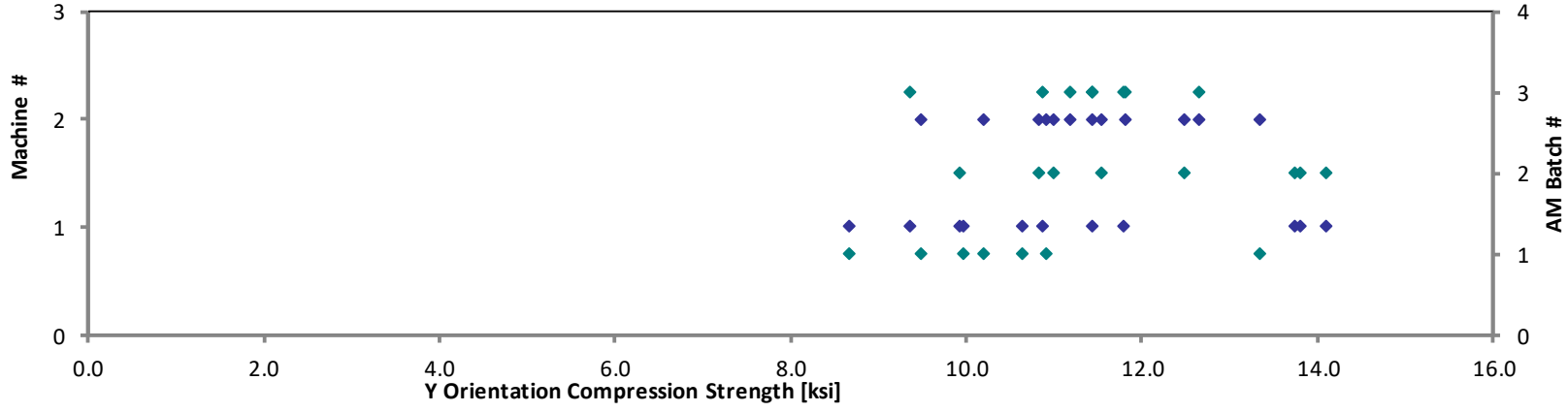
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-YC-13-RTD-1 (R)	1	1	11.066	16.103	0.430	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-YC-15-RTD-2	1	1	8.670	14.431	0.417	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-YC-14-RTD-3	1	1	9.967	16.171	0.458	0.127
NTPAMP001-SY-UM9085-RPM-A-M1-YC-11-RTD-4	1	1	10.630	17.148	0.432	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-YC-13-RTD-1	1	2	10.196	15.390	0.407	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-YC-15-RTD-2	1	2	9.488	14.761	0.432	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-YC-12-RTD-3	1	2	10.917	16.221	0.402	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-YC-11-RTD-4 (R)	1	2	13.344	18.618	0.423	0.130
NTPAMP001-SY-UM9085-RPM-B-M1-YC-13-RTD-1 (R)	2	1	9.930	14.473	0.400	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-YC-15-RTD-2	2	1	13.805	19.024	0.450	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-YC-14-RTD-3	2	1	14.104	19.667	0.455	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-YC-11-RTD-4	2	1	13.742	19.411	0.448	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YC-13-RTD-1	2	2	12.481	17.287	0.455	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YC-15-RTD-2	2	2	11.534	17.031	0.423	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YC-12-RTD-3	2	2	11.001	16.935	0.431	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-YC-11-RTD-4	2	2	10.821	16.515	0.433	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-YC-13-RTD-1	3	1	11.802	17.302	0.443	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-YC-15-RTD-2	3	1	11.428	16.399	0.413	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-YC-14-RTD-3	3	1	10.862	16.849	0.437	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-YC-11-RTD-4 (R)	3	1	9.363	14.037	0.398	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YC-13-RTD-1	3	2	11.428	16.104	0.433	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YC-15-RTD-2	3	2	11.183	16.539	0.431	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YC-12-RTD-3	3	2	11.820	16.787	0.422	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YC-11-RTD-4	3	2	12.659	17.471	0.448	0.130

Average	11.343	16.695	0.430	0.129
Standard Dev.	1.446	1.489	0.018	
Coeff. of Var. [%]	12.746	8.918	4.122	
Min.	8.670	14.037	0.398	0.127
Max.	14.104	19.667	0.458	0.130
Number of Spec.	24	24	24	24

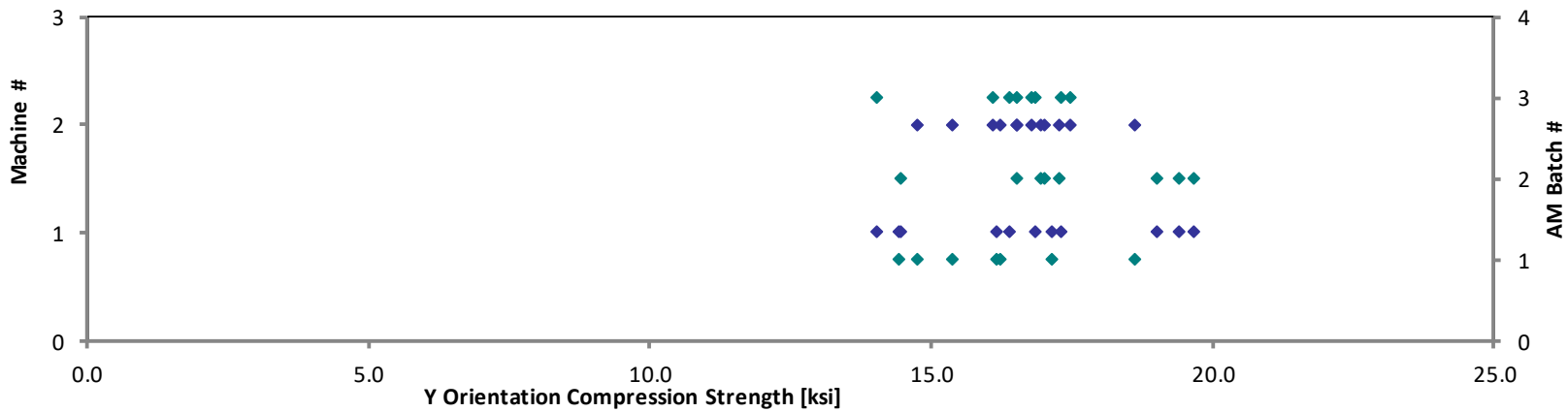
Y Orientation Dogbone Compression Properties (YC)--RTD
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #

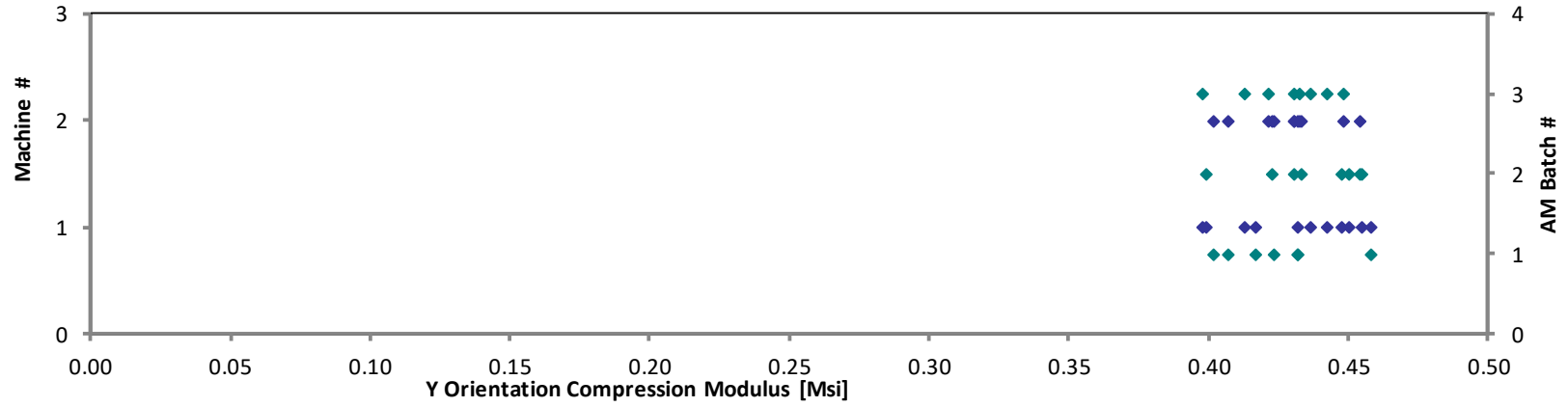
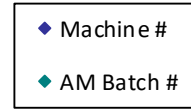


Y Orientation Dogbone Compression Properties (YC)--RTD
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Y Orientation Compression Properties (YC)--RTD
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

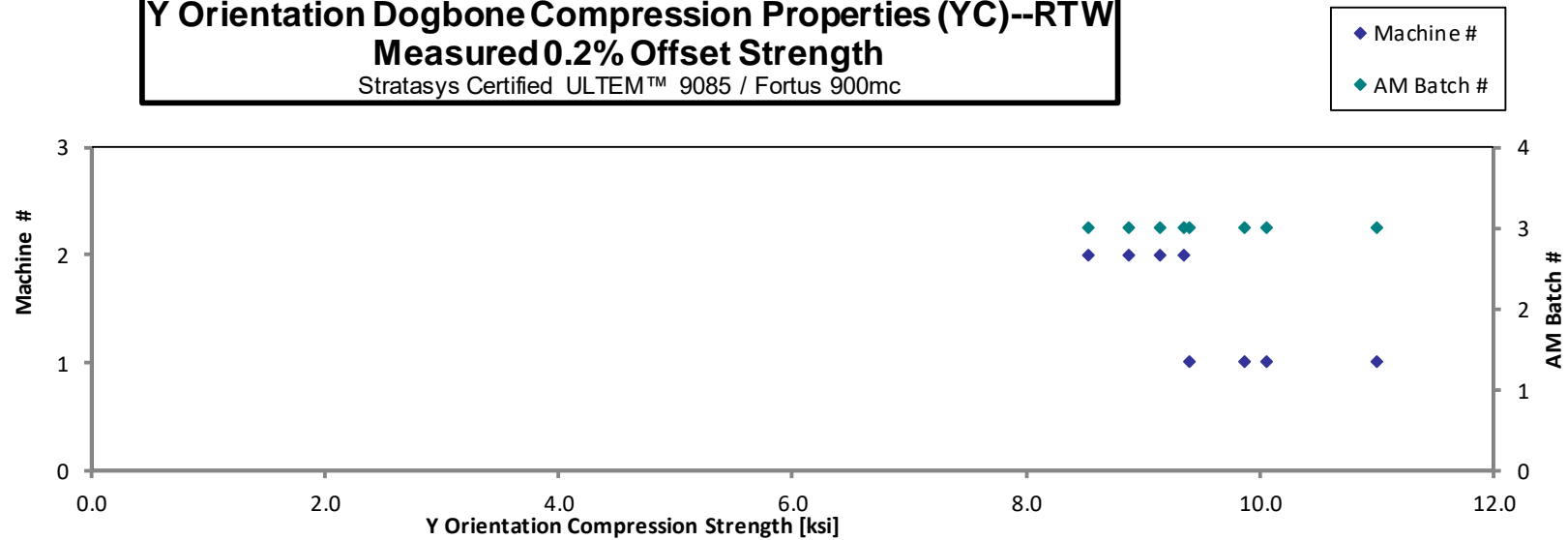


Y Orientation Dogbone Compression Properties (YC)--RTW Strength & Modulus Stratasys Certified ULTEM™ 9085 / Fortus 900mc
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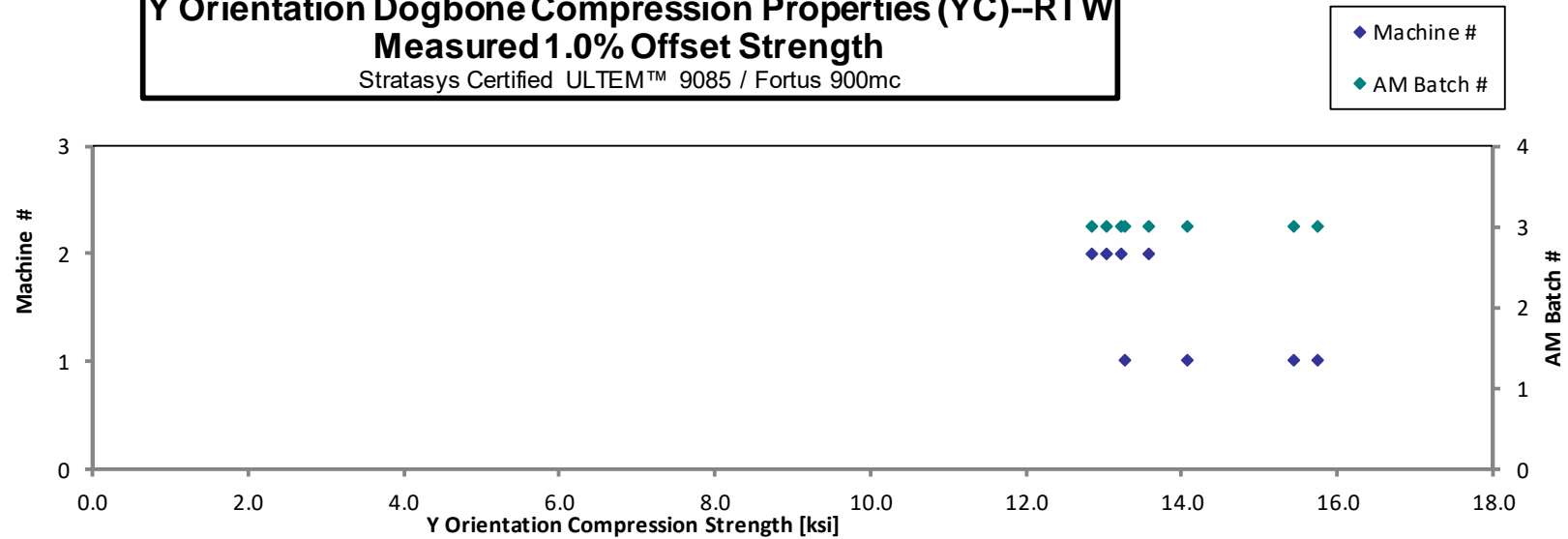
Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-C-M1-YC-13-RTW-1 (R)	3	1	9.396	13.269	0.392	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-YC-15-RTW-2	3	1	11.010	15.761	0.410	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-YC-14-RTW-3 (R)	3	1	9.869	14.071	0.403	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-YC-11-RTW-4	3	1	10.066	15.445	0.451	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YC-13-RTW-1	3	2	9.154	13.029	0.399	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YC-15-RTW-2	3	2	8.540	12.854	0.401	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YC-12-RTW-3	3	2	8.875	13.216	0.399	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-YC-11-RTW-4	3	2	9.349	13.584	0.404	0.130

Average	9.532	13.904	0.407	0.129
Standard Dev.	0.774	1.115	0.018	
Coeff. of Var. [%]	8.119	8.017	4.523	
Min.	8.540	12.854	0.392	0.128
Max.	11.010	15.761	0.451	0.130
Number of Spec.	8	8	8	8

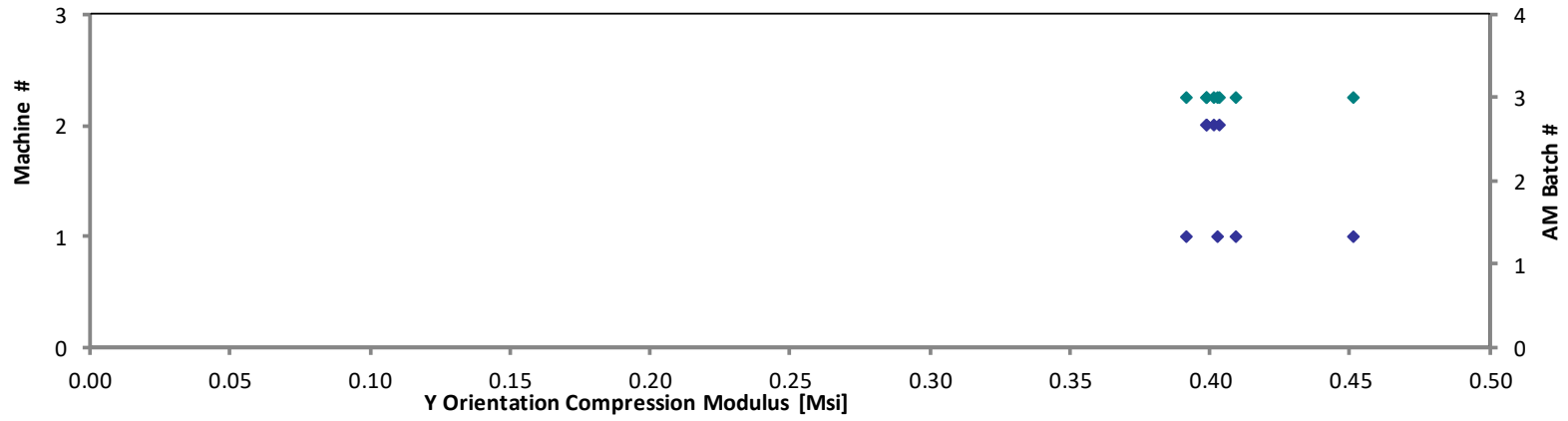
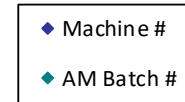
Y Orientation Dogbone Compression Properties (YC)--RTW
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Y Orientation Dogbone Compression Properties (YC)--RTW
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Y Orientation Dogbone Compression Properties (YC)--RTW
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



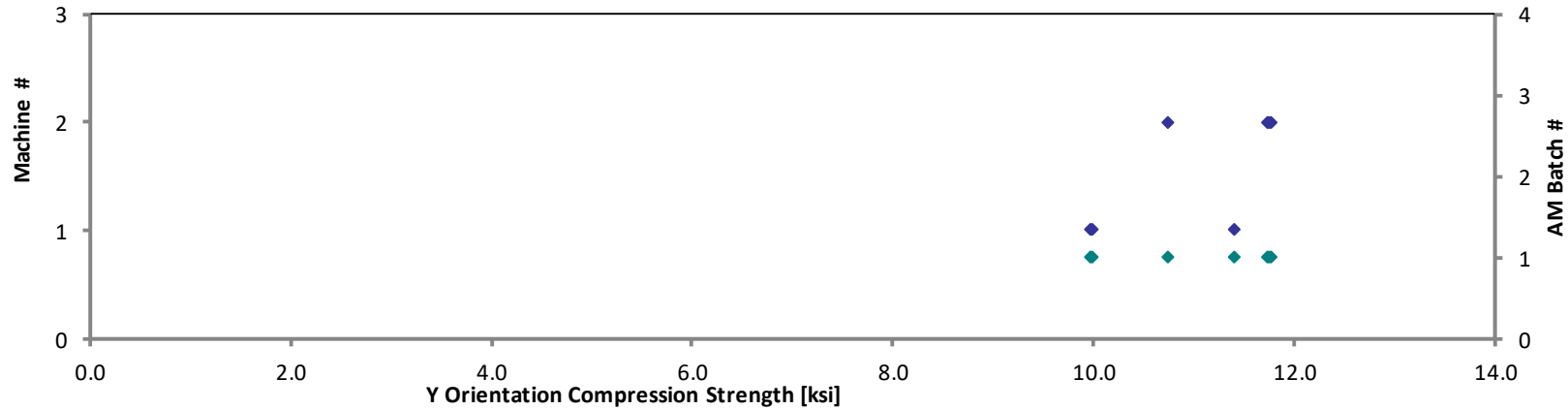
Y Orientation Dogbone Compression Properties (YC)--ETD1 Strength & Modulus Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-YC-13-ETD1-1 (R)	1	1	9.548	13.337	0.405	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-YC-15-ETD1-2	1	1	11.408	14.391	0.391	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-YC-14-ETD1-3	1	1	9.992	13.472	0.393	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-YC-11-ETD1-4	1	1	9.980	13.216	0.397	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-YC-13-ETD1-1	1	2	10.739	13.850	0.383	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-YC-15-ETD1-2	1	2	11.751	14.751	0.406	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-YC-12-ETD1-3	1	2	11.732	14.983	0.408	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-YC-11-ETD1-4	1	2	11.780	14.904	0.415	0.129

Average	10.866	14.113	0.400	0.129
Standard Dev.	0.923	0.732	0.011	
Coeff. of Var. [%]	8.494	5.189	2.643	
Min.	9.548	13.216	0.383	0.128
Max.	11.780	14.983	0.415	0.129
Number of Spec.	8	8	8	8

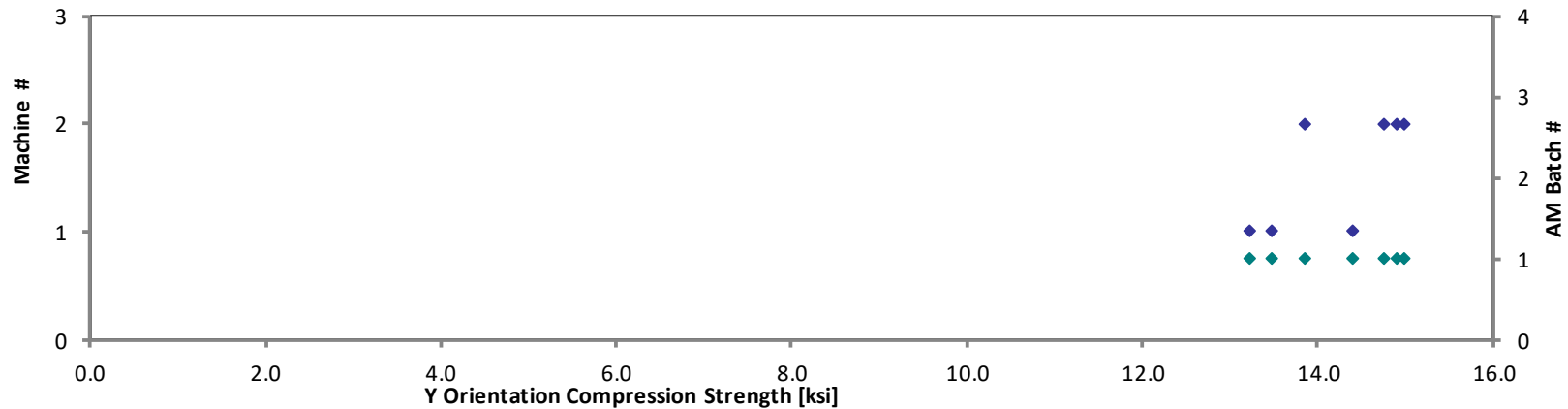
Y Orientation Dogbone Compression Properties (YC)--ETD1
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #

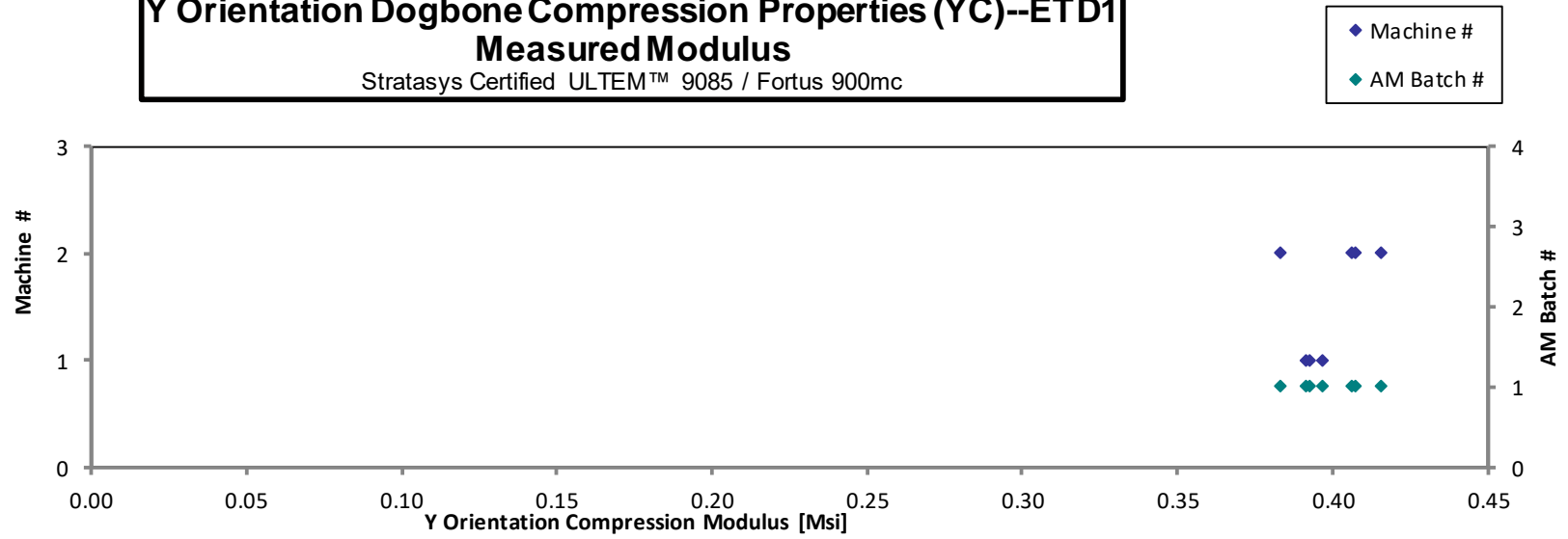


Y Orientation Dogbone Compression Properties (YC)--ETD1
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Y Orientation Dogbone Compression Properties (YC)--ETD1
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



**Y Orientation Dogbone Compression Properties (YC)--ETW1
Strength & Modulus**

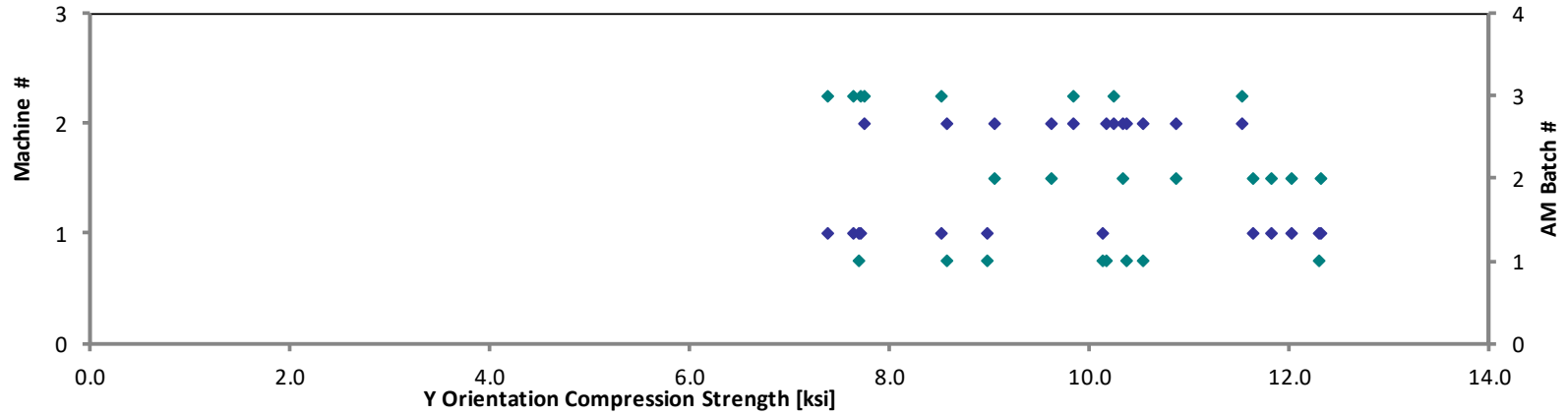
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-YC-13-ETW1-1	1	1	12.299	15.745	0.473	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-YC-15-ETW1-2	1	1	8.984	11.146	0.386	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-YC-14-ETW1-3 (R)	1	1	7.703	9.877	0.333	0.131
NTPAMP001-SY-UM9085-RPM-A-M1-YC-11-ETW1-4	1	1	10.135	11.692	0.414	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-YC-13-ETW1-1 (R)	1	2	10.387	13.636	0.425	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-YC-15-ETW1-2	1	2	10.176	14.031	0.457	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-YC-12-ETW1-3 (R)	1	2	8.586	11.570	0.381	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-YC-11-ETW1-4	1	2	10.553	13.725	0.479	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-YC-13-ETW1-1	2	1	11.650	15.047	0.461	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-YC-15-ETW1-2	2	1	12.025	15.190	0.463	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-YC-14-ETW1-3	2	1	12.319	14.882	0.431	0.130
NTPAMP001-SY-UM9085-RPM-B-M1-YC-11-ETW1-4	2	1	11.834	15.965	0.497	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YC-13-ETW1-1 (R)	2	2	10.342	13.749	0.414	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-YC-15-ETW1-2 (R)	2	2	9.624	13.828	0.420	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-YC-12-ETW1-3	2	2	10.877	15.133	0.478	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YC-11-ETW1-4 (R)	2	2	9.049	11.561	0.365	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-YC-13-ETW1-1	3	1	7.646	10.948	0.372	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-YC-13-ETW1-1 (R)	3	1	7.716	10.126	0.369	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-YC-14-ETW1-3	3	1	7.378	9.876	0.350	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-YC-14-ETW1-3 (R)	3	1	8.528	11.020	0.359	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-YC-13-ETW1-1	3	2	7.758	10.009	0.356	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YC-15-ETW1-2	3	2	9.856	13.053	0.488	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-YC-12-ETW1-3	3	2	10.250	13.588	0.444	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-YC-11-ETW1-4	3	2	11.541	14.791	0.420	0.130

Average	9.884	12.925	0.418	0.129
Standard Dev.	1.596	2.023	0.050	
Coeff. of Var. [%]	16.143	15.656	11.857	
Min.	7.378	9.876	0.333	0.128
Max.	12.319	15.965	0.497	0.131
Number of Spec.	24	24	24	24

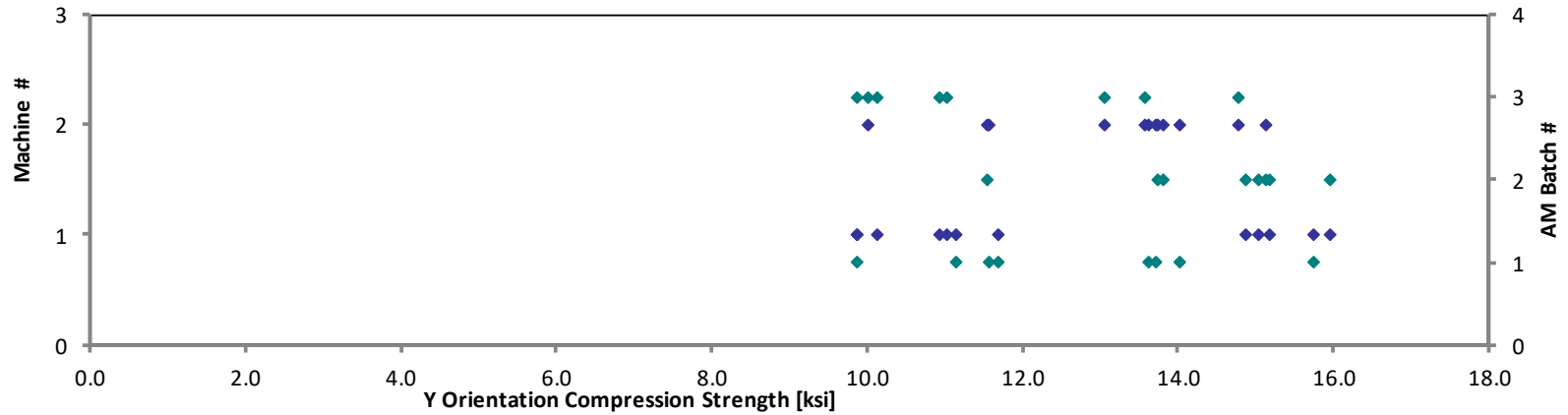
Y Orientation Dogbone Compression Properties (YC)--ETW1
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #

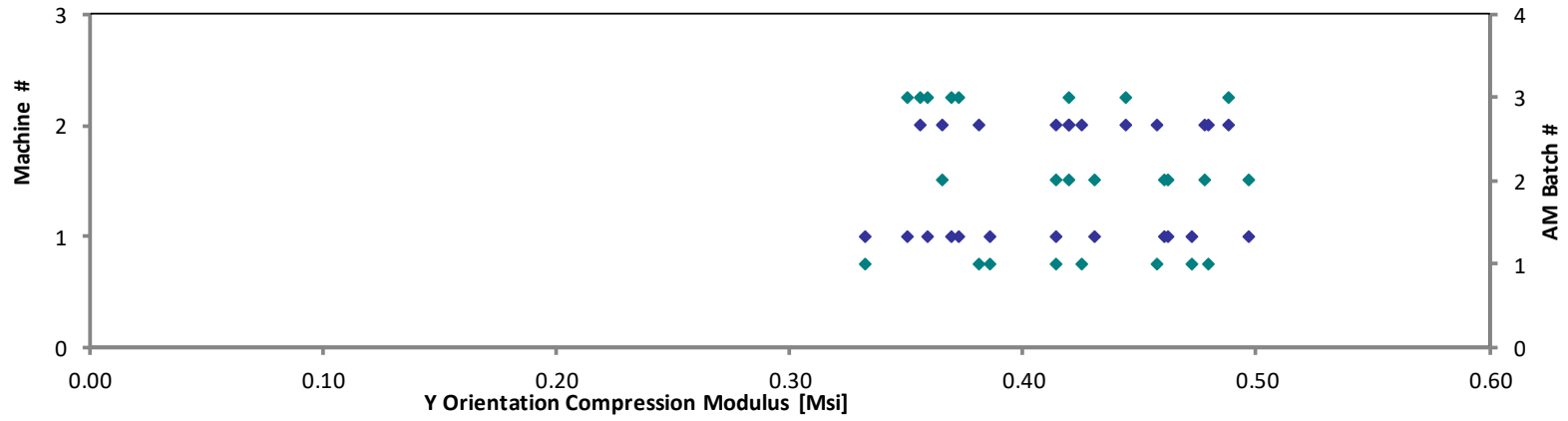
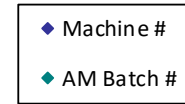


Y Orientation Dogbone Compression Properties (YC)--ETW1
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Y Orientation Dogbone Compression Properties (YC)--ETW1
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



4.7 Z Compression Properties (ZC)

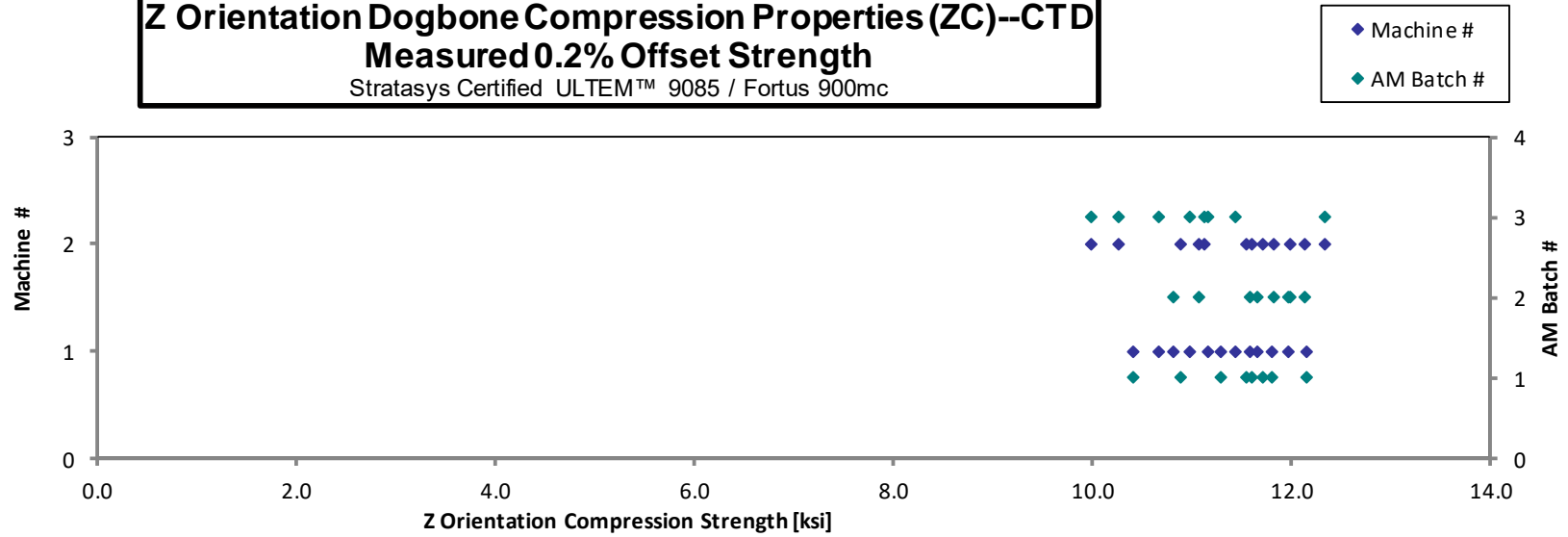
**Z Orientation Dogbone Compression Properties (ZC)--CTD
Strength & Modulus**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

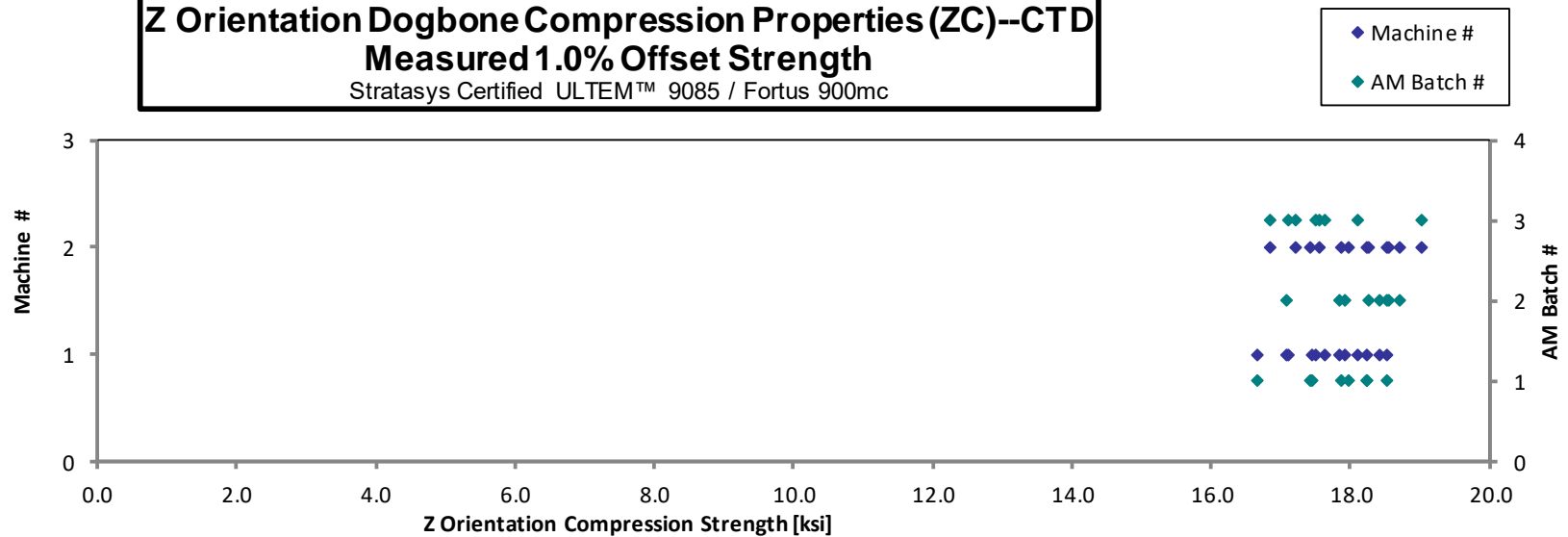
Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-ZC-13-CTD-1	1	1	10.418	16.677	0.414	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-ZC-15-CTD-2	1	1	11.805	18.525	0.429	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-ZC-12-CTD-3	1	1	11.306	17.448	0.411	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-ZC-11-CTD-4	1	1	12.152	18.233	0.412	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-ZC-13-CTD-1	1	2	10.893	17.417	0.415	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-ZC-15-CTD-2	1	2	11.557	17.974	0.418	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-ZC-14-CTD-3	1	2	11.721	17.881	0.413	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-ZC-11-CTD-4	1	2	11.603	18.236	0.427	0.130
NTPAMP001-SY-UM9085-RPM-B-M1-ZC-13-CTD-1	2	1	11.600	17.932	0.432	0.130
NTPAMP001-SY-UM9085-RPM-B-M1-ZC-15-CTD-2	2	1	10.829	17.072	0.414	0.131
NTPAMP001-SY-UM9085-RPM-B-M1-ZC-12-CTD-3	2	1	11.671	17.853	0.408	0.130
NTPAMP001-SY-UM9085-RPM-B-M1-ZC-11-CTD-4	2	1	11.984	18.421	0.418	0.131
NTPAMP001-SY-UM9085-RPM-B-M2-ZC-13-CTD-1	2	2	11.831	18.277	0.420	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-ZC-15-CTD-2	2	2	11.069	18.519	0.450	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-ZC-14-CTD-3	2	2	12.137	18.547	0.413	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-ZC-11-CTD-4	2	2	11.995	18.698	0.422	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-ZC-13-CTD-1	3	1	10.981	18.099	0.434	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-ZC-15-CTD-2	3	1	11.443	17.507	0.405	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-ZC-12-CTD-3	3	1	10.679	17.099	0.407	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-ZC-11-CTD-4	3	1	11.164	17.632	0.422	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-ZC-13-CTD-1	3	2	9.989	16.848	0.423	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-ZC-15-CTD-2	3	2	11.141	17.545	0.423	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-ZC-14-CTD-3	3	2	10.265	17.228	0.437	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-ZC-11-CTD-4	3	2	12.340	19.019	0.448	0.129

Average	11.357	17.862	0.421	0.130
Standard Dev.	0.627	0.622	0.012	
Coeff. of Var. [%]	5.520	3.484	2.836	
Min.	9.989	16.677	0.405	0.128
Max.	12.340	19.019	0.450	0.131
Number of Spec.	24	24	24	24

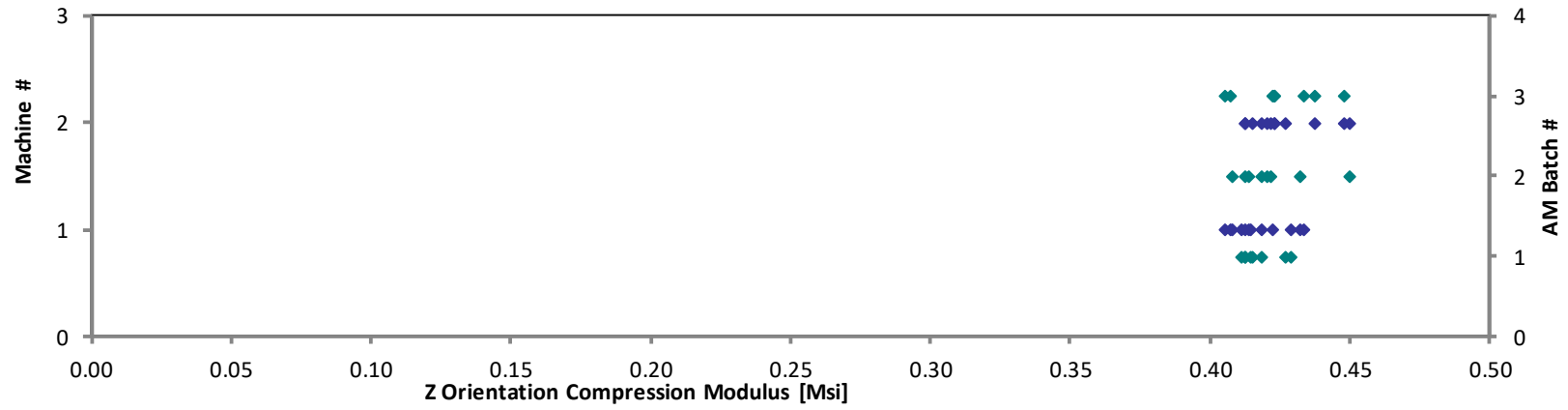
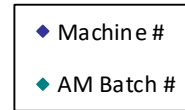
Z Orientation Dogbone Compression Properties (ZC)--CTD
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z Orientation Dogbone Compression Properties (ZC)--CTD
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z Orientation Dogbone Compression Properties (ZC)--CTD
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



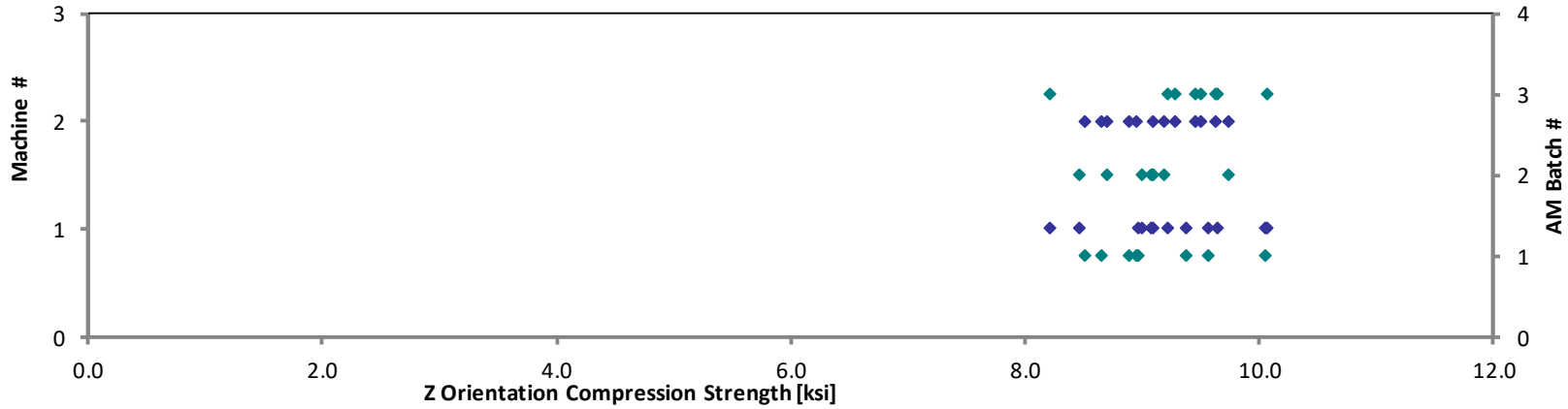
Z Orientation Dogbone Compression Properties (ZC)--RTD Strength & Modulus Stratasys Certified ULTEM™ 9085 / Fortus 900mc
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Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-ZC-13-RTD-1 (R)	1	1	10.058	14.702	0.405	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-ZC-15-RTD-2	1	1	8.967	13.068	0.371	0.131
NTPAMP001-SY-UM9085-RPM-A-M1-ZC-12-RTD-3	1	1	9.373	13.533	0.362	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-ZC-11-RTD-4	1	1	9.570	13.257	0.355	0.131
NTPAMP001-SY-UM9085-RPM-A-M2-ZC-13-RTD-1	1	2	8.962	13.526	0.381	0.131
NTPAMP001-SY-UM9085-RPM-A-M2-ZC-15-RTD-2	1	2	8.886	13.393	0.377	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-ZC-14-RTD-3	1	2	8.661	13.146	0.381	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-ZC-11-RTD-4 (R)	1	2	8.509	13.715	0.390	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-ZC-13-RTD-1 (R)	2	1	8.466	13.649	0.404	0.132
NTPAMP001-SY-UM9085-RPM-B-M1-ZC-15-RTD-2	2	1	8.998	13.137	0.371	0.131
NTPAMP001-SY-UM9085-RPM-B-M1-ZC-12-RTD-3	2	1	9.092	13.255	0.376	0.131
NTPAMP001-SY-UM9085-RPM-B-M1-ZC-11-RTD-4	2	1	9.077	13.402	0.381	0.131
NTPAMP001-SY-UM9085-RPM-B-M2-ZC-13-RTD-1	2	2	8.703	13.128	0.379	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-ZC-15-RTD-2	2	2	9.191	13.363	0.377	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-ZC-14-RTD-3	2	2	9.100	13.706	0.387	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-ZC-11-RTD-4	2	2	9.734	13.961	0.381	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-ZC-13-RTD-1	3	1	10.073	13.567	0.360	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-ZC-15-RTD-2	3	1	9.227	13.306	0.356	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-ZC-12-RTD-3	3	1	8.221	13.045	0.384	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-ZC-11-RTD-4	3	1	9.651	13.820	0.370	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-ZC-13-RTD-1	3	2	9.283	13.575	0.378	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-ZC-15-RTD-2	3	2	9.457	13.858	0.380	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-ZC-14-RTD-3	3	2	9.635	13.589	0.364	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-ZC-11-RTD-4	3	2	9.504	13.661	0.371	0.130

Average	9.183	13.515	0.377	0.130
Standard Dev.	0.480	0.363	0.013	
Coeff. of Var. [%]	5.229	2.684	3.359	
Min.	8.221	13.045	0.355	0.129
Max.	10.073	14.702	0.405	0.132
Number of Spec.	24	24	24	24

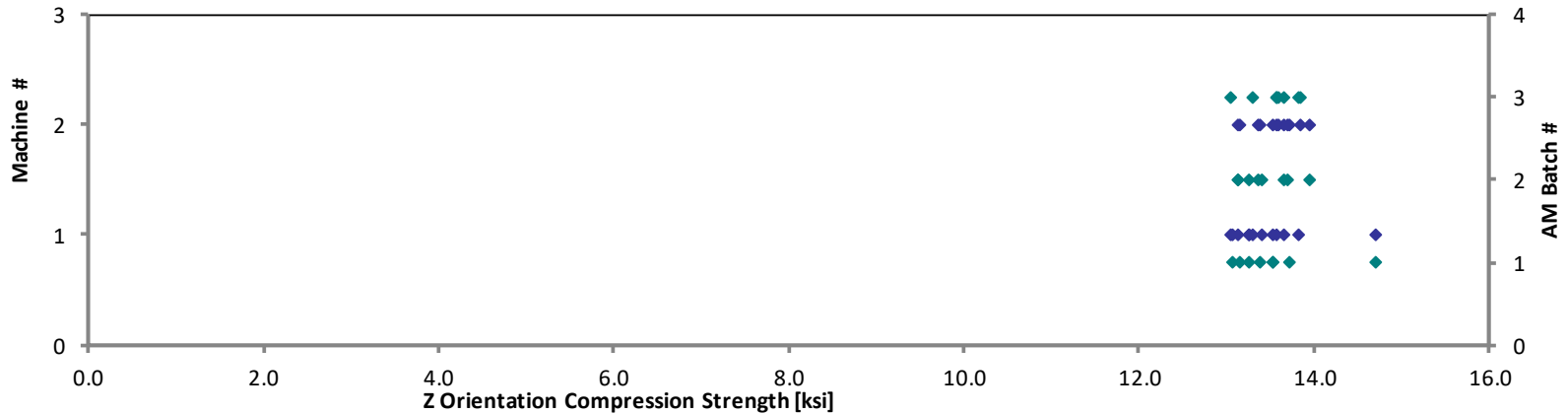
Z Orientation Dogbone Compression Properties (ZC)--RTD
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



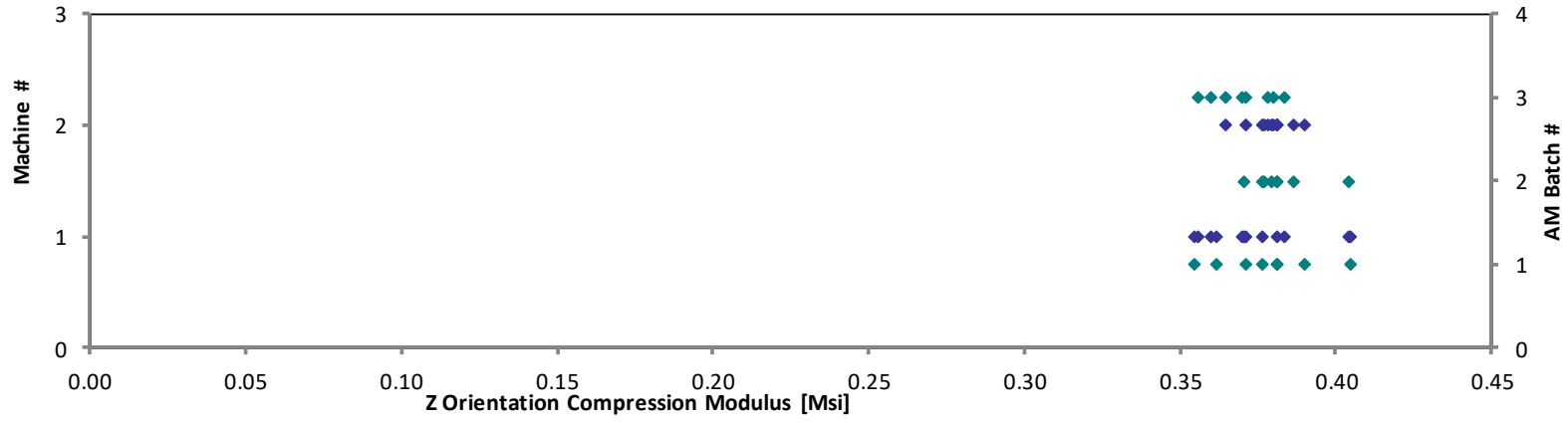
Z Orientation Dogbone Compression Properties (ZC)--RTD
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Z Orientation Compression Properties (ZC)--RTD
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #

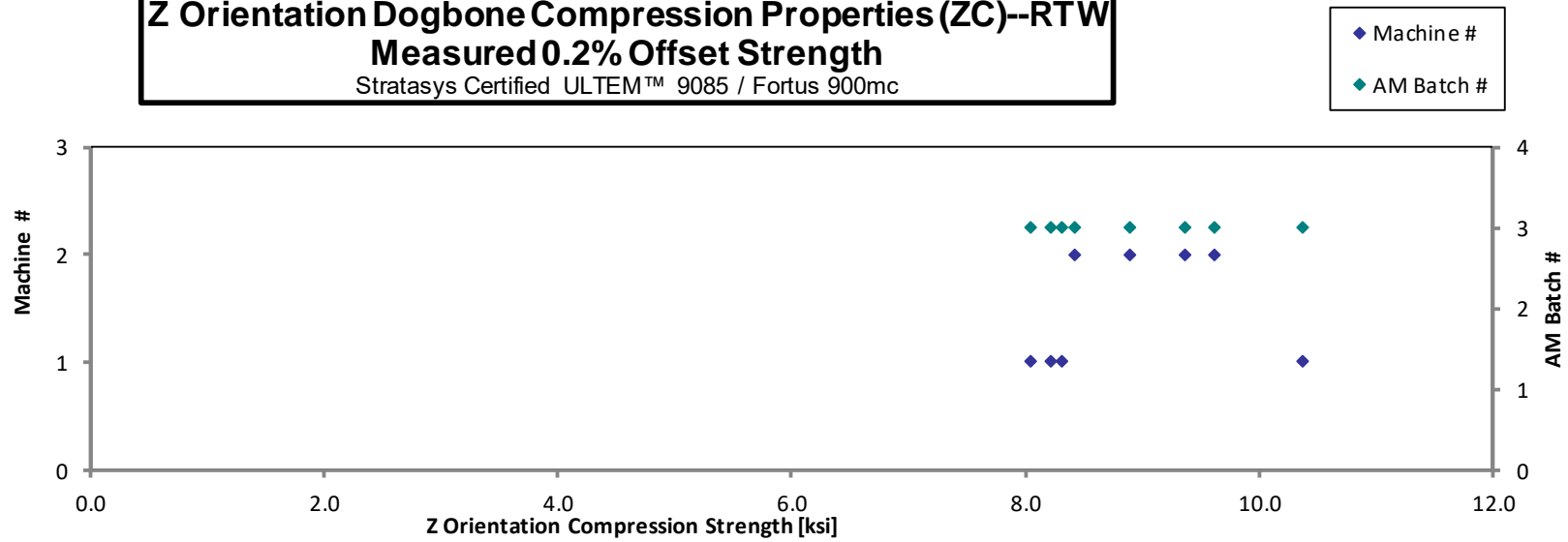


Z Orientation Dogbone Compression Properties (ZC)--RTW Strength & Modulus Stratasys Certified ULTEM™ 9085 / Fortus 900mc
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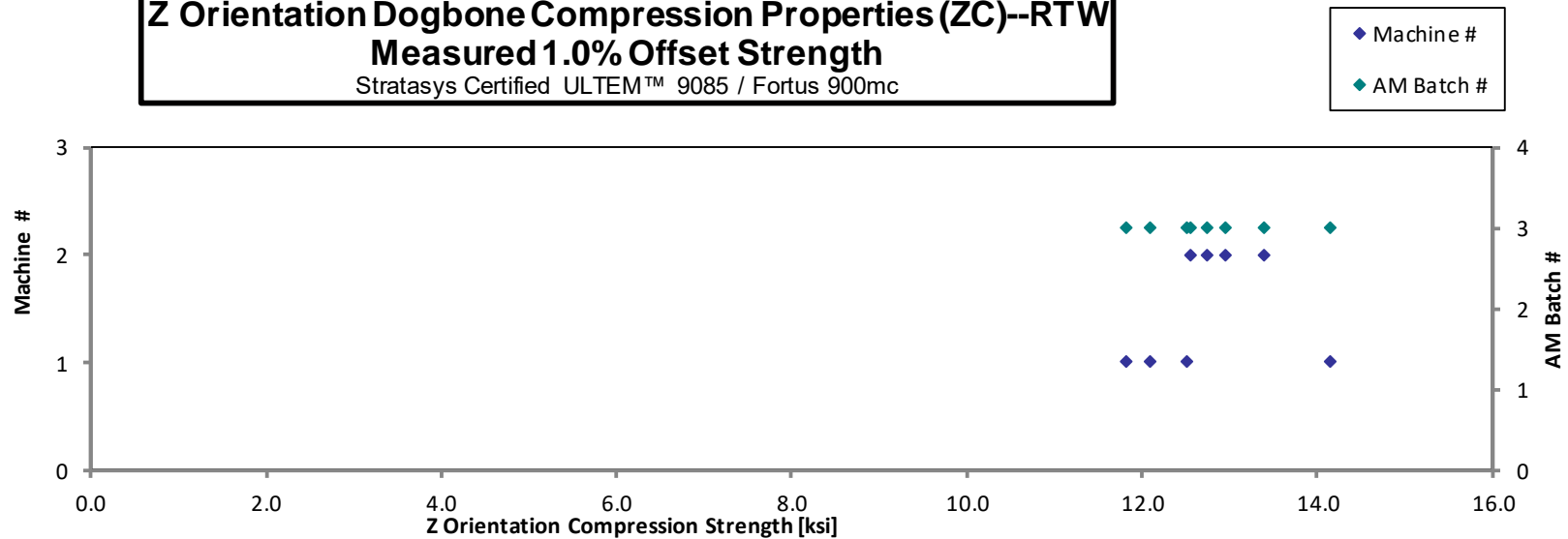
Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-C-M1-ZC-13-RTW-1	3	1	8.226	12.513	0.402	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-ZC-15-RTW-2	3	1	10.377	14.139	0.374	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-ZC-12-RTW-3	3	1	8.322	12.091	0.362	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-ZC-11-RTW-4	3	1	8.042	11.815	0.370	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-ZC-13-RTW-1 (R)	3	2	9.613	13.385	0.376	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-ZC-15-RTW-2	3	2	8.426	12.554	0.373	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-ZC-14-RTW-3	3	2	9.374	12.958	0.365	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-ZC-11-RTW-4	3	2	8.899	12.745	0.362	0.129

Average	8.910	12.775	0.373	0.129
Standard Dev.	0.816	0.734	0.013	
Coeff. of Var. [%]	9.162	5.748	3.498	
Min.	8.042	11.815	0.362	0.128
Max.	10.377	14.139	0.402	0.130
Number of Spec.	8	8	8	8

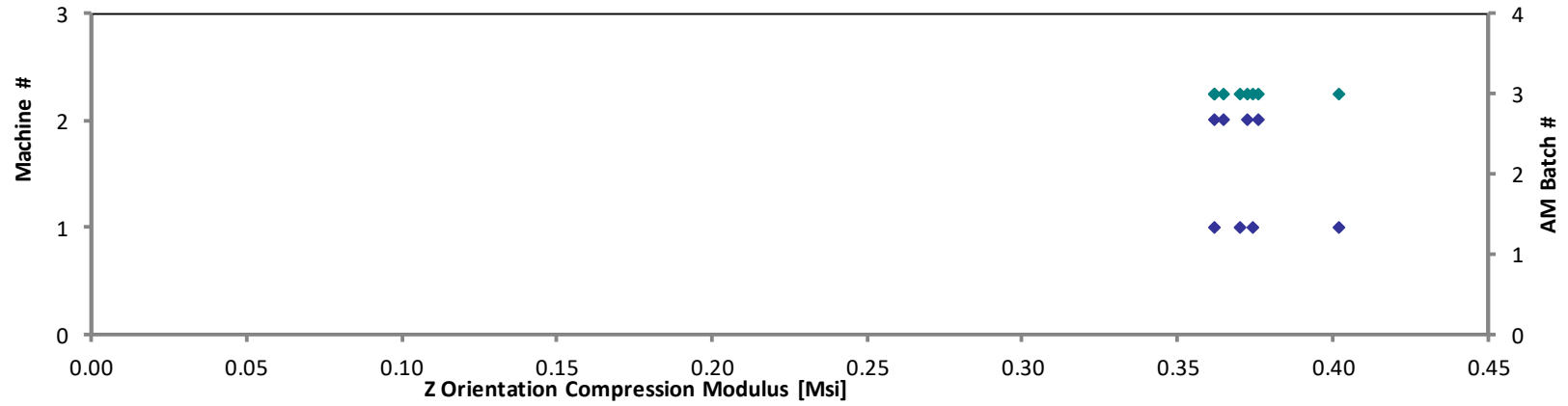
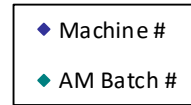
Z Orientation Dogbone Compression Properties (ZC)--RTW
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z Orientation Dogbone Compression Properties (ZC)--RTW
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z Orientation Dogbone Compression Properties (ZC)--RTW
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



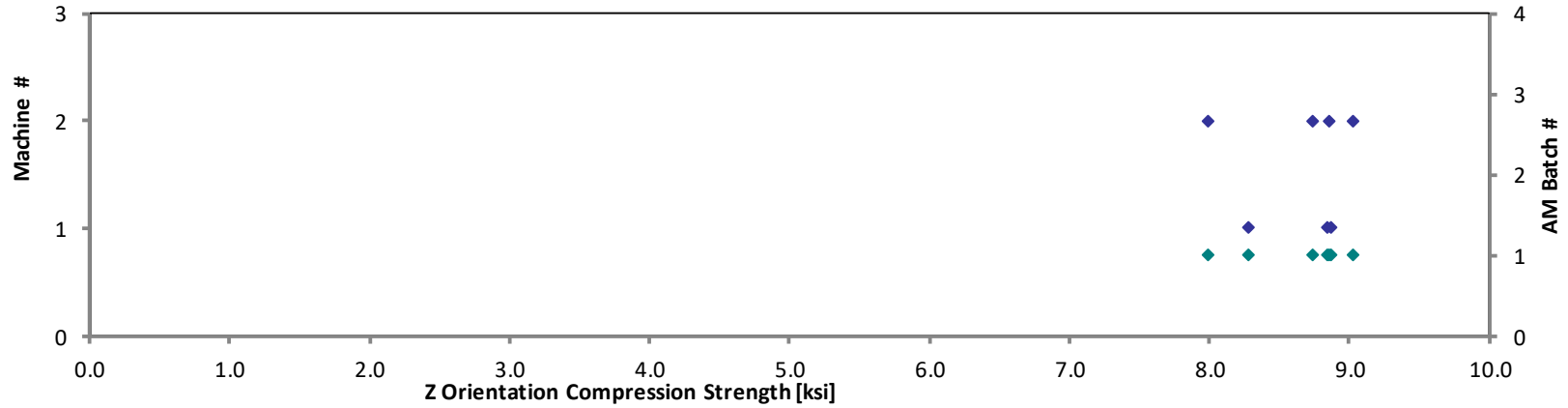
Z Orientation Dogbone Compression Properties (ZC)--ETD1 Strength & Modulus Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-ZC-13-ETD1-1 (R)	1	1	7.985	11.721	0.397	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-ZC-15-ETD1-2	1	1	8.277	10.555	0.329	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-ZC-12-ETD1-3	1	1	8.841	11.298	0.338	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-ZC-11-ETD1-4	1	1	8.872	11.282	0.348	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-ZC-13-ETD1-1	1	2	8.740	11.224	0.341	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-ZC-15-ETD1-2	1	2	9.028	11.320	0.337	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-ZC-14-ETD1-3	1	2	7.986	11.013	0.356	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-ZC-11-ETD1-4	1	2	8.852	11.270	0.342	0.130

Average	8.573	11.210	0.349	0.130
Standard Dev.	0.423	0.329	0.021	
Coeff. of Var. [%]	4.933	2.935	6.106	
Min.	7.985	10.555	0.329	0.129
Max.	9.028	11.721	0.397	0.130
Number of Spec.	8	8	8	8

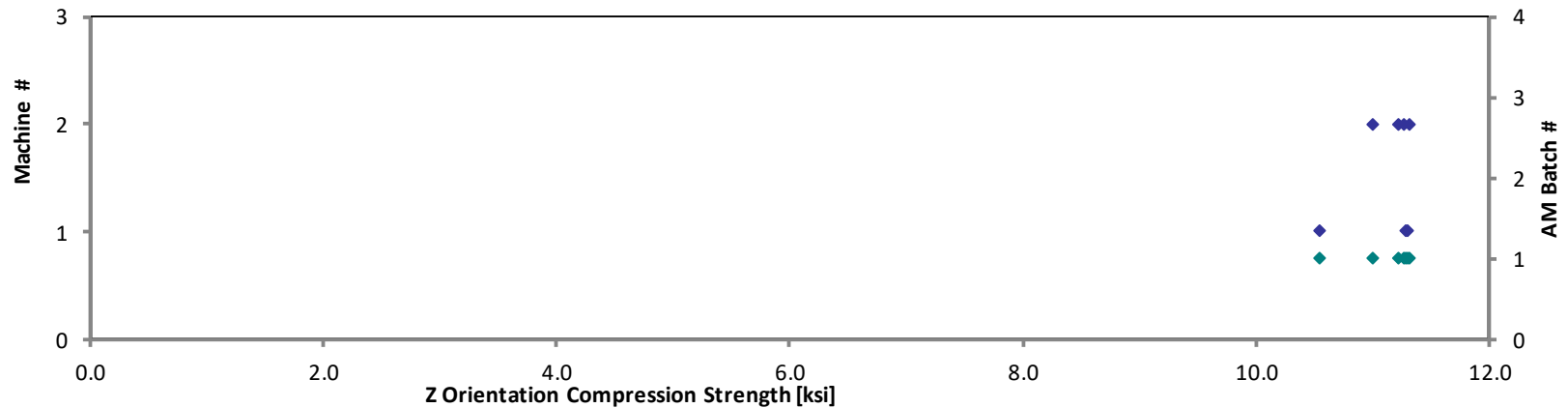
Z Orientation Dogbone Compression Properties (ZC)--ETD1
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #

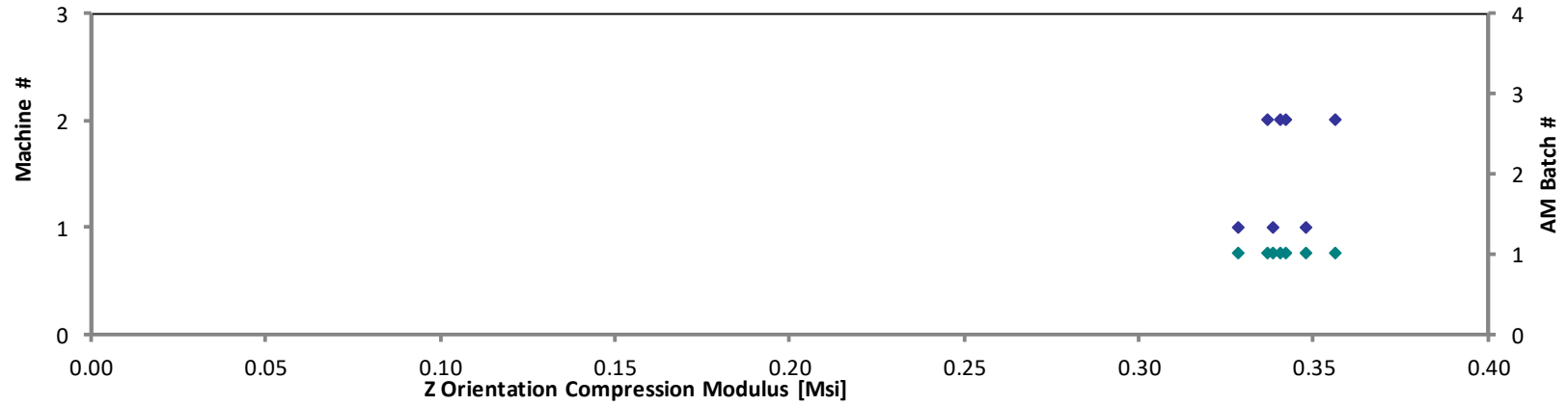
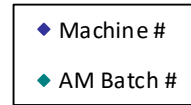


Z Orientation Dogbone Compression Properties (ZC)--ETD1
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Z Orientation Dogbone Compression Properties (ZC)--ETD1
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z Orientation Dogbone Compression Properties (ZC)--ETW1 Strength & Modulus Stratasys Certified ULTEM™ 9085 / Fortus 900mc

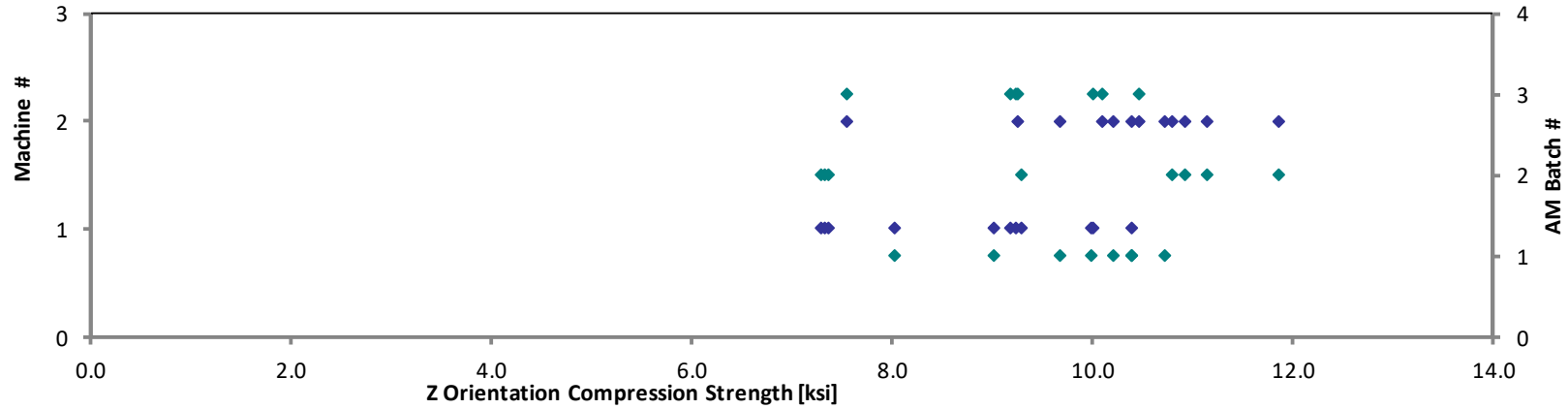
Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-ZC-13-ETW1-1	1	1	8.026	10.464	0.362	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-ZC-15-ETW1-2	1	1	9.997	11.857	0.372	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-ZC-12-ETW1-3	1	1	10.390	12.180	0.385	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-ZC-11-ETW1-4	1	1	9.029	10.922	0.364	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-ZC-13-ETW1-1	1	2	9.687	11.960	0.377	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-ZC-15-ETW1-2	1	2	10.393	12.651	0.402	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-ZC-14-ETW1-3	1	2	10.221	12.645	0.405	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-ZC-11-ETW1-4	1	2	10.733	12.734	0.406	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-ZC-13-ETW1-1	2	1	9.288	11.850	0.374	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-ZC-15-ETW1-2 (R)	2	1	7.338	9.687	0.333	0.132
NTPAMP001-SY-UM9085-RPM-B-M1-ZC-12-ETW1-3 (R)	2	1	7.372	10.606	0.381	0.130
NTPAMP001-SY-UM9085-RPM-B-M1-ZC-11-ETW1-4 (R)	2	1	7.303	10.812	0.387	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-ZC-13-ETW1-1	2	2	11.863	13.449	0.365	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-ZC-15-ETW1-2	2	2	10.923	13.389	0.405	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-ZC-14-ETW1-3	2	2	11.158	13.525	0.411	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-ZC-11-ETW1-4	2	2	10.807	13.042	0.375	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-ZC-13-ETW1-1 (R)*	3	1			0.371	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-ZC-15-ETW1-2	3	1	10.021	12.594	0.388	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-ZC-12-ETW1-3	3	1	9.250	12.834	0.433	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-ZC-11-ETW1-4	3	1	9.194	11.807	0.376	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-ZC-13-ETW1-1	3	2	9.265	11.778	0.358	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-ZC-15-ETW1-2	3	2	10.095	12.667	0.367	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-ZC-14-ETW1-3 (R)	3	2	7.548	9.992	0.348	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-ZC-11-ETW1-4	3	2	10.477	12.297	0.375	0.130

*Data was not reported due to extensometer slippage during test

Average	9.582	11.989	0.380	0.130
Standard Dev.	1.312	1.104	0.022	
Coeff. of Var. [%]	13.697	9.209	5.817	
Min.	7.303	9.687	0.333	0.129
Max.	11.863	13.525	0.433	0.132
Number of Spec.	23	23	24	24

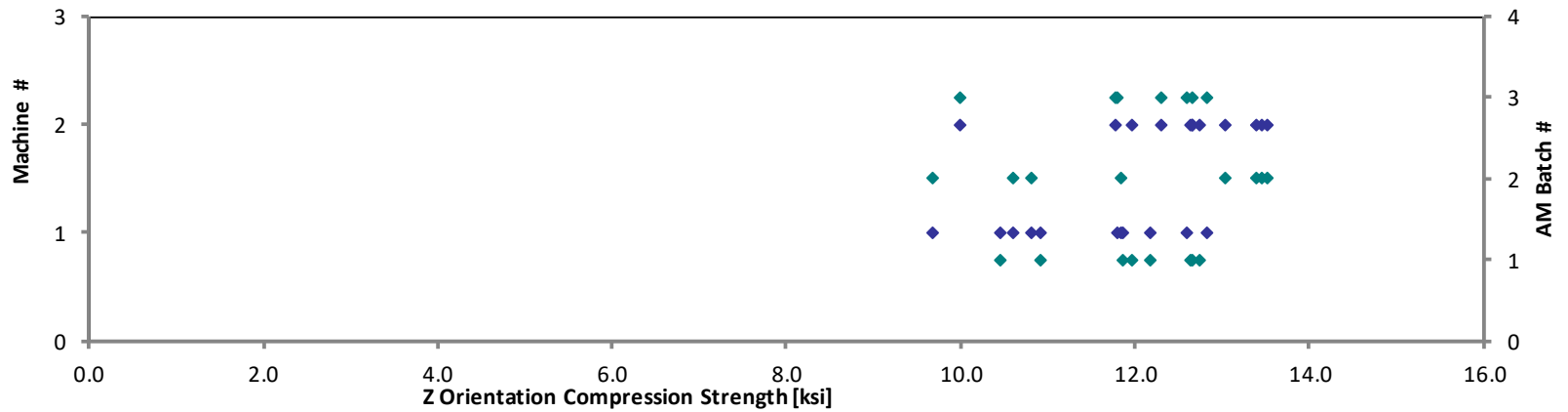
Z Orientation Dogbone Compression Properties (ZC)--ETW1
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #

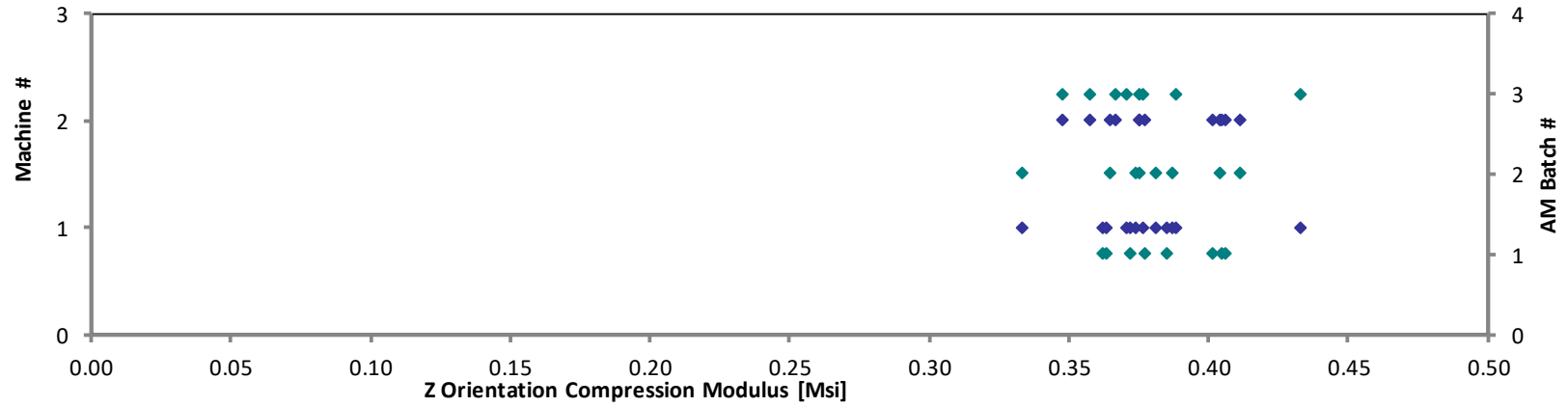
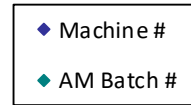


Z Orientation Dogbone Compression Properties (ZC)--ETW1
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Z Orientation Dogbone Compression Properties (ZC)--ETW1
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



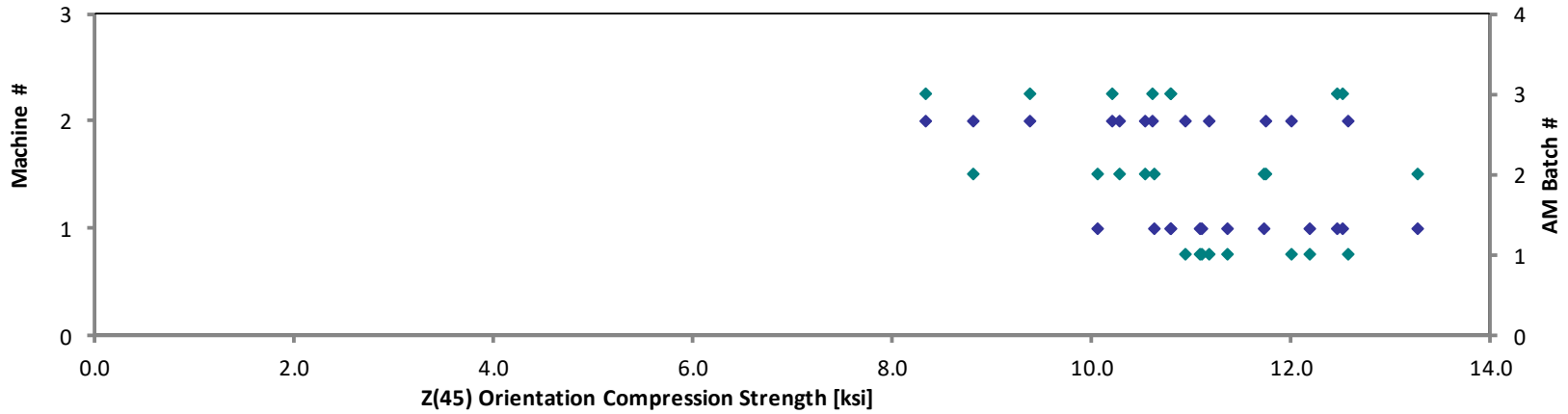
4.8 Z45 Compression Properties (Z45C)

**Z(45) Orientation Dogbone Compression Properties (Z45C)--CTD
Strength & Modulus**
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

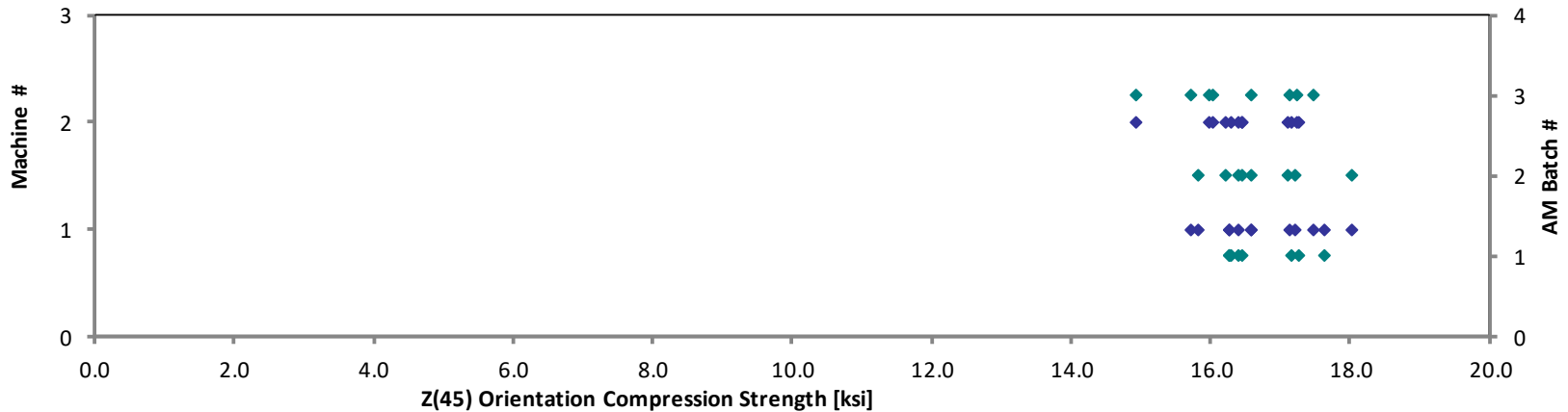
Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-13-CTD-1	1	1	11.120	16.267	0.381	0.131
NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-15-CTD-2	1	1	11.380	16.402	0.377	0.132
NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-12-CTD-3	1	1	11.092	16.261	0.373	0.132
NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-11-CTD-4	1	1	12.191	17.630	0.391	0.131
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-13-CTD-1	1	2	11.184	16.285	0.382	0.131
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-15-CTD-2	1	2	12.588	17.159	0.367	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-14-CTD-3	1	2	12.017	17.266	0.380	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-11-CTD-4	1	2	10.956	16.461	0.388	0.130
NTPAMP001-SY-UM9085-RPM-B-M1-Z45C-13-CTD-1	2	1	13.278	18.033	0.371	0.132
NTPAMP001-SY-UM9085-RPM-B-M1-Z45C-15-CTD-2	2	1	10.640	15.835	0.382	0.132
NTPAMP001-SY-UM9085-RPM-B-M1-Z45C-12-CTD-3	2	1	10.075	17.221	0.411	0.130
NTPAMP001-SY-UM9085-RPM-B-M1-Z45C-11-CTD-4	2	1	11.746	16.581	0.377	0.132
NTPAMP001-SY-UM9085-RPM-B-M2-Z45C-13-CTD-1	2	2	10.543	16.466	0.411	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-Z45C-15-CTD-2	2	2	11.759	17.109	0.397	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-Z45C-14-CTD-3	2	2	10.284	16.396	0.414	0.131
NTPAMP001-SY-UM9085-RPM-B-M2-Z45C-11-CTD-4	2	2	8.817	16.208	0.438	0.131
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-13-CTD-1	3	1	10.810	15.714	0.373	0.133
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-15-CTD-2	3	1	12.467	17.132	0.373	0.132
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-12-CTD-3	3	1	12.534	17.490	0.390	0.131
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-11-CTD-4	3	1	10.797	16.573	0.384	0.134
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-13-CTD-1	3	2	10.610	17.233	0.420	0.132
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-15-CTD-2	3	2	9.391	15.978	0.415	0.132
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-14-CTD-3	3	2	10.217	16.039	0.396	0.132
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-11-CTD-4	3	2	8.334	14.928	0.422	0.132

Average	11.035	16.611	0.392	0.131
Standard Dev.	1.198	0.706	0.019	
Coeff. of Var. [%]	10.854	4.248	4.945	
Min.	8.334	14.928	0.367	0.129
Max.	13.278	18.033	0.438	0.134
Number of Spec.	24	24	24	24

Z(45) Orientation Dogbone Compression Properties (Z45C)--CTD
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

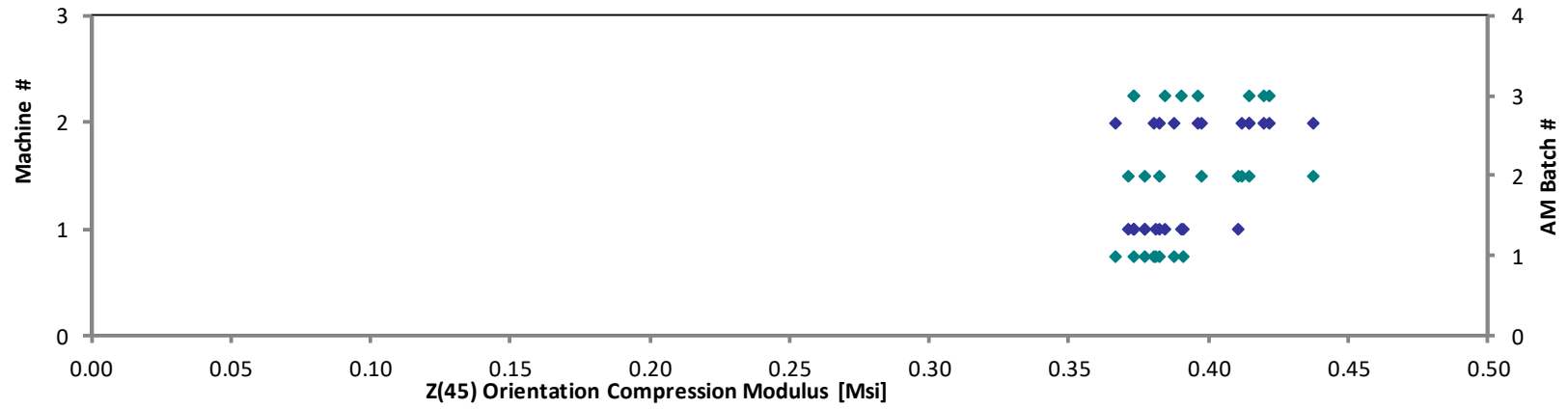


Z(45) Orientation Dogbone Compression Properties (Z45C)--CTD
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z(45) Orientation Dogbone Compression Properties (Z45C)--CTD
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



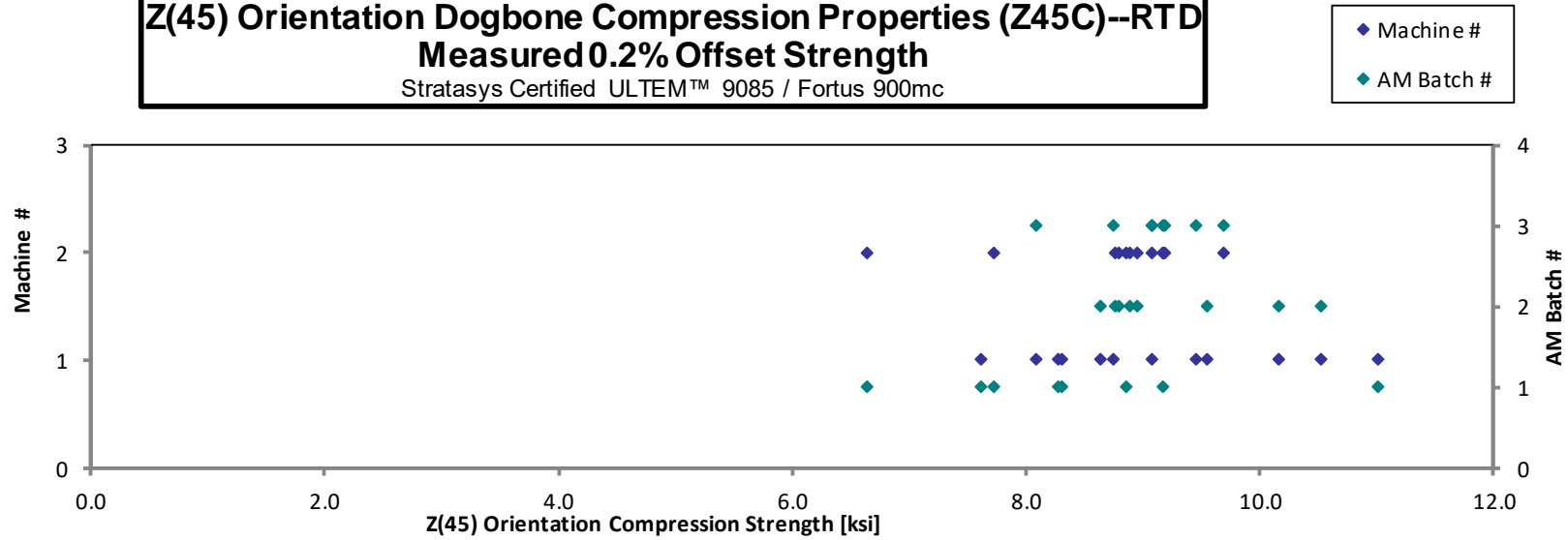
Z(45) Orientation Dogbone Compression Properties (Z45C)--RTD
Strength & Modulus
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-13-RTD-1 (R)	1	1	11.009	14.697	0.372	0.131
NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-15-RTD-2	1	1	7.622	11.688	0.358	0.132
NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-12-RTD-3	1	1	8.311	12.888	0.367	0.133
NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-11-RTD-4	1	1	8.285	12.707	0.350	0.133
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-13-RTD-1	1	2	8.866	13.247	0.370	0.132
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-15-RTD-2	1	2	6.644	11.529	0.379	0.132
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-14-RTD-3	1	2	7.720	12.244	0.372	0.132
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-11-RTD-4 (R)	1	2	9.176	13.725	0.366	0.130
NTPAMP001-SY-UM9085-RPM-B-M1-Z45C-13-RTD-1 (R)	2	1	10.164	13.799	0.359	0.132
NTPAMP001-SY-UM9085-RPM-B-M1-Z45C-15-RTD-2	2	1	9.555	12.937	0.352	0.131
NTPAMP001-SY-UM9085-RPM-B-M1-Z45C-12-RTD-3	2	1	8.637	13.507	0.383	0.132
NTPAMP001-SY-UM9085-RPM-B-M1-Z45C-11-RTD-4	2	1	10.523	14.148	0.350	0.132
NTPAMP001-SY-UM9085-RPM-B-M2-Z45C-13-RTD-1	2	2	8.758	13.058	0.378	0.131
NTPAMP001-SY-UM9085-RPM-B-M2-Z45C-15-RTD-2	2	2	8.894	13.142	0.376	0.131
NTPAMP001-SY-UM9085-RPM-B-M2-Z45C-14-RTD-3	2	2	8.795	13.017	0.377	0.132
NTPAMP001-SY-UM9085-RPM-B-M2-Z45C-11-RTD-4	2	2	8.961	13.163	0.366	0.132
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-13-RTD-1	3	1	9.458	12.575	0.348	0.132
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-15-RTD-2	3	1	8.750	12.695	0.359	0.132
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-12-RTD-3	3	1	9.088	12.976	0.364	0.131
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-11-RTD-4	3	1	8.087	12.408	0.365	0.132
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-13-RTD-1	3	2	9.084	13.001	0.372	0.132
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-15-RTD-2	3	2	9.190	13.220	0.354	0.132
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-14-RTD-3	3	2	9.180	12.825	0.361	0.133
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-11-RTD-4	3	2	9.689	13.173	0.344	0.133

Average	8.935	13.015	0.364	0.132
Standard Dev.	0.931	0.692	0.011	
Coeff. of Var. [%]	10.423	5.318	2.970	
Min.	6.644	11.529	0.344	0.130
Max.	11.009	14.697	0.383	0.133
Number of Spec.	24	24	24	24

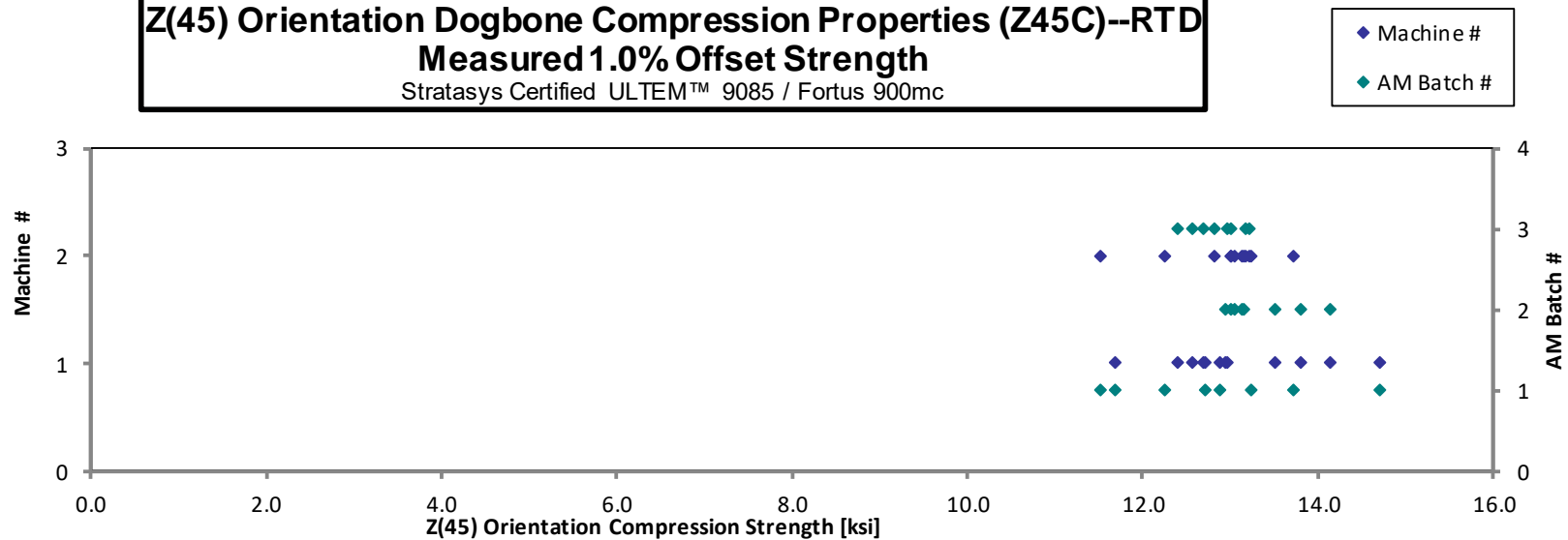
**Z(45) Orientation Dogbone Compression Properties (Z45C)--RTD
Measured 0.2% Offset Strength**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

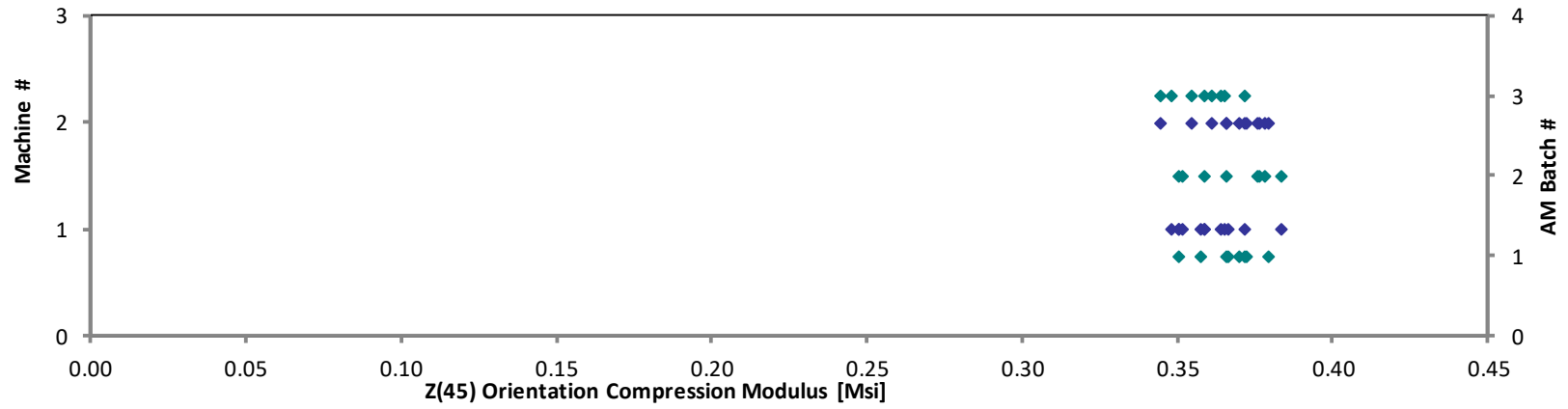
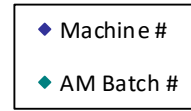


**Z(45) Orientation Dogbone Compression Properties (Z45C)--RTD
Measured 1.0% Offset Strength**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z(45) Orientation Compression Properties (Z45C)--RTD
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

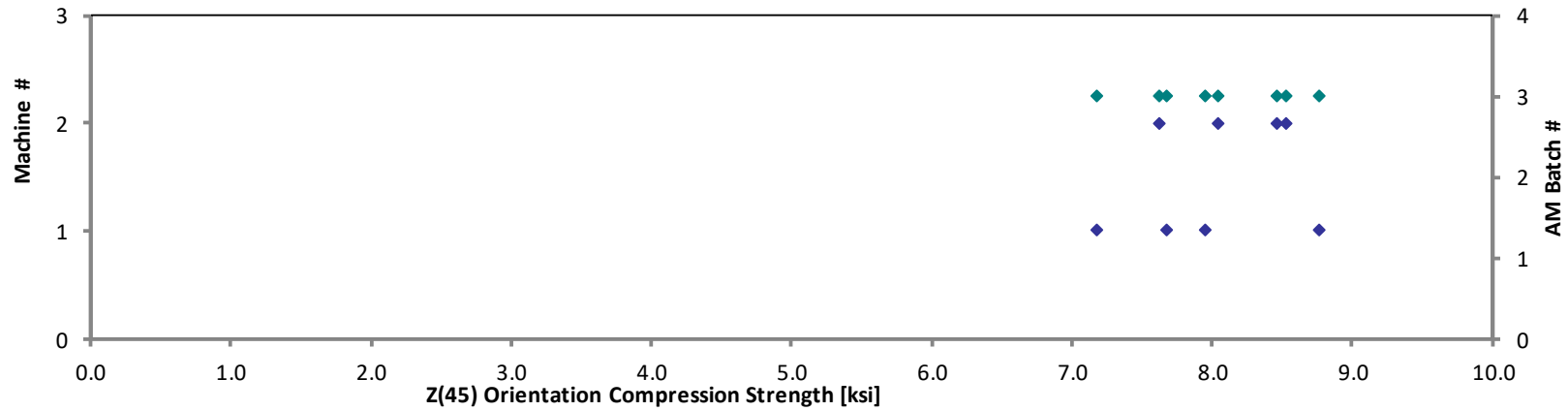


Z(45) Orientation Dogbone Compression Properties (Z45C)--RTW Strength & Modulus Stratasys Certified ULTEM™ 9085 / Fortus 900mc
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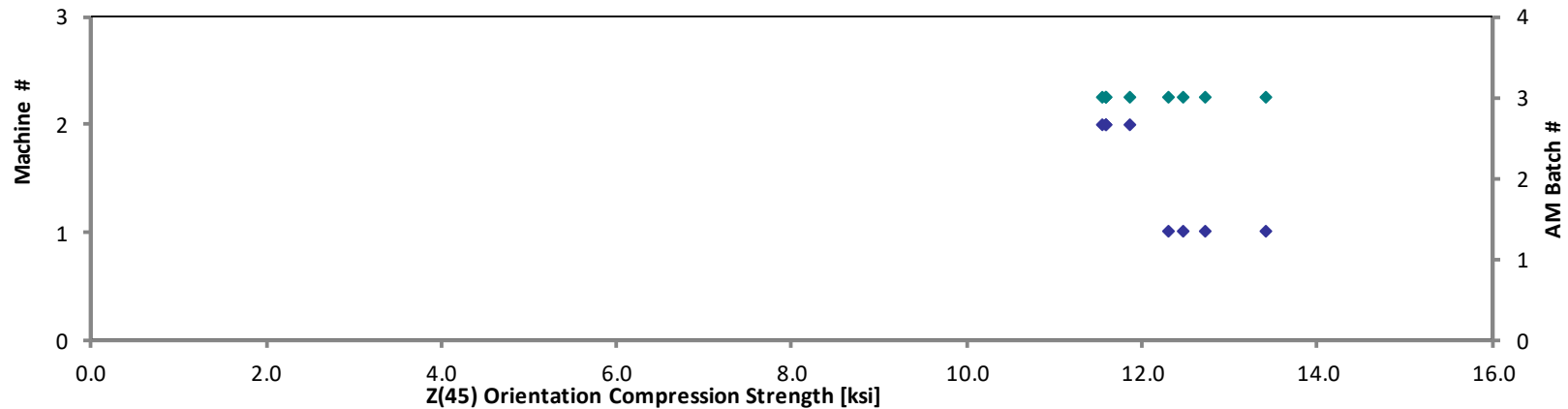
Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-13-RTW-1 (R)	3	1	7.950	13.411	0.400	0.133
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-15-RTW-2	3	1	7.681	12.715	0.404	0.132
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-12-RTW-3	3	1	8.770	12.480	0.361	0.131
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-11-RTW-4	3	1	7.181	12.293	0.395	0.132
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-13-RTW-1	3	2	7.625	11.598	0.370	0.132
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-15-RTW-2	3	2	8.044	11.538	0.357	0.133
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-14-RTW-3	3	2	8.531	11.584	0.342	0.133
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-11-RTW-4	3	2	8.458	11.859	0.354	0.133

Average	8.030	12.185	0.373	0.132
Standard Dev.	0.534	0.667	0.023	
Coeff. of Var. [%]	6.648	5.473	6.295	
Min.	7.181	11.538	0.342	0.131
Max.	8.770	13.411	0.404	0.133
Number of Spec.	8	8	8	8

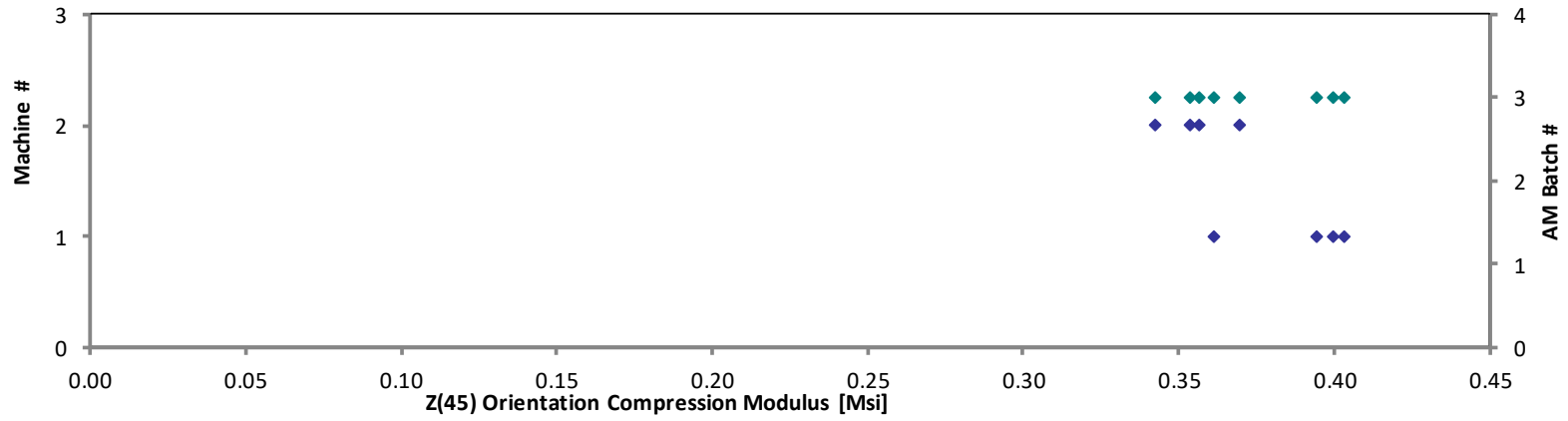
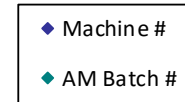
Z(45) Orientation Dogbone Compression Properties (Z45C)--RTW
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z(45) Orientation Dogbone Compression Properties (Z45C)--RTW
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z(45) Orientation Dogbone Compression Properties (Z45C)--RTW
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



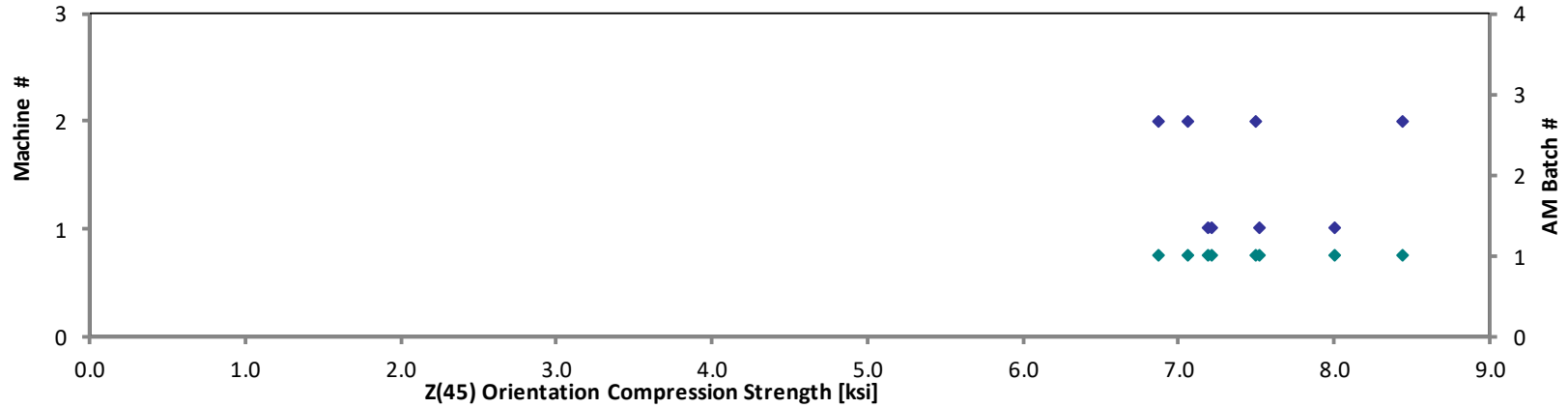
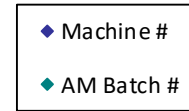
Z(45) Orientation Dogbone Compression Properties (Z45C)--ETD1
Strength & Modulus
 Stratasy Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-13-ETD1-1*	1	1	7.525	10.325	0.343	0.131
NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-15-ETD1-2	1	1	7.195	9.654	0.331	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-15-ETD1-3	1	1	8.011	10.564	0.340	0.132
NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-15-ETD1-4	1	1	7.215	9.934	0.329	0.131
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-13-ETD1-1	1	2	8.443	10.476	0.328	0.131
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-15-ETD1-2	1	2	7.062	9.663	0.331	0.131
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-14-ETD1-3	1	2	6.879	9.289	0.325	0.132
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-11-ETD1-4	1	2	7.496	9.623	0.317	0.132

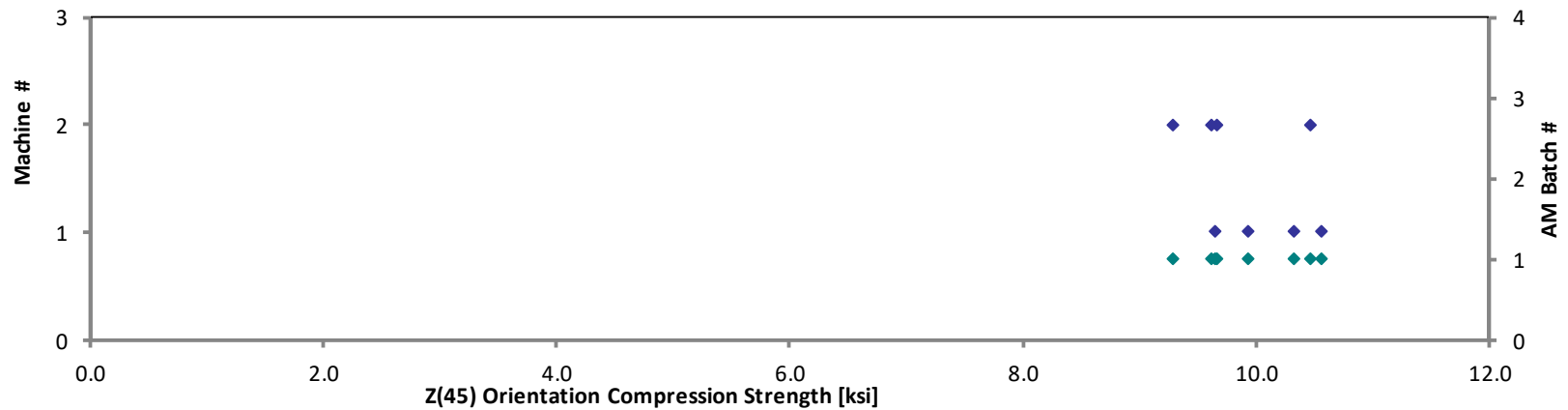
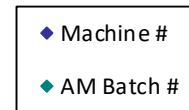
*Coupon tested with non-modified ASTM fixture, remaining coupons tested with custom fixture

Average	7.478	9.941	0.331	0.131
Standard Dev.	0.521	0.464	0.008	
Coeff. of Var. [%]	6.967	4.668	2.451	
Min.	6.879	9.289	0.317	0.130
Max.	8.443	10.564	0.343	0.132
Number of Spec.	8	8	8	8

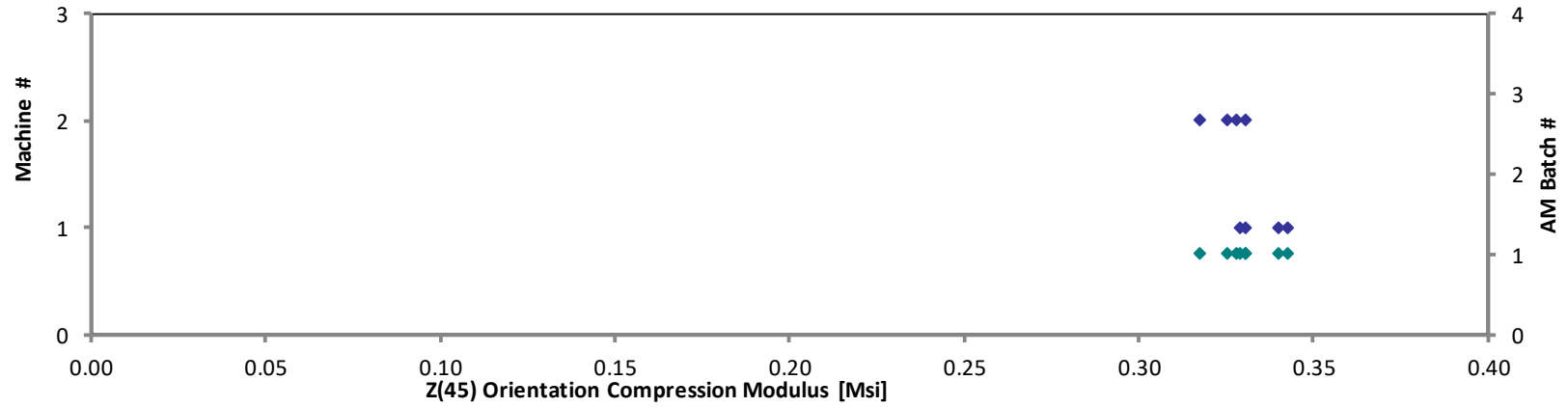
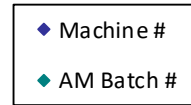
Z(45) Orientation Dogbone Compression Properties (Z45C)--ETD1
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z(45) Orientation Dogbone Compression Properties (Z45C)--ETD1
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z(45) Orientation Dogbone Compression Properties (Z45C)--ETD1
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



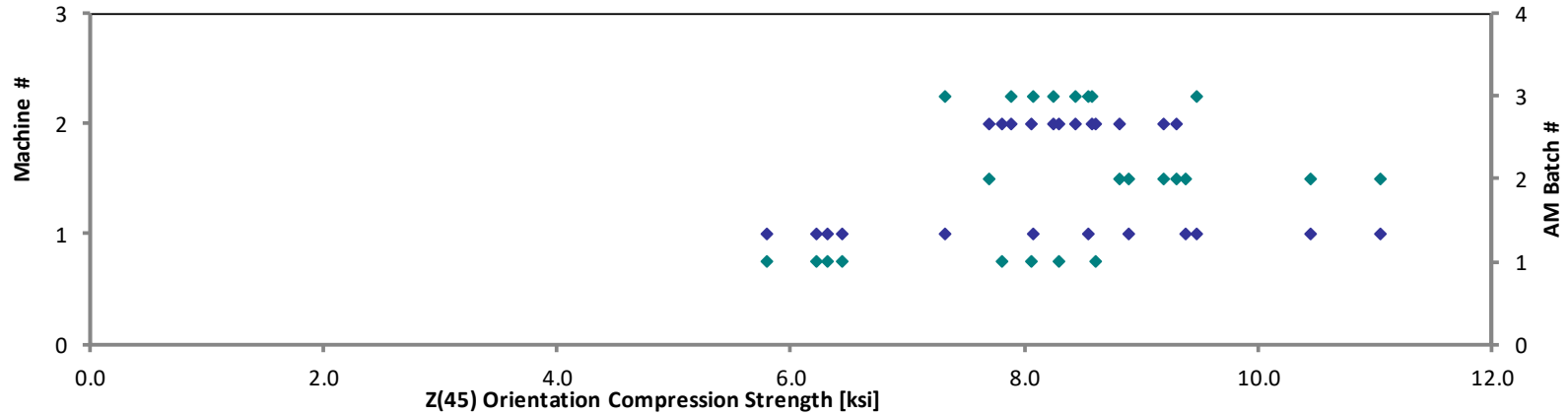
Z(45) Orientation Dogbone Compression Properties (Z45C)--ETW1
Strength & Modulus
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-13-ETW1-1	1	1	6.228	8.634	0.352	0.131
NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-15-ETW1-2	1	1	6.310	8.218	0.330	0.132
NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-12-ETW1-3	1	1	6.449	8.527	0.323	0.132
NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-11-ETW1-4	1	1	5.793	8.012	0.328	0.132
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-13-ETW1-1	1	2	8.609	10.718	0.348	0.132
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-15-ETW1-2	1	2	8.301	10.769	0.368	0.132
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-14-ETW1-3	1	2	8.068	10.221	0.351	0.133
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-11-ETW1-4	1	2	7.816	10.527	0.365	0.132
NTPAMP001-SY-UM9085-RPM-B-M1-Z45C-13-ETW1-1	2	1	8.903	12.455	0.381	0.132
NTPAMP001-SY-UM9085-RPM-B-M1-Z45C-15-ETW1-2	2	1	10.451	13.115	0.387	0.132
NTPAMP001-SY-UM9085-RPM-B-M1-Z45C-12-ETW1-3	2	1	11.058	14.470	0.358	0.132
NTPAMP001-SY-UM9085-RPM-B-M1-Z45C-11-ETW1-4	2	1	9.382	12.859	0.391	0.132
NTPAMP001-SY-UM9085-RPM-B-M2-Z45C-13-ETW1-1	2	2	8.814	12.093	0.398	0.131
NTPAMP001-SY-UM9085-RPM-B-M2-Z45C-15-ETW1-2 (R)	2	2	7.772	10.158	0.332	0.131
NTPAMP001-SY-UM9085-RPM-B-M2-Z45C-14-ETW1-3 (R)	2	2	7.781	10.233	0.329	0.131
NTPAMP001-SY-UM9085-RPM-B-M2-Z45C-11-ETW1-4	2	2	7.707	11.591	0.425	0.131
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-13-ETW1-1	3	1	9.482	12.143	0.378	0.132
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-15-ETW1-2	3	1	7.330	11.309	0.423	0.131
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-12-ETW1-3	3	1	8.545	12.203	0.419	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-11-ETW1-4	3	1	8.071	11.632	0.407	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-13-ETW1-1	3	2	8.249	11.268	0.390	0.133
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-15-ETW1-2	3	2	8.579	11.198	0.386	0.132
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-14-ETW1-3	3	2	7.885	10.422	0.357	0.134
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-11-ETW1-4	3	2	8.439	11.474	0.417	0.133

Average	8.168	11.010	0.373	0.132
Standard Dev.	1.244	1.591	0.032	
Coeff. of Var. [%]	15.229	14.447	8.707	
Min.	5.793	8.012	0.323	0.130
Max.	11.058	14.470	0.425	0.134
Number of Spec.	24	24	24	24

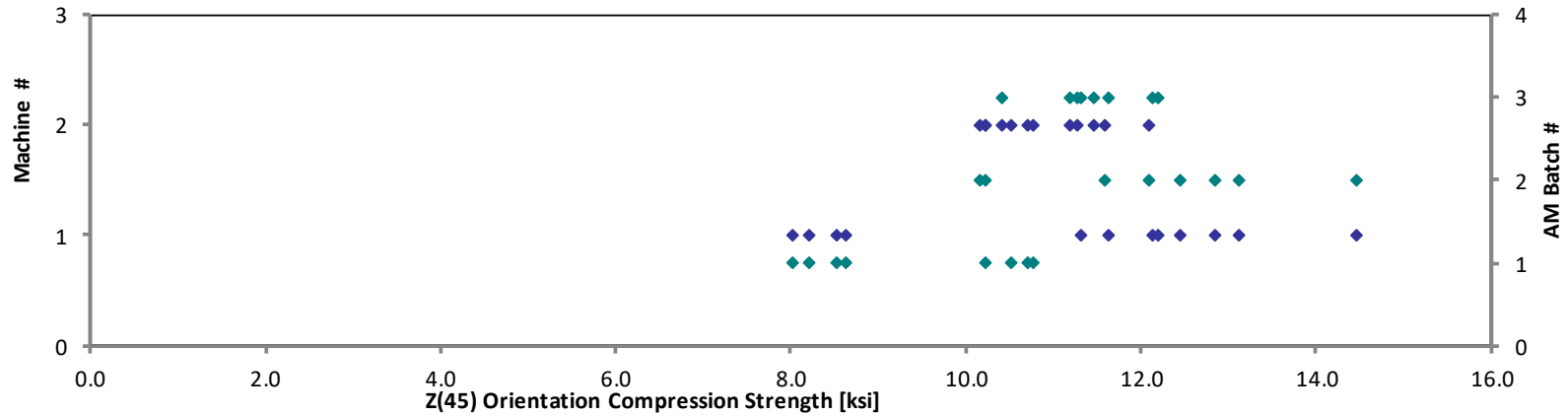
Z(45) Orientation Dogbone Compression Properties (Z45C)--ETW1
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



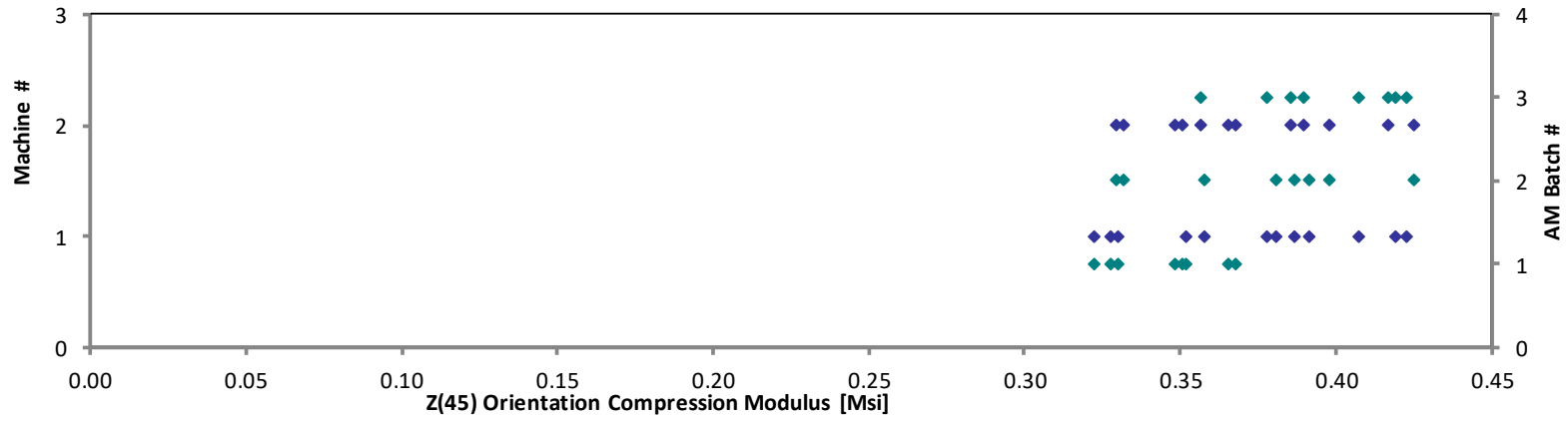
Z(45) Orientation Dogbone Compression Properties (Z45C)--ETW1
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Z(45) Orientation Dogbone Compression Properties (Z45C)--ETW1
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



4.9 X Flex Properties (XF)

**X Orientation Flexural Properties (XF)--CTD
Strength & Modulus**

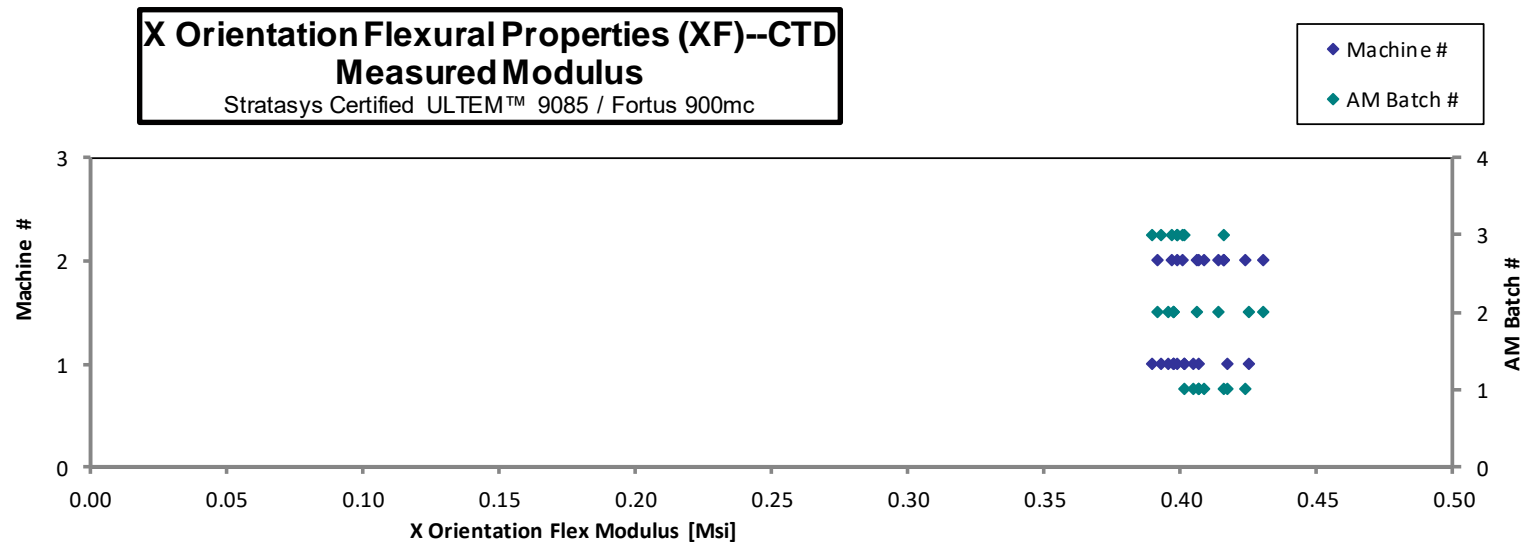
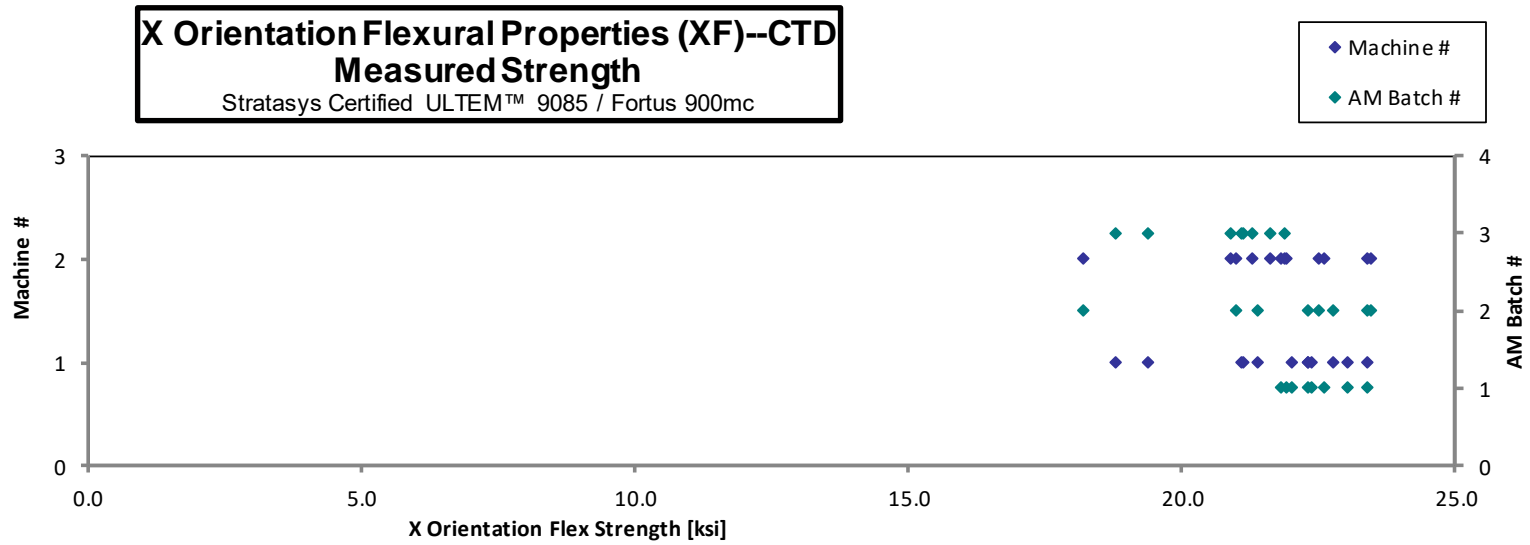
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-XF-13-CTD-1**	1	1	22.305	0.405	0.128	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M1-XF-15-CTD-2*/**	1	1	22.027	0.401	0.128	
NTPAMP001-SY-UM9085-RPM-A-M1-XF-11-CTD-3*/**	1	1	22.382	0.417	0.127	
NTPAMP001-SY-UM9085-RPM-A-M1-XF-12-CTD-4*/**	1	1	23.025	0.407	0.128	
NTPAMP001-SY-UM9085-RPM-A-M2-XF-13-CTD-1**	1	2	21.817	0.409	0.129	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-XF-15-CTD-2**	1	2	23.385	0.424	0.128	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-XF-11-CTD-3*/**	1	2	22.604	0.416	0.129	
NTPAMP001-SY-UM9085-RPM-A-M2-XF-14-CTD-4*/**	1	2	21.920	0.407	0.129	
NTPAMP001-SY-UM9085-RPM-B-M1-XF-13-CTD-1**	2	1	21.386	0.397	0.128	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M1-XF-15-CTD-2*/**	2	1	22.313	0.395	0.127	
NTPAMP001-SY-UM9085-RPM-B-M1-XF-11-CTD-3*/**	2	1	23.399	0.397	0.127	
NTPAMP001-SY-UM9085-RPM-B-M1-XF-12-CTD-4*/**	2	1	22.777	0.425	0.128	
NTPAMP001-SY-UM9085-RPM-B-M2-XF-13-CTD-1**	2	2	21.002	0.392	0.129	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-XF-15-CTD-2	2	2	18.211	0.414	0.128	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-XF-11-CTD-3**	2	2	23.471	0.431	0.128	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-XF-14-CTD-4**	2	2	22.505	0.406	0.129	CAT, TAB
NTPAMP001-SY-UM9085-RPM-C-M1-XF-13-CTD-1**	3	1	18.798	0.401	0.128	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-XF-15-CTD-2**	3	1	21.139	0.393	0.128	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-XF-11-CTD-3**	3	1	21.104	0.399	0.128	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-XF-12-CTD-4**	3	1	19.378	0.390	0.129	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-XF-13-CTD-1	3	2	20.890	0.397	0.129	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-XF-15-CTD-2	3	2	21.877	0.416	0.128	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-XF-11-CTD-3	3	2	21.281	0.401	0.128	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-XF-14-CTD-4	3	2	21.629	0.399	0.128	TAB

*Specimen failure not observed

**Failure occurred after the 5% strain limit per ASTM D790, note 18

Average	21.693	0.406	0.128
Standard Dev.	1.363	0.011	0.001
Coeff. of Var. [%]	6.283	2.748	0.444
Min.	18.211	0.390	0.127
Max.	23.471	0.431	0.129
Number of Spec.	24	24	24



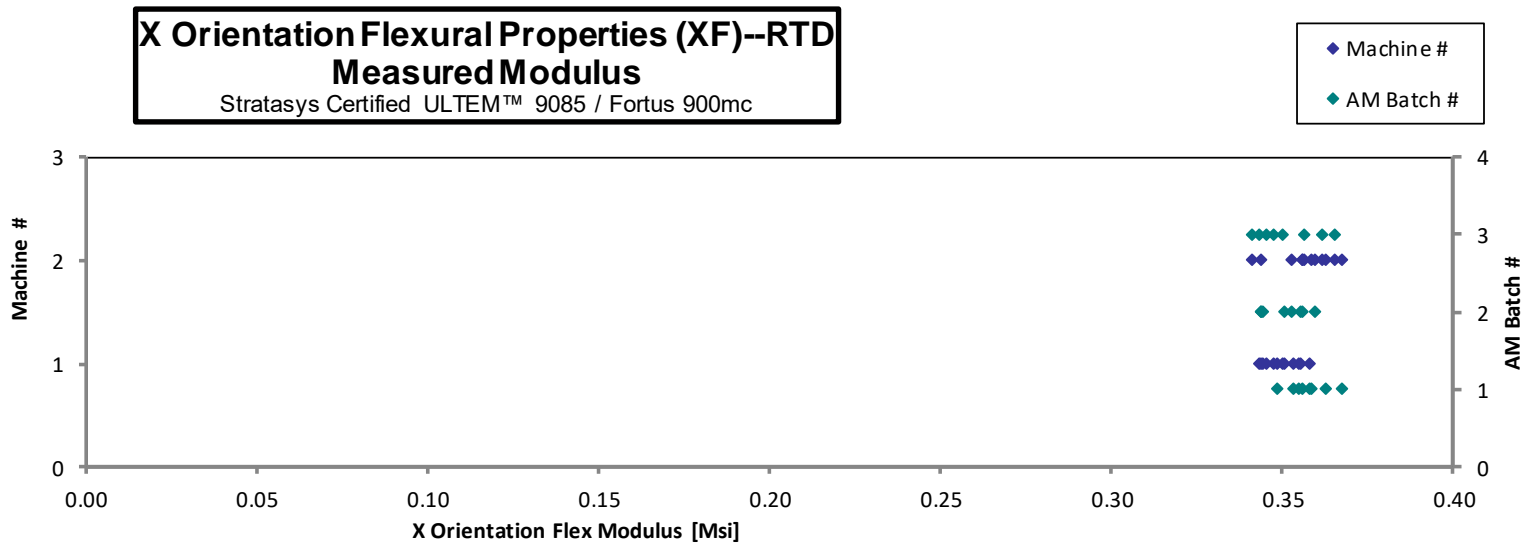
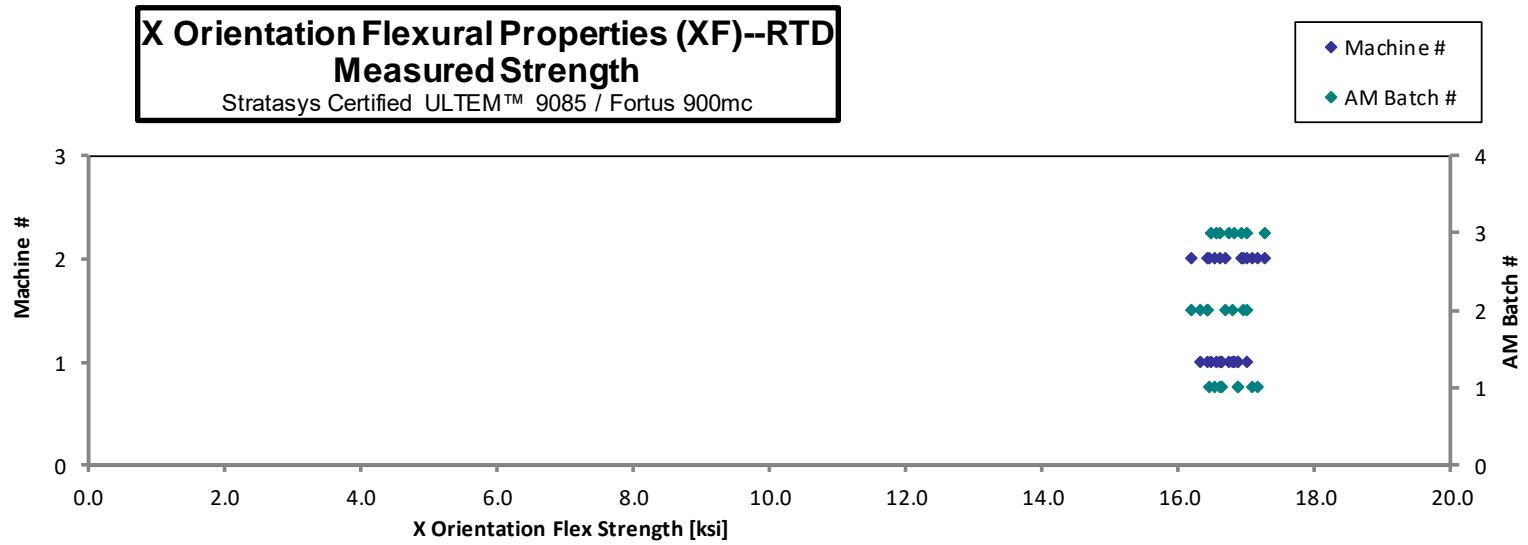
X Orientation Flexural Properties (XF)--RTD Strength & Modulus Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-XF-13-RTD-1 ^{*/**}	1	1	16.872	0.348	0.129	
NTPAMP001-SY-UM9085-RPM-A-M1-XF-15-RTD-2 ^{*/**}	1	1	16.635	0.355	0.128	
NTPAMP001-SY-UM9085-RPM-A-M1-XF-11-RTD-3 ^{**}	1	1	16.872	0.358	0.127	TAB
NTPAMP001-SY-UM9085-RPM-A-M1-XF-12-RTD-4 ^{**}	1	1	16.610	0.353	0.128	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-XF-13-RTD-1 (R) ^{*/**}	1	2	16.459	0.358	0.129	
NTPAMP001-SY-UM9085-RPM-A-M2-XF-15-RTD-2 ^{*/**}	1	2	16.521	0.356	0.128	
NTPAMP001-SY-UM9085-RPM-A-M2-XF-11-RTD-3 ^{*/**}	1	2	17.175	0.363	0.128	
NTPAMP001-SY-UM9085-RPM-A-M2-XF-14-RTD-4 ^{**}	1	2	17.096	0.367	0.128	TAB, CAT
NTPAMP001-SY-UM9085-RPM-B-M1-XF-13-RTD-1 [*]	2	1	16.418	0.344	0.128	
NTPAMP001-SY-UM9085-RPM-B-M1-XF-15-RTD-2 [*]	2	1	16.996	0.351	0.127	
NTPAMP001-SY-UM9085-RPM-B-M1-XF-11-RTD-3 [*]	2	1	16.794	0.355	0.127	
NTPAMP001-SY-UM9085-RPM-B-M1-XF-12-RTD-4 [*]	2	1	16.311	0.344	0.128	
NTPAMP001-SY-UM9085-RPM-B-M2-XF-13-RTD-1 ^{*/**}	2	2	16.177	0.344	0.129	
NTPAMP001-SY-UM9085-RPM-B-M2-XF-15-RTD-2 ^{**}	2	2	16.437	0.353	0.128	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-XF-11-RTD-3 ^{**}	2	2	16.959	0.360	0.129	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-XF-14-RTD-4 ^{**}	2	2	16.679	0.356	0.128	CAT, TAB
NTPAMP001-SY-UM9085-RPM-C-M1-XF-13-RTD-1 ^{**}	3	1	16.556	0.348	0.128	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-XF-15-RTD-2 ^{**}	3	1	16.828	0.345	0.127	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-XF-11-RTD-3 ^{**}	3	1	16.740	0.350	0.128	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-XF-12-RTD-4 ^{**}	3	1	16.485	0.343	0.128	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-XF-13-RTD-1 ^{**}	3	2	16.597	0.341	0.129	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-XF-15-RTD-2 ^{**}	3	2	16.916	0.362	0.129	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-XF-11-RTD-3 ^{**}	3	2	17.256	0.356	0.128	TAB, CAT
NTPAMP001-SY-UM9085-RPM-C-M2-XF-14-RTD-4 ^{**}	3	2	17.003	0.366	0.128	TAB, CAT

*Specimen failure not observed

**Failure occurred after the 5% strain limit per ASTM D790, note 18

Average	16.725	0.353	0.128
Standard Dev.	0.281	0.007	
Coeff. of Var. [%]	1.677	2.107	
Min.	16.177	0.341	0.127
Max.	17.256	0.367	0.129
Number of Spec.	24	24	24

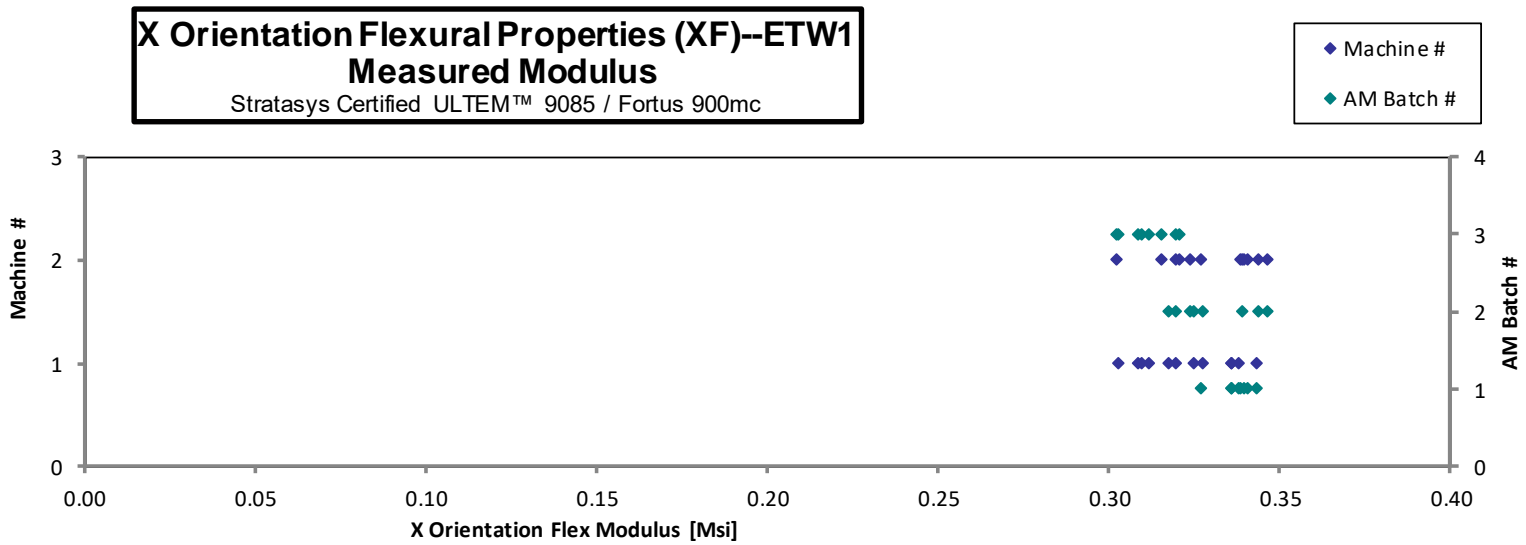
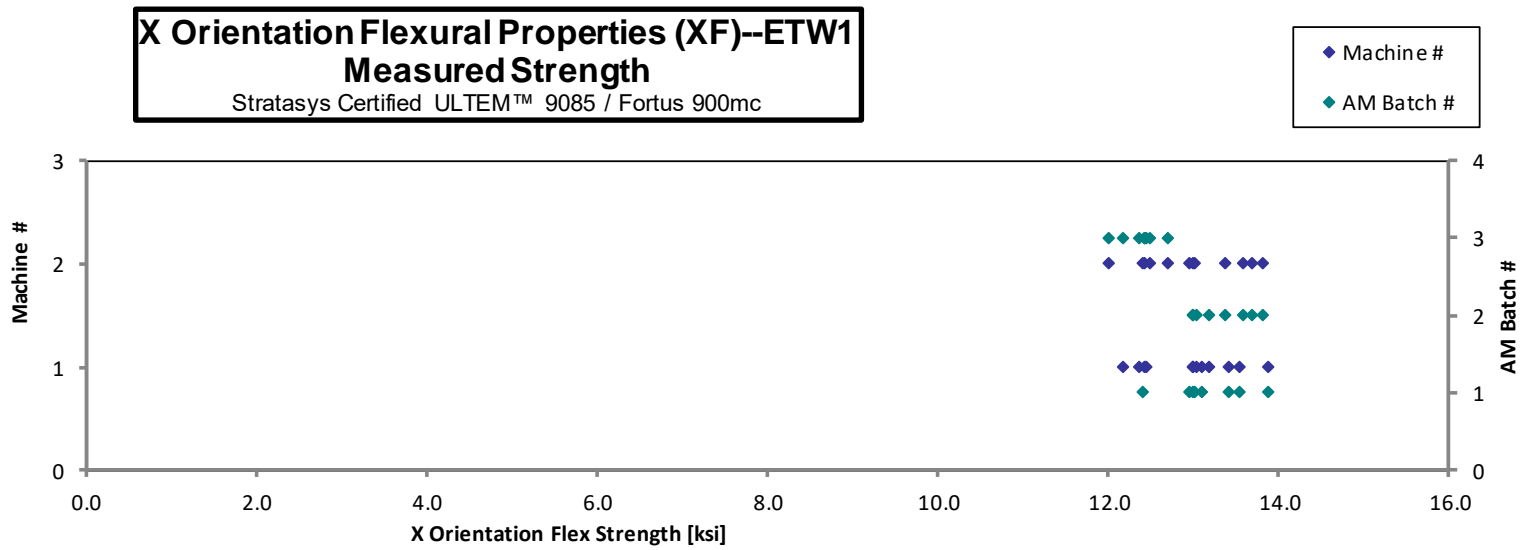


X Orientation Flexural Properties (XF)--ETW1
Strength & Modulus
 Stratasy Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-XF-13-ETW1-1	1	1	13.105	0.336	0.129	TAB, INELASTIC DEFORMATION
NTPAMP001-SY-UM9085-RPM-A-M1-XF-15-ETW1-2	1	1	13.531	0.338	0.127	TAB, INELASTIC DEFORMATION
NTPAMP001-SY-UM9085-RPM-A-M1-XF-11-ETW1-3	1	1	13.867	0.343	0.128	TAB, INELASTIC DEFORMATION
NTPAMP001-SY-UM9085-RPM-A-M1-XF-12-ETW1-4	1	1	13.413	0.336	0.128	TAB, INELASTIC DEFORMATION
NTPAMP001-SY-UM9085-RPM-A-M2-XF-13-ETW1-1	1	2	12.405	0.327	0.129	INELASTIC DEFORMATION, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-XF-15-ETW1-2	1	2	12.950	0.339	0.128	INELASTIC DEFORMATION, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-XF-11-ETW1-3	1	2	13.018	0.338	0.128	INELASTIC DEFORMATION, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-XF-14-ETW1-4	1	2	12.996	0.340	0.128	INELASTIC DEFORMATION, TAB
NTPAMP001-SY-UM9085-RPM-B-M1-XF-13-ETW1-1	2	1	13.027	0.319	0.128	INELASTIC DEFORMATION, TAB
NTPAMP001-SY-UM9085-RPM-B-M1-XF-15-ETW1-2	2	1	12.996	0.318	0.127	INELASTIC DEFORMATION, TAB
NTPAMP001-SY-UM9085-RPM-B-M1-XF-11-ETW1-3	2	1	13.179	0.327	0.127	INELASTIC DEFORMATION, TAB
NTPAMP001-SY-UM9085-RPM-B-M1-XF-12-ETW1-4	2	1	12.984	0.325	0.127	INELASTIC DEFORMATION, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-XF-13-ETW1-1	2	2	13.690	0.324	0.129	INELASTIC DEFORMATION, TAB, ILT
NTPAMP001-SY-UM9085-RPM-B-M2-XF-15-ETW1-2	2	2	13.807	0.339	0.129	INELASTIC DEFORMATION, TAB, ILT
NTPAMP001-SY-UM9085-RPM-B-M2-XF-11-ETW1-3	2	2	13.578	0.344	0.128	INELASTIC DEFORMATION, TAB, ILT
NTPAMP001-SY-UM9085-RPM-B-M2-XF-14-ETW1-4	2	2	13.363	0.346	0.128	INELASTIC DEFORMATION, TAB, ILT
NTPAMP001-SY-UM9085-RPM-C-M1-XF-13-ETW1-1	3	1	12.359	0.309	0.129	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-XF-15-ETW1-2	3	1	12.164	0.303	0.128	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-XF-11-ETW1-3	3	1	12.423	0.312	0.128	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-XF-12-ETW1-4	3	1	12.436	0.309	0.128	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-XF-13-ETW1-1	3	2	12.009	0.302	0.129	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-XF-15-ETW1-2	3	2	12.482	0.315	0.128	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-XF-11-ETW1-3	3	2	12.708	0.321	0.128	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-XF-14-ETW1-4	3	2	12.416	0.320	0.128	TAB

Failure occurred after the 5% strain limit per ASTM D790, note 18 for all specimens

Average	12.955	0.326	0.128
Standard Dev.	0.535	0.014	0.001
Coeff. of Var. [%]	4.131	4.172	0.469
Min.	12.009	0.302	0.127
Max.	13.867	0.346	0.129
Number of Spec.	24	24	24



4.10 Y Flex Properties (YF)

**Y Orientation Flexural Properties (YF)--CTD
Strength & Modulus**

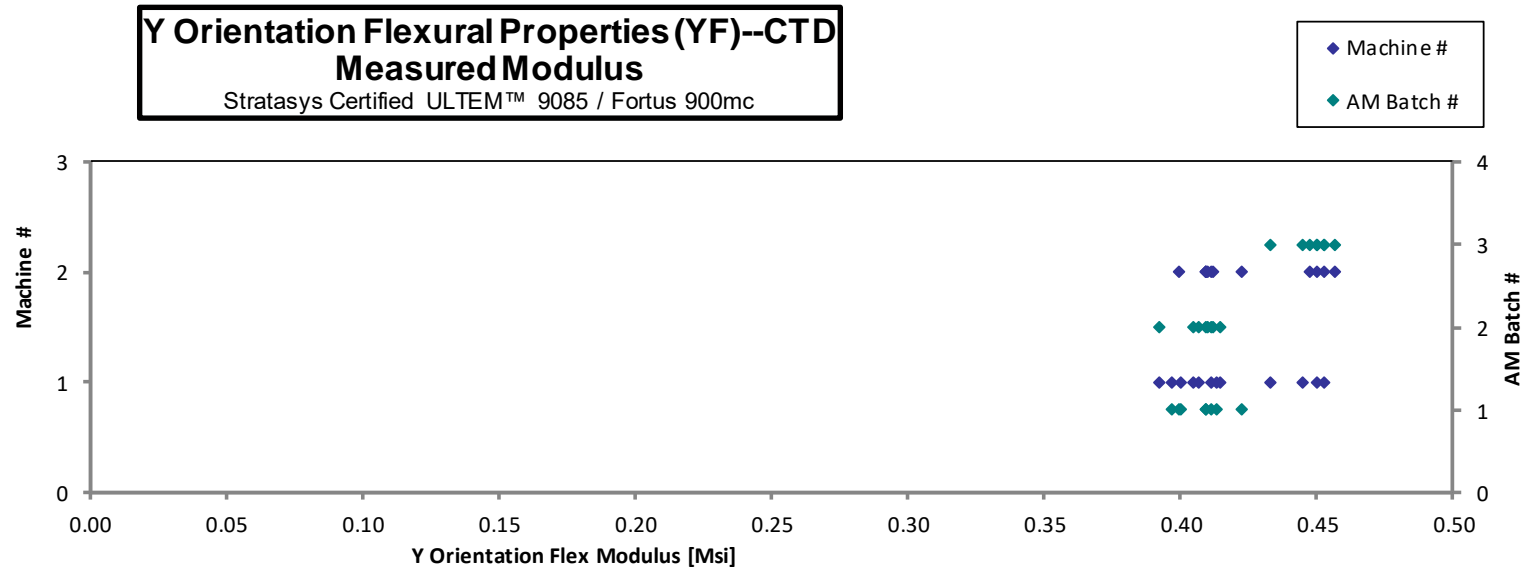
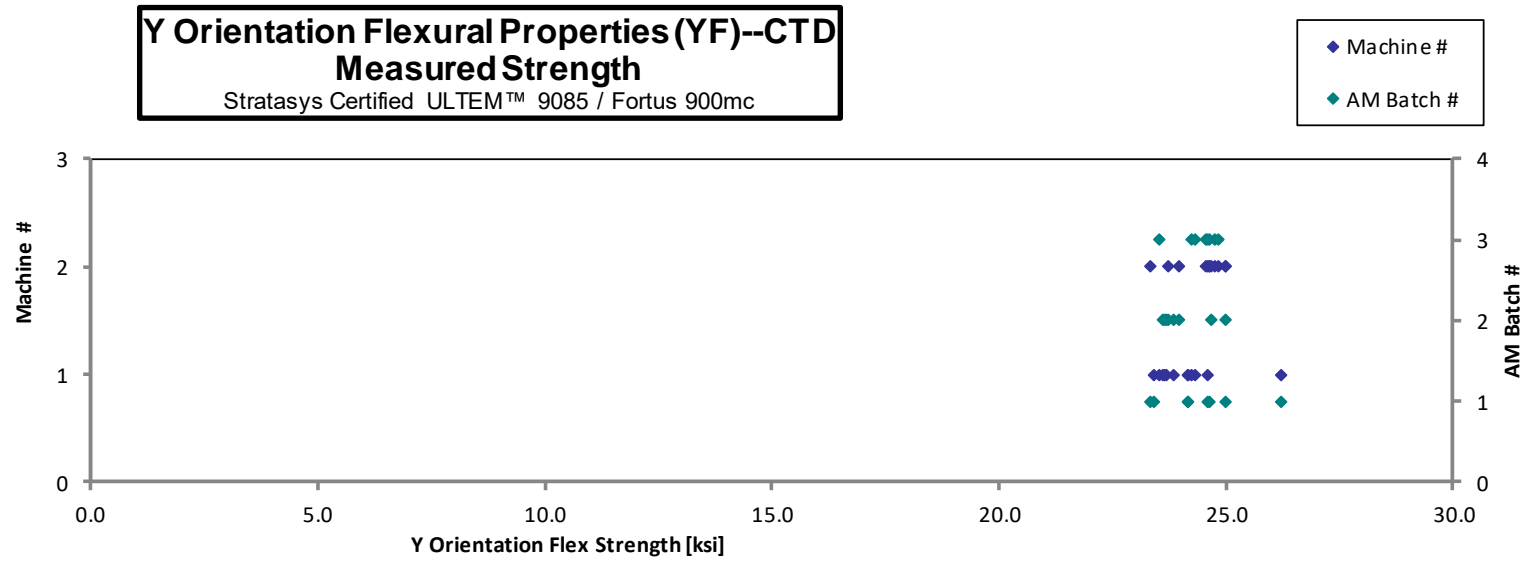
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-YF-13-CTD-1	1	1	26.220	0.413	0.124	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M1-YF-15-CTD-2	1	1	23.410	0.400	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M1-YF-14-CTD-3*	1	1	24.184	0.411	0.124	
NTPAMP001-SY-UM9085-RPM-A-M1-YF-11-CTD-4*	1	1	24.170	0.397	0.124	
NTPAMP001-SY-UM9085-RPM-A-M2-YF-13-CTD-1	1	2	24.989	0.399	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-YF-15-CTD-2*	1	2	24.612	0.422	0.124	
NTPAMP001-SY-UM9085-RPM-A-M2-YF-12-CTD-3	1	2	24.638	0.409	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-YF-11-CTD-4*	1	2	23.337	0.409	0.125	
NTPAMP001-SY-UM9085-RPM-B-M1-YF-13-CTD-1	2	1	23.597	0.414	0.124	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M1-YF-15-CTD-2	2	1	23.850	0.405	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M1-YF-14-CTD-3*	2	1	23.645	0.407	0.124	
NTPAMP001-SY-UM9085-RPM-B-M1-YF-11-CTD-4*	2	1	23.702	0.393	0.124	
NTPAMP001-SY-UM9085-RPM-B-M2-YF-13-CTD-1*	2	2	23.732	0.410	0.125	
NTPAMP001-SY-UM9085-RPM-B-M2-YF-15-CTD-2*	2	2	23.986	0.412	0.124	
NTPAMP001-SY-UM9085-RPM-B-M2-YF-12-CTD-3*	2	2	24.982	0.411	0.124	
NTPAMP001-SY-UM9085-RPM-B-M2-YF-11-CTD-4*	2	2	24.672	0.410	0.125	
NTPAMP001-SY-UM9085-RPM-C-M1-YF-13-CTD-1	3	1	24.245	0.450	0.123	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-YF-15-CTD-2	3	1	23.521	0.433	0.125	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-YF-14-CTD-3	3	1	24.612	0.453	0.123	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-YF-11-CTD-4	3	1	24.307	0.445	0.124	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-YF-13-CTD-1	3	2	24.565	0.447	0.124	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-YF-15-CTD-2	3	2	24.841	0.457	0.124	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-YF-12-CTD-3	3	2	24.749	0.450	0.124	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-YF-11-CTD-4	3	2	24.644	0.453	0.124	TAB

Failure occurred after the 5% strain limit per ASTM D790, note 18 for all specimens

*Specimen failure not observed

Average	24.300	0.421	0.124
Standard Dev.	0.660	0.021	
Coeff. of Var. [%]	2.716	4.969	
Min.	23.337	0.393	0.123
Max.	26.220	0.457	0.125
Number of Spec.	24	24	24

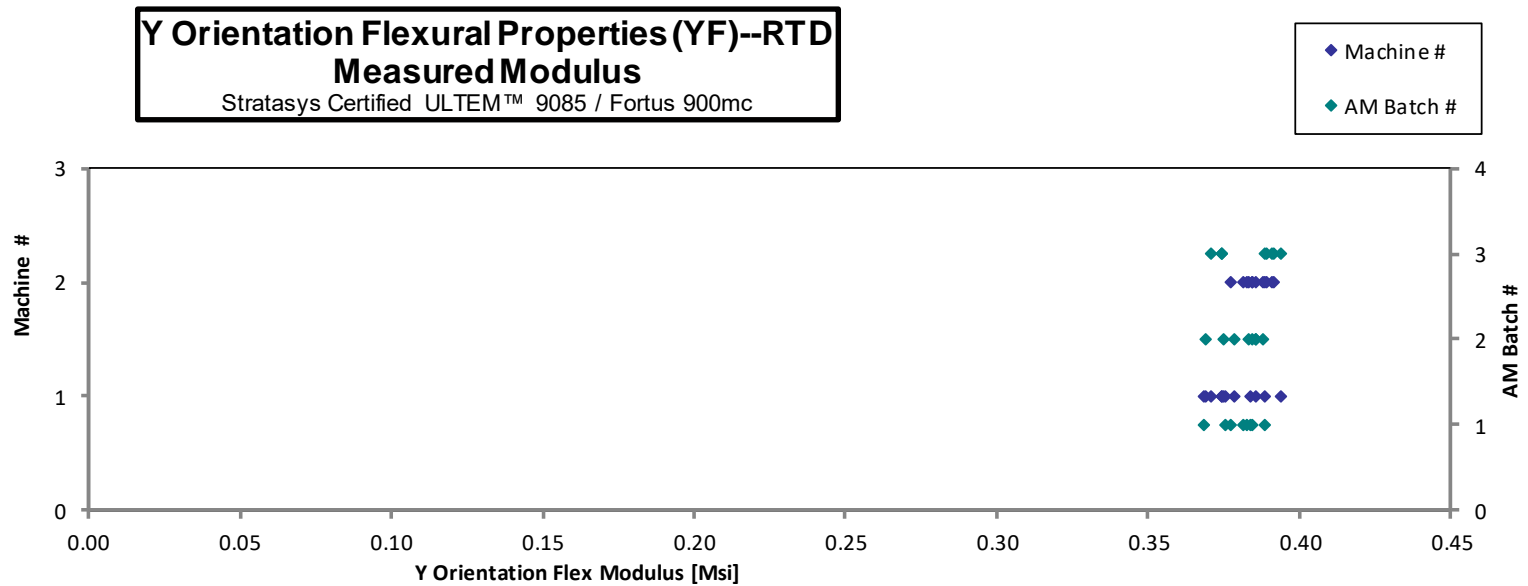
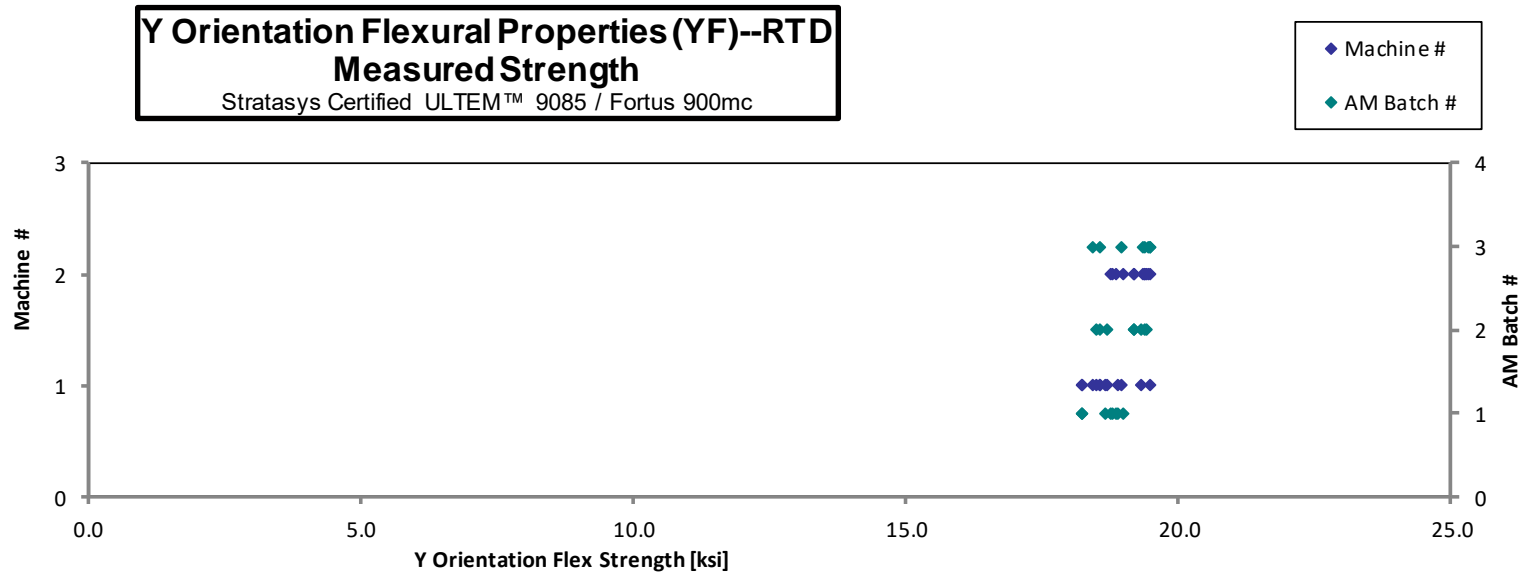


Y Orientation Flexural Properties (YF)--RTD Strength & Modulus Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-YF-13-RTD-1	1	1	18.223	0.376	0.126	TAB
NTPAMP001-SY-UM9085-RPM-A-M1-YF-15-RTD-2	1	1	18.900	0.384	0.124	TAB
NTPAMP001-SY-UM9085-RPM-A-M1-YF-14-RTD-3	1	1	18.220	0.369	0.127	TAB
NTPAMP001-SY-UM9085-RPM-A-M1-YF-11-RTD-4	1	1	18.658	0.388	0.125	TAB
NTPAMP001-SY-UM9085-RPM-A-M2-YF-13-RTD-1	1	2	18.773	0.384	0.124	TAB
NTPAMP001-SY-UM9085-RPM-A-M2-YF-15-RTD-2	1	2	18.840	0.382	0.124	TAB
NTPAMP001-SY-UM9085-RPM-A-M2-YF-12-RTD-3	1	2	18.989	0.382	0.124	TAB
NTPAMP001-SY-UM9085-RPM-A-M2-YF-11-RTD-4	1	2	18.744	0.377	0.125	TAB
NTPAMP001-SY-UM9085-RPM-B-M1-YF-13-RTD-1	2	1	18.484	0.375	0.125	TAB
NTPAMP001-SY-UM9085-RPM-B-M1-YF-15-RTD-2	2	1	19.302	0.386	0.123	TAB, CAT
NTPAMP001-SY-UM9085-RPM-B-M1-YF-14-RTD-3	2	1	18.558	0.369	0.126	TAB
NTPAMP001-SY-UM9085-RPM-B-M1-YF-11-RTD-4	2	1	18.700	0.378	0.125	TAB
NTPAMP001-SY-UM9085-RPM-B-M2-YF-13-RTD-1	2	2	19.192	0.383	0.124	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-YF-15-RTD-2	2	2	19.379	0.385	0.124	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-YF-12-RTD-3	2	2	19.405	0.388	0.124	TAB
NTPAMP001-SY-UM9085-RPM-B-M2-YF-11-RTD-4	2	2	19.198	0.384	0.124	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-YF-13-RTD-1	3	1	18.948	0.374	0.125	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-YF-15-RTD-2	3	1	19.467	0.394	0.122	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-YF-14-RTD-3	3	1	18.566	0.374	0.125	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-YF-11-RTD-4	3	1	18.442	0.371	0.125	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-YF-13-RTD-1	3	2	19.443	0.389	0.124	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-YF-15-RTD-2	3	2	19.465	0.391	0.125	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-YF-12-RTD-3	3	2	19.391	0.389	0.125	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-YF-11-RTD-4	3	2	19.341	0.391	0.125	TAB

Failure occurred after the 5% strain limit per ASTM D790, note 18 for all specimens

Average	18.943	0.382	0.125
Standard Dev.	0.408	0.007	
Coeff. of Var. [%]	2.154	1.928	
Min.	18.220	0.369	0.122
Max.	19.467	0.394	0.127
Number of Spec.	24	24	24



**Y Orientation Flexural Properties (YF)--ETW1
Strength & Modulus**

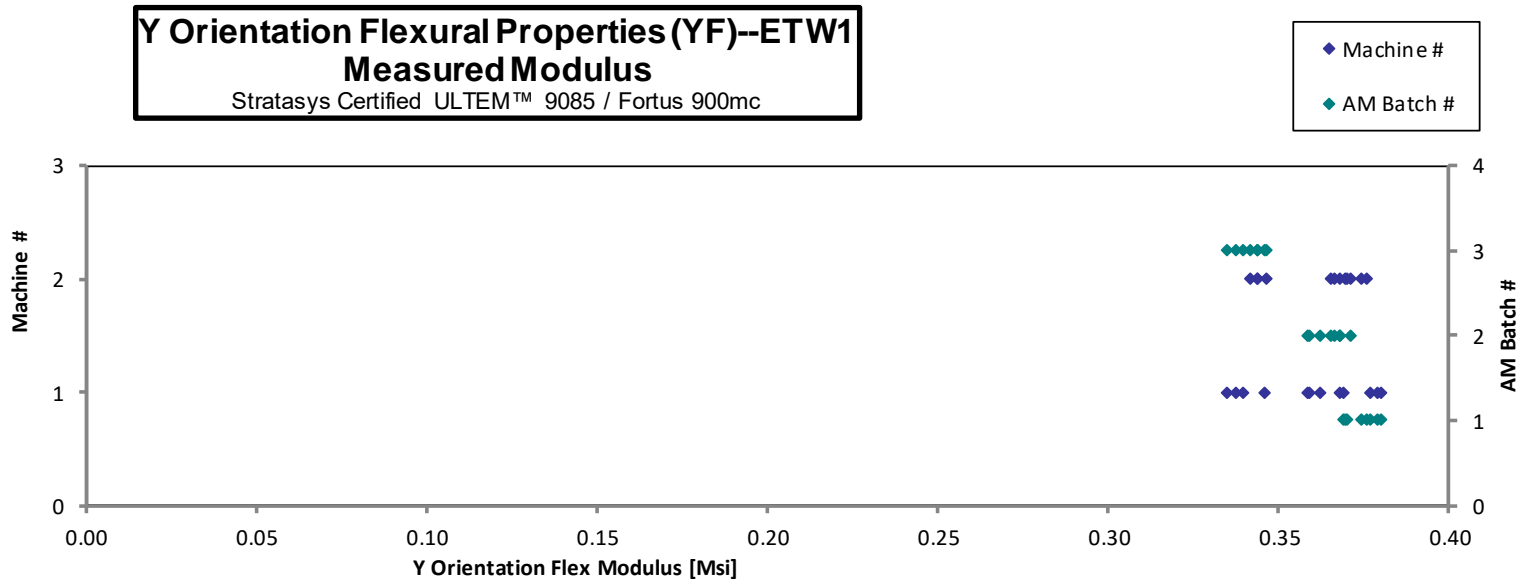
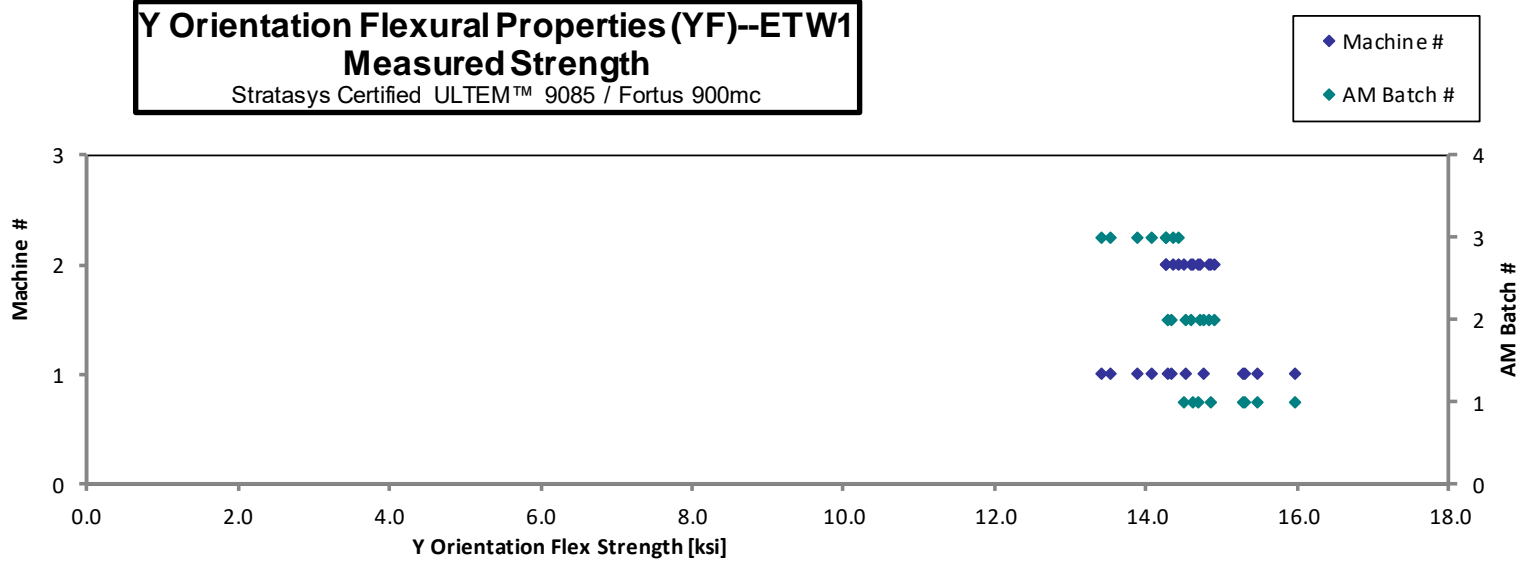
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-YF-13-ETW1-1	1	1	15.970	0.380	0.123	TAB
NTPAMP001-SY-UM9085-RPM-A-M1-YF-15-ETW1-2	1	1	15.481	0.377	0.124	TAB
NTPAMP001-SY-UM9085-RPM-A-M1-YF-14-ETW1-3	1	1	15.298	0.369	0.125	TAB
NTPAMP001-SY-UM9085-RPM-A-M1-YF-11-ETW1-4	1	1	15.276	0.379	0.124	TAB
NTPAMP001-SY-UM9085-RPM-A-M2-YF-13-ETW1-1	1	2	14.678	0.370	0.125	INELASTIC DEFORMATION
NTPAMP001-SY-UM9085-RPM-A-M2-YF-15-ETW1-2	1	2	14.493	0.369	0.125	TAB, INELASTIC DEFORMATION
NTPAMP001-SY-UM9085-RPM-A-M2-YF-12-ETW1-3	1	2	14.850	0.376	0.124	TAB, INELASTIC DEFORMATION
NTPAMP001-SY-UM9085-RPM-A-M2-YF-11-ETW1-4	1	2	14.626	0.375	0.124	INELASTIC DEFORMATION
NTPAMP001-SY-UM9085-RPM-B-M1-YF-13-ETW1-1*	2	1	14.750	0.368	0.122	
NTPAMP001-SY-UM9085-RPM-B-M1-YF-15-ETW1-2*	2	1	14.518	0.362	0.124	
NTPAMP001-SY-UM9085-RPM-B-M1-YF-14-ETW1-3	2	1	14.333	0.359	0.125	INELASTIC DEFORMATION, TAB
NTPAMP001-SY-UM9085-RPM-B-M1-YF-11-ETW1-4*	2	1	14.293	0.358	0.124	
NTPAMP001-SY-UM9085-RPM-B-M2-YF-13-ETW1-1	2	2	14.905	0.371	0.124	INELASTIC DEFORMATION
NTPAMP001-SY-UM9085-RPM-B-M2-YF-15-ETW1-2	2	2	14.588	0.366	0.125	INELASTIC DEFORMATION
NTPAMP001-SY-UM9085-RPM-B-M2-YF-12-ETW1-3	2	2	14.823	0.368	0.124	INELASTIC DEFORMATION
NTPAMP001-SY-UM9085-RPM-B-M2-YF-11-ETW1-4	2	2	14.705	0.366	0.124	INELASTIC DEFORMATION
NTPAMP001-SY-UM9085-RPM-C-M1-YF-13-ETW1-1	3	1	14.074	0.346	0.122	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-YF-15-ETW1-2	3	1	13.884	0.340	0.124	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-YF-14-ETW1-3	3	1	13.418	0.335	0.125	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-YF-11-ETW1-4	3	1	13.540	0.337	0.124	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-YF-13-ETW1-1	3	2	14.352	0.342	0.124	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-YF-15-ETW1-2	3	2	14.268	0.344	0.125	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-YF-12-ETW1-3	3	2	14.422	0.344	0.124	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-YF-11-ETW1-4	3	2	14.256	0.347	0.124	TAB

Failure occurred after the 5% strain limit per ASTM D790, note 18 for all specimens

*Specimen failure not observed

Average	14.575	0.360	0.124
Standard Dev.	0.576	0.015	
Coeff. of Var. [%]	3.955	4.053	
Min.	13.418	0.335	0.122
Max.	15.970	0.380	0.125
Number of Spec.	24	24	24



4.11 Z Flex Properties (ZF)

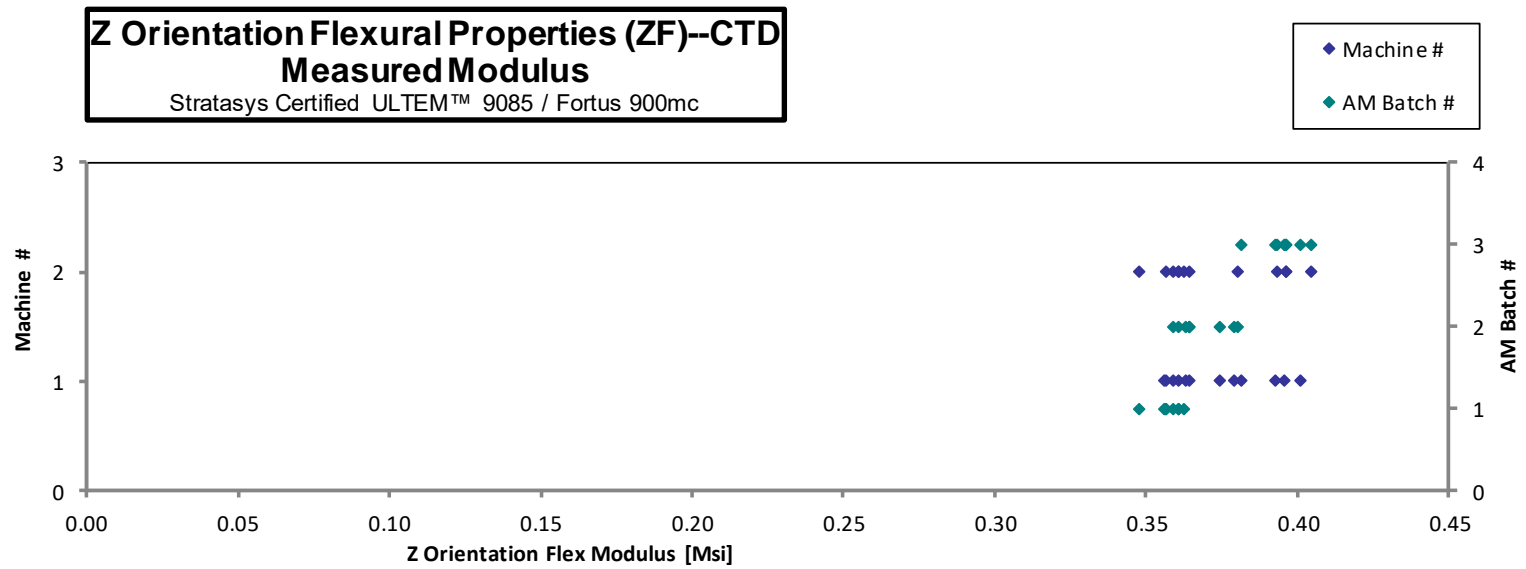
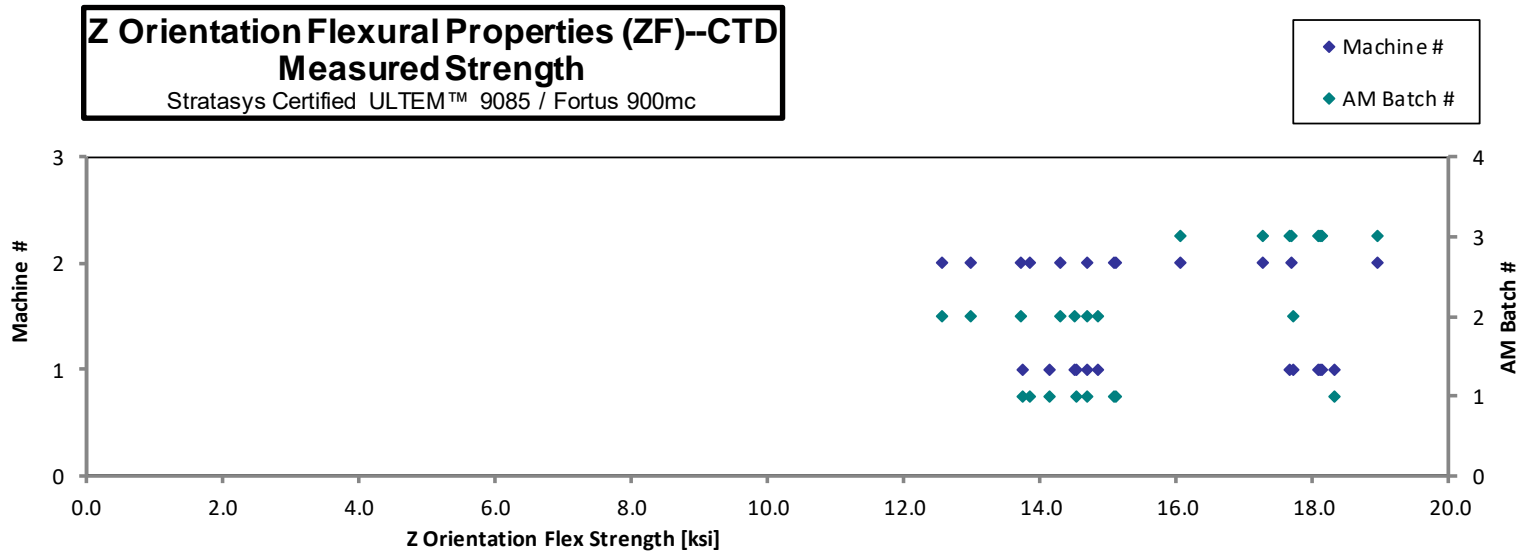
**Z Orientation Flexural Properties (ZF)--CTD
Strength & Modulus**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-ZF-13-CTD-1	1	1	14.532	0.361	0.126	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M1-ZF-15-CTD-2	1	1	13.732	0.359	0.124	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M1-ZF-11-CTD-3	1	1	14.124	0.356	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M1-ZF-12-CTD-4*	1	1	18.330	0.356	0.126	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-ZF-13-CTD-1	1	2	14.684	0.357	0.124	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-ZF-15-CTD-2	1	2	13.853	0.348	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-ZF-11-CTD-3	1	2	15.091	0.363	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-ZF-14-CTD-4	1	2	15.104	0.361	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M1-ZF-13-CTD-1	2	1	14.513	0.363	0.126	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M1-ZF-15-CTD-2	2	1	14.690	0.379	0.124	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M1-ZF-11-CTD-3	2	1	14.839	0.374	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M1-ZF-12-CTD-4*	2	1	17.725	0.364	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-ZF-13-CTD-1	2	2	14.307	0.364	0.124	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-ZF-15-CTD-2	2	2	12.967	0.359	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-ZF-11-CTD-3	2	2	12.560	0.361	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-ZF-14-CTD-4	2	2	13.729	0.381	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-C-M1-ZF-13-CTD-1*	3	1	18.083	0.393	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-ZF-15-CTD-2*	3	1	18.129	0.401	0.123	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-ZF-11-CTD-3*	3	1	17.651	0.382	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-ZF-12-CTD-4*	3	1	18.104	0.396	0.125	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-ZF-13-CTD-1*	3	2	18.950	0.405	0.125	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-ZF-15-CTD-2	3	2	17.254	0.396	0.125	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-ZF-11-CTD-3*	3	2	17.678	0.393	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-ZF-14-CTD-4	3	2	16.046	0.396	0.125	TAB

*Failure occurred after the 5% strain limit per ASTM D790, note 18

Average	15.695	0.374	0.125
Standard Dev.	1.961	0.017	
Coeff. of Var. [%]	12.492	4.678	
Min.	12.560	0.348	0.123
Max.	18.950	0.405	0.126
Number of Spec.	24	24	24



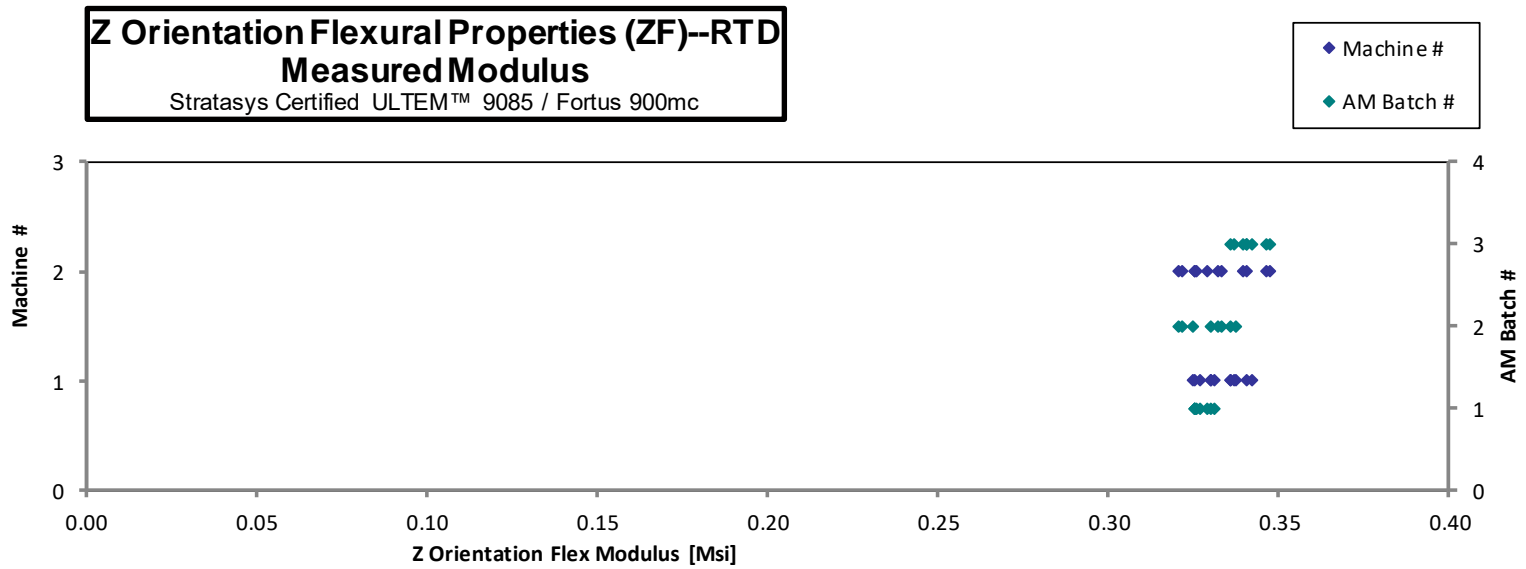
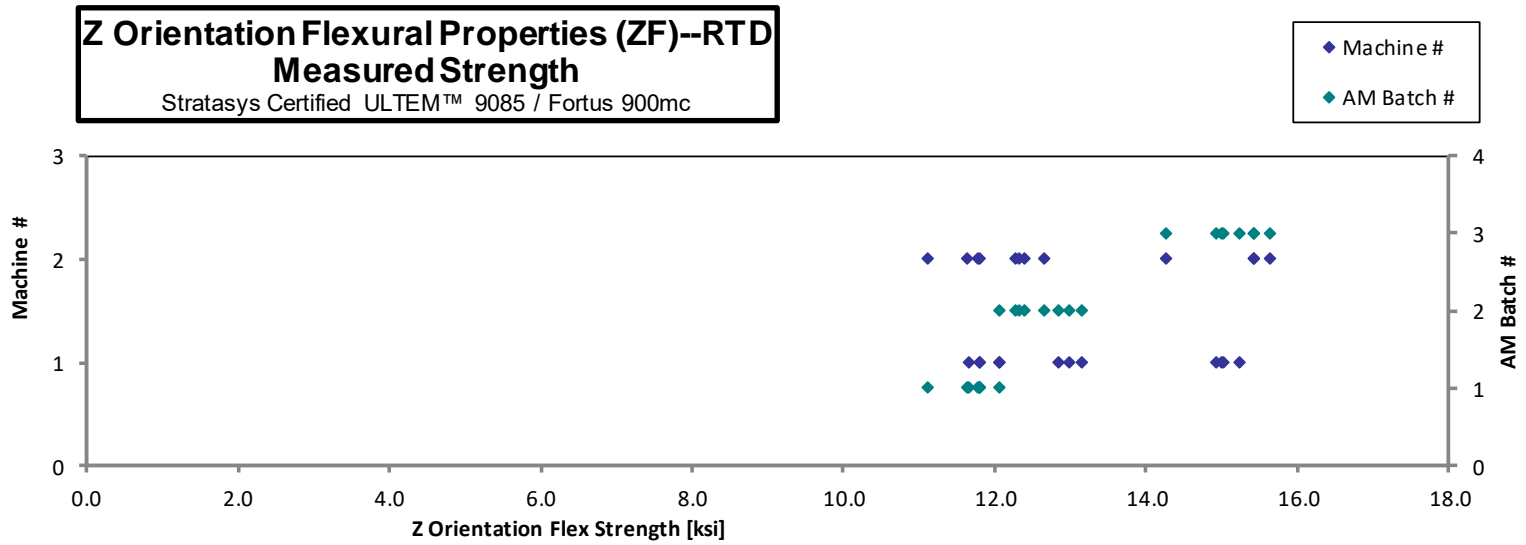
**Z Orientation Flexural Properties (ZF)--RTD
Strength & Modulus**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-ZF-13-RTD-1	1	1	11.800	0.330	0.126	CAT , TAB
NTPAMP001-SY-UM9085-RPM-A-M1-ZF-15-RTD-2	1	1	11.807	0.327	0.124	CAT , TAB
NTPAMP001-SY-UM9085-RPM-A-M1-ZF-11-RTD-3	1	1	12.068	0.331	0.125	CAT , TAB
NTPAMP001-SY-UM9085-RPM-A-M1-ZF-12-RTD-4	1	1	11.652	0.325	0.125	CAT , TAB
NTPAMP001-SY-UM9085-RPM-A-M2-ZF-13-RTD-1	1	2	11.634	0.329	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-ZF-15-RTD-2	1	2	11.103	0.326	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-ZF-11-RTD-3	1	2	11.790	0.326	0.126	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-ZF-14-RTD-4	1	2	11.780	0.325	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M1-ZF-13-RTD-1	2	1	12.981	0.338	0.126	TAB, CAT
NTPAMP001-SY-UM9085-RPM-B-M1-ZF-15-RTD-2	2	1	12.830	0.330	0.124	TAB, CAT
NTPAMP001-SY-UM9085-RPM-B-M1-ZF-11-RTD-3	2	1	13.138	0.336	0.125	TAB, CAT
NTPAMP001-SY-UM9085-RPM-B-M1-ZF-12-RTD-4	2	1	12.053	0.325	0.125	TAB, CAT
NTPAMP001-SY-UM9085-RPM-B-M2-ZF-13-RTD-1	2	2	12.272	0.333	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-ZF-15-RTD-2	2	2	12.389	0.321	0.124	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-ZF-11-RTD-3	2	2	12.327	0.332	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-ZF-14-RTD-4	2	2	12.654	0.322	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-C-M1-ZF-13-RTD-1*	3	1	15.243	0.342	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-ZF-15-RTD-2*	3	1	14.992	0.341	0.124	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-ZF-11-RTD-3*	3	1	15.017	0.337	0.125	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-ZF-12-RTD-4*	3	1	14.925	0.336	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-ZF-13-RTD-1*	3	2	15.627	0.347	0.125	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-ZF-15-RTD-2*	3	2	15.417	0.341	0.125	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-ZF-11-RTD-3	3	2	14.268	0.339	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-ZF-14-RTD-4*	3	2	15.415	0.346	0.125	TAB

*Failure occurred after the 5% strain limit per ASTM D790, note 18

Average	13.133	0.333	0.125
Standard Dev.	1.517	0.008	
Coeff. of Var. [%]	11.550	2.265	
Min.	11.103	0.321	0.124
Max.	15.627	0.347	0.126
Number of Spec.	24	24	24



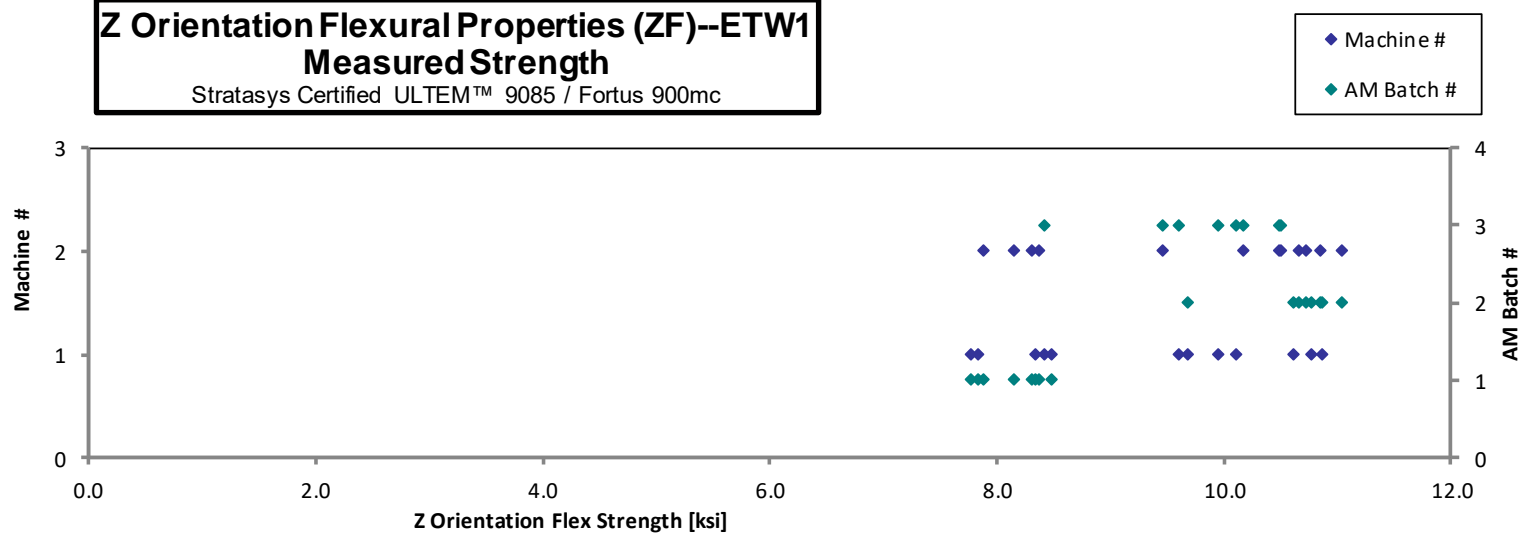
Z Orientation Flexural Properties (ZF)--ETW1**Strength & Modulus**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

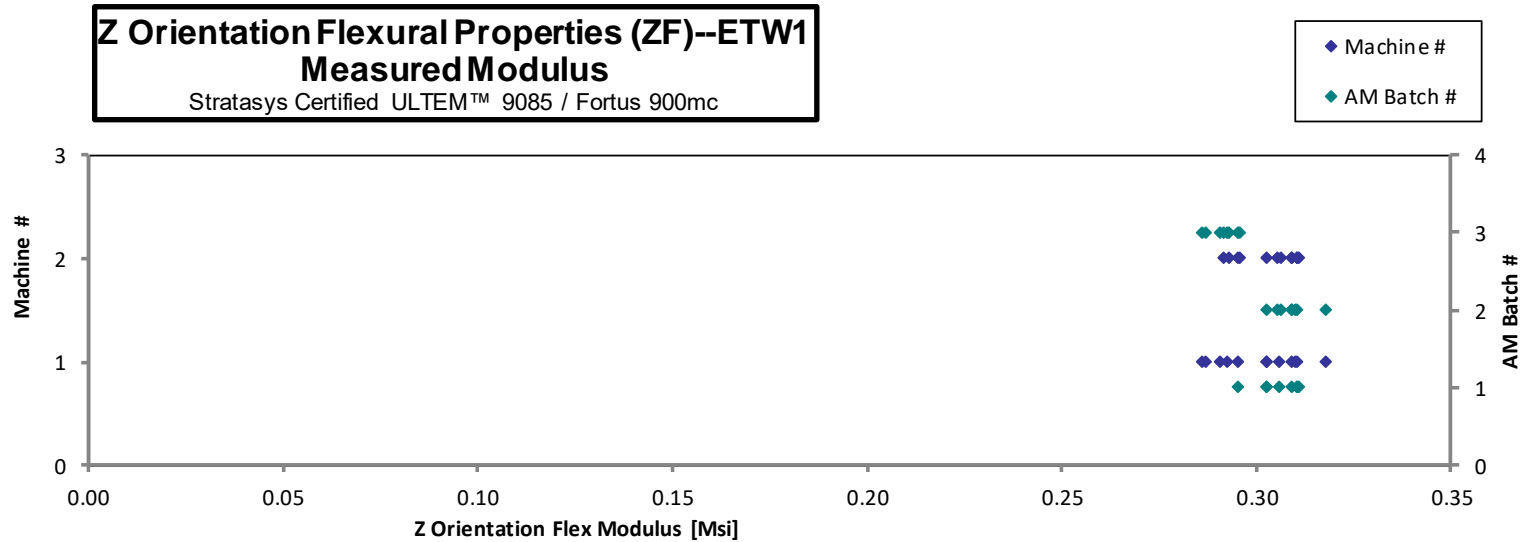
Specimen Number	AM Batch #	Machine #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-ZF-13-ETW1-1	1	1	7.780	0.295	0.126	TAB
NTPAMP001-SY-UM9085-RPM-A-M1-ZF-15-ETW1-2	1	1	8.477	0.306	0.124	TAB
NTPAMP001-SY-UM9085-RPM-A-M1-ZF-11-ETW1-3	1	1	8.346	0.302	0.126	TAB
NTPAMP001-SY-UM9085-RPM-A-M1-ZF-12-ETW1-4	1	1	7.835	0.303	0.125	TAB
NTPAMP001-SY-UM9085-RPM-A-M2-ZF-13-ETW1-1	1	2	8.376	0.311	0.124	TAB
NTPAMP001-SY-UM9085-RPM-A-M2-ZF-15-ETW1-2	1	2	8.150	0.311	0.125	TAB
NTPAMP001-SY-UM9085-RPM-A-M2-ZF-11-ETW1-3	1	2	7.875	0.309	0.125	TAB
NTPAMP001-SY-UM9085-RPM-A-M2-ZF-14-ETW1-4	1	2	8.302	0.310	0.125	TAB
NTPAMP001-SY-UM9085-RPM-B-M1-ZF-13-ETW1-1	2	1	10.873	0.311	0.126	TAB
NTPAMP001-SY-UM9085-RPM-B-M1-ZF-15-ETW1-2	2	1	10.767	0.318	0.124	TAB
NTPAMP001-SY-UM9085-RPM-B-M1-ZF-11-ETW1-3	2	1	9.680	0.310	0.125	TAB
NTPAMP001-SY-UM9085-RPM-B-M1-ZF-12-ETW1-4	2	1	10.613	0.309	0.125	TAB
NTPAMP001-SY-UM9085-RPM-B-M2-ZF-13-ETW1-1	2	2	11.035	0.309	0.124	TAB
NTPAMP001-SY-UM9085-RPM-B-M2-ZF-15-ETW1-2	2	2	10.853	0.303	0.125	TAB
NTPAMP001-SY-UM9085-RPM-B-M2-ZF-11-ETW1-3	2	2	10.729	0.306	0.125	TAB
NTPAMP001-SY-UM9085-RPM-B-M2-ZF-14-ETW1-4	2	2	10.665	0.305	0.124	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-ZF-13-ETW1-1	3	1	10.109	0.291	0.126	TAB,CAT
NTPAMP001-SY-UM9085-RPM-C-M1-ZF-15-ETW1-2	3	1	9.952	0.293	0.124	TAB,CAT
NTPAMP001-SY-UM9085-RPM-C-M1-ZF-11-ETW1-3	3	1	8.419	0.286	0.126	TAB,CAT
NTPAMP001-SY-UM9085-RPM-C-M1-ZF-12-ETW1-4	3	1	9.604	0.287	0.126	TAB,CAT
NTPAMP001-SY-UM9085-RPM-C-M2-ZF-13-ETW1-1	3	2	10.483	0.296	0.125	TAB,CAT
NTPAMP001-SY-UM9085-RPM-C-M2-ZF-15-ETW1-2	3	2	10.178	0.293	0.125	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-ZF-11-ETW1-3	3	2	9.467	0.292	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-ZF-14-ETW1-4	3	2	10.500	0.295	0.125	TAB

Average	9.545	0.302	0.125
Standard Dev.	1.165	0.009	
Coeff. of Var. [%]	12.207	2.946	
Min.	7.780	0.286	0.124
Max.	11.035	0.318	0.126
Number of Spec.	24	24	24

Z Orientation Flexural Properties (ZF)--ETW1
Measured Strength
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z Orientation Flexural Properties (ZF)--ETW1
Measured Modulus
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc



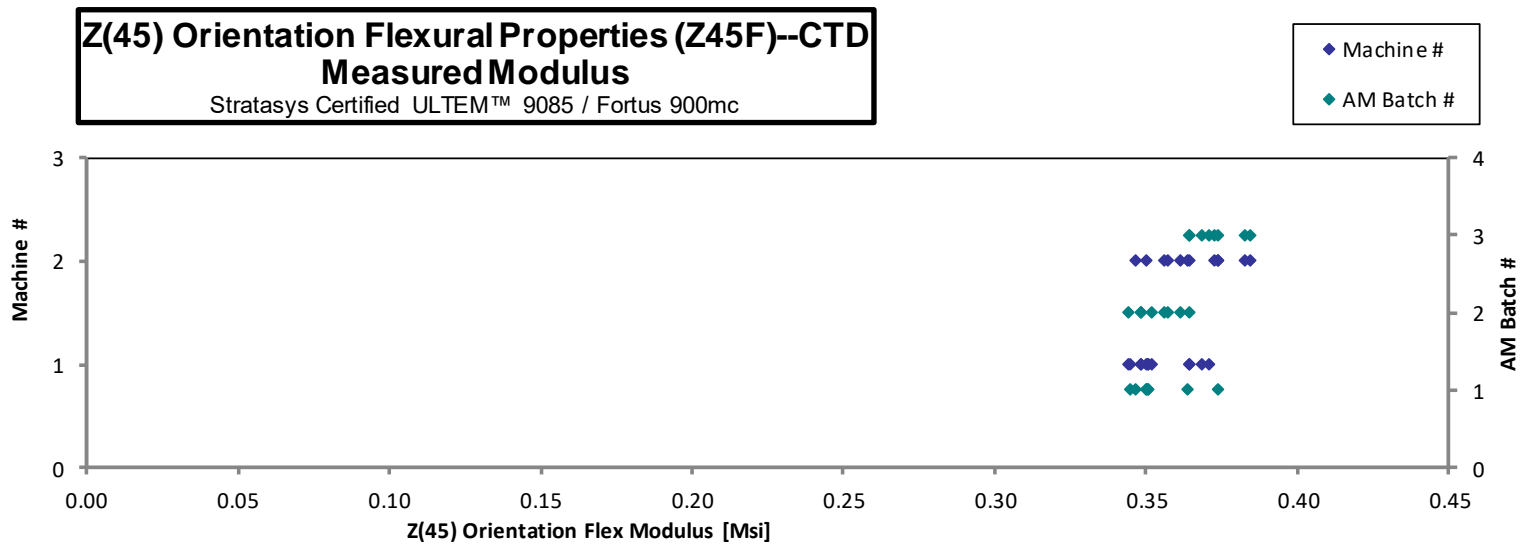
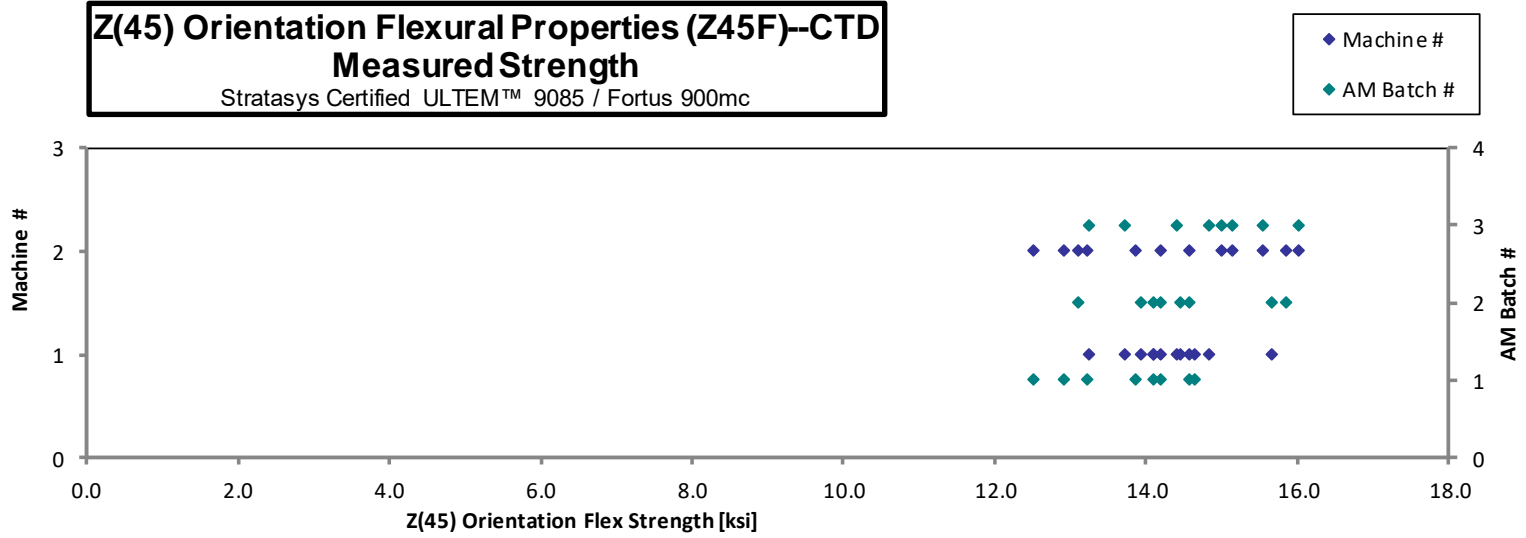
4.12 Z45 Flex Properties (Z45F)

**Z(45) Orientation Flexural Properties (Z45F)--CTD
Strength & Modulus**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-Z45F-13-CTD-1	1	1	14.571	0.350	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M1-Z45F-15-CTD-2	1	1	14.192	0.351	0.126	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M1-Z45F-14-CTD-3	1	1	14.096	0.351	0.126	TAB, CAT
NTPAMP001-SY-UM9085-RPM-A-M1-Z45F-11-CTD-4	1	1	14.648	0.344	0.127	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-Z45F-13-CTD-1	1	2	12.910	0.350	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-Z45F-15-CTD-2	1	2	13.231	0.347	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-Z45F-12-CTD-3	1	2	12.514	0.374	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-Z45F-11-CTD-4	1	2	13.849	0.363	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M1-Z45F-13-CTD-1	2	1	14.089	0.352	0.126	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M1-Z45F-15-CTD-2	2	1	15.647	0.348	0.127	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M1-Z45F-14-CTD-3	2	1	14.442	0.344	0.127	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M1-Z45F-11-CTD-4	2	1	13.926	0.348	0.126	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-Z45F-13-CTD-1	2	2	14.564	0.361	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-Z45F-15-CTD-2	2	2	13.100	0.356	0.124	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-Z45F-12-CTD-3	2	2	14.192	0.357	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-Z45F-11-CTD-4	2	2	15.858	0.365	0.124	CAT, TAB
NTPAMP001-SY-UM9085-RPM-C-M1-Z45F-13-CTD-1	3	1	13.233	0.364	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-Z45F-15-CTD-2	3	1	13.712	0.364	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-Z45F-14-CTD-3	3	1	14.400	0.368	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-Z45F-11-CTD-4	3	1	14.830	0.370	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-Z45F-13-CTD-1	3	2	15.552	0.372	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-Z45F-15-CTD-2	3	2	15.135	0.384	0.125	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-Z45F-12-CTD-3	3	2	14.987	0.374	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-Z45F-11-CTD-4	3	2	16.019	0.383	0.125	TAB

Average	14.321	0.360	0.126
Standard Dev.	0.936	0.012	
Coeff. of Var. [%]	6.535	3.307	
Min.	12.514	0.344	0.124
Max.	16.019	0.384	0.127
Number of Spec.	24	24	24



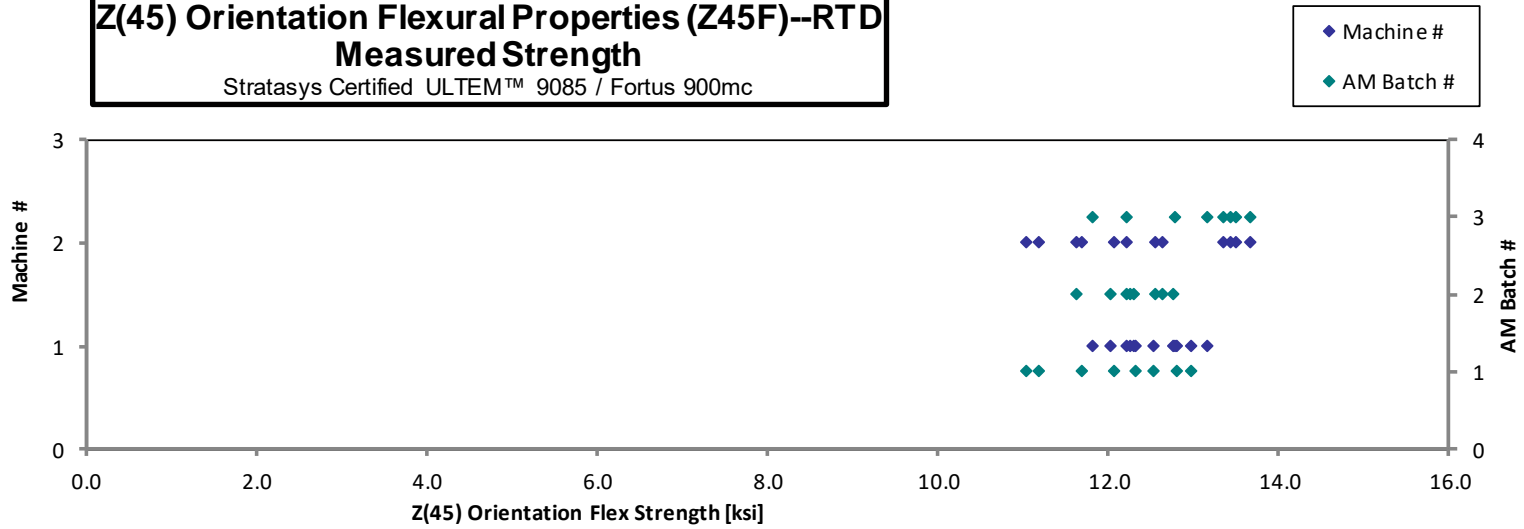
Z(45) Orientation Flexural Properties (Z45F)--RTD
Strength & Modulus
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-Z45F-13-RTD-1	1	1	12.309	0.302	0.127	TAB, CAT
NTPAMP001-SY-UM9085-RPM-A-M1-Z45F-15-RTD-2	1	1	12.967	0.310	0.127	TAB, CAT
NTPAMP001-SY-UM9085-RPM-A-M1-Z45F-14-RTD-3	1	1	12.523	0.315	0.126	TAB, CAT
NTPAMP001-SY-UM9085-RPM-A-M1-Z45F-11-RTD-4	1	1	12.807	0.308	0.127	TAB, CAT
NTPAMP001-SY-UM9085-RPM-A-M2-Z45F-13-RTD-1	1	2	11.035	0.299	0.126	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-Z45F-15-RTD-2	1	2	12.065	0.308	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-Z45F-12-RTD-3	1	2	11.192	0.309	0.125	CAT, TAB
NTPAMP001-SY-UM9085-RPM-A-M2-Z45F-11-RTD-4	1	2	11.679	0.298	0.126	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M1-Z45F-13-RTD-1	2	1	12.763	0.307	0.127	TAB, CAT
NTPAMP001-SY-UM9085-RPM-B-M1-Z45F-15-RTD-2	2	1	12.027	0.305	0.128	TAB, CAT
NTPAMP001-SY-UM9085-RPM-B-M1-Z45F-14-RTD-3	2	1	12.252	0.309	0.126	TAB, CAT
NTPAMP001-SY-UM9085-RPM-B-M1-Z45F-11-RTD-4	2	1	12.303	0.305	0.127	TAB, CAT
NTPAMP001-SY-UM9085-RPM-B-M2-Z45F-13-RTD-1	2	2	12.557	0.311	0.127	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-Z45F-15-RTD-2	2	2	12.209	0.327	0.126	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-Z45F-12-RTD-3	2	2	11.635	0.335	0.126	CAT, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-Z45F-11-RTD-4	2	2	12.641	0.323	0.126	CAT, TAB
NTPAMP001-SY-UM9085-RPM-C-M1-Z45F-13-RTD-1	3	1	12.780	0.318	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-Z45F-15-RTD-2	3	1	13.165	0.318	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-Z45F-14-RTD-3	3	1	12.210	0.316	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-Z45F-11-RTD-4	3	1	11.815	0.315	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-Z45F-13-RTD-1	3	2	13.489	0.331	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-Z45F-15-RTD-2*	3	2	13.661	0.319	0.127	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-Z45F-12-RTD-3	3	2	13.432	0.326	0.127	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-Z45F-11-RTD-4	3	2	13.342	0.332	0.126	TAB

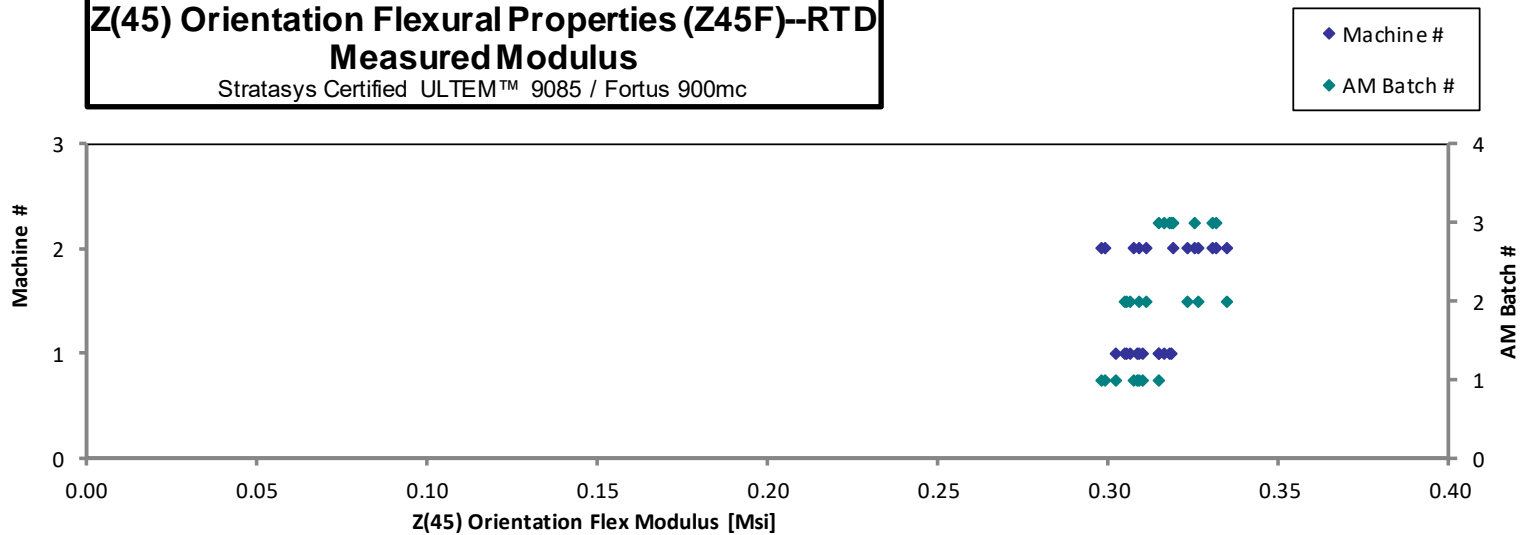
*Failure occurred after the 5% strain limit per ASTM D790, note 18

Average	12.452	0.314	0.126
Standard Dev.	0.699	0.010	
Coeff. of Var. [%]	5.613	3.290	
Min.	11.035	0.298	0.125
Max.	13.661	0.335	0.128
Number of Spec.	24	24	24

Z(45) Orientation Flexural Properties (Z45F)--RTD
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z(45) Orientation Flexural Properties (Z45F)--RTD
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

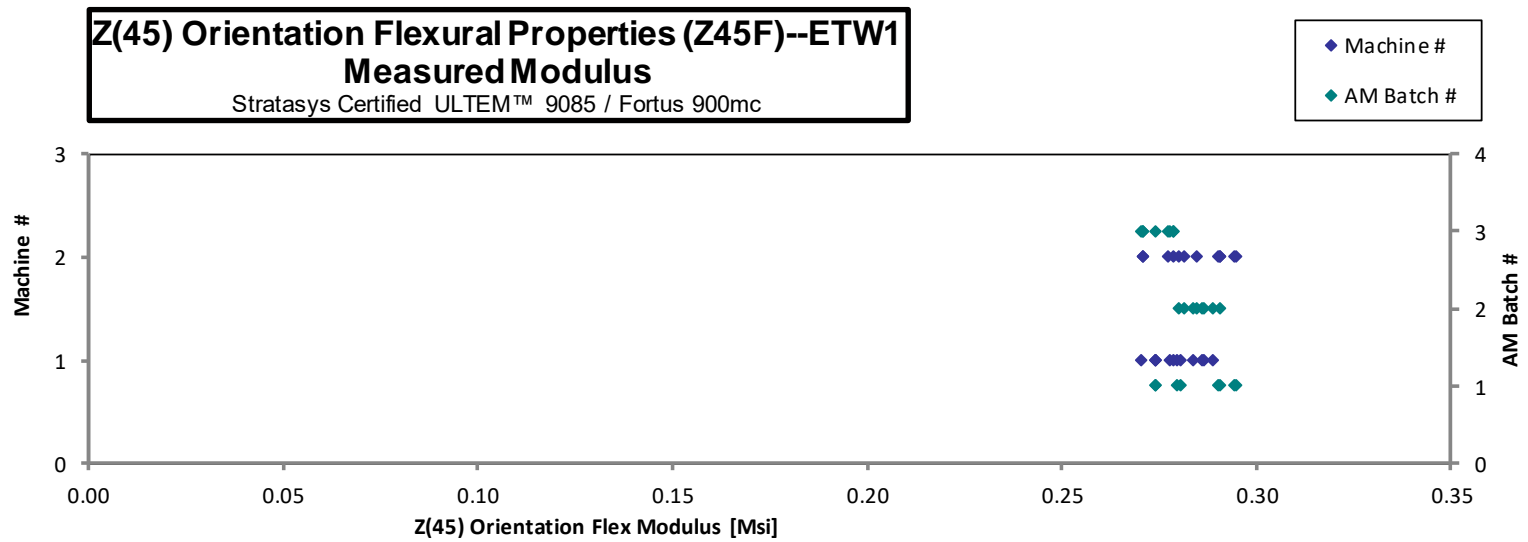
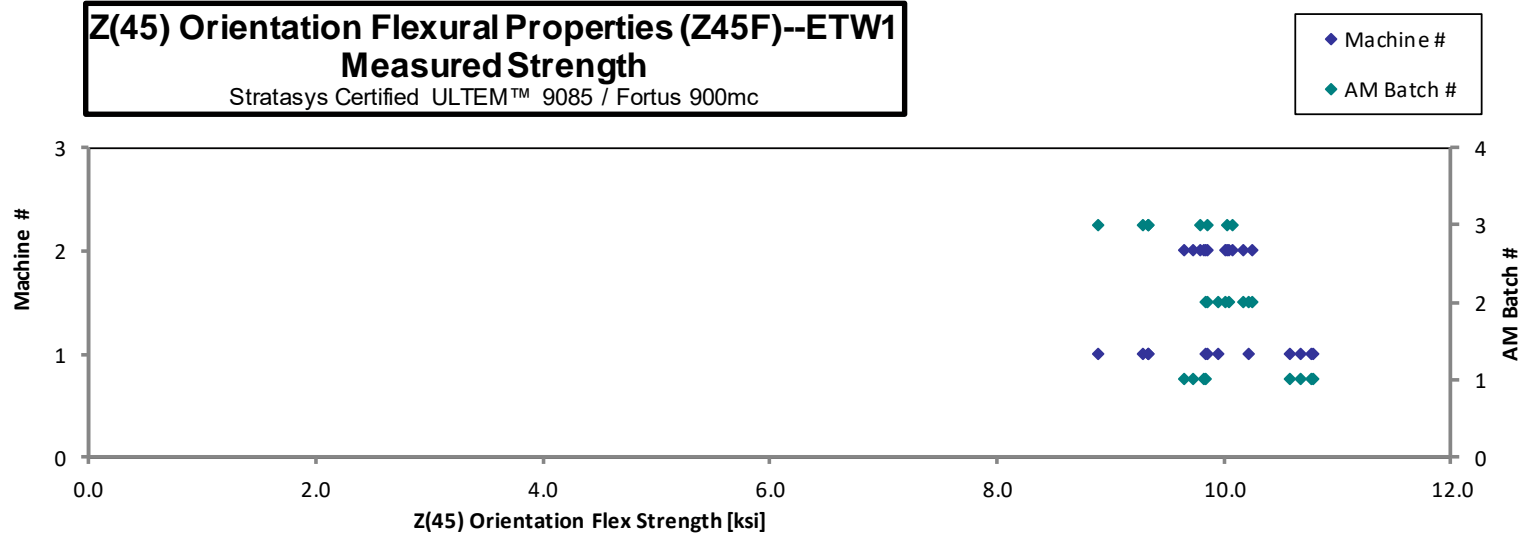


Z(45) Orientation Flexural Properties (Z45F)--ETW1**Strength & Modulus**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-Z45F-13-ETW1-1	1	1	10.581	0.274	0.126	TAB
NTPAMP001-SY-UM9085-RPM-A-M1-Z45F-15-ETW1-2	1	1	10.787	0.281	0.127	TAB
NTPAMP001-SY-UM9085-RPM-A-M1-Z45F-14-ETW1-3	1	1	10.773	0.279	0.126	TAB
NTPAMP001-SY-UM9085-RPM-A-M1-Z45F-11-ETW1-4	1	1	10.683	0.274	0.127	TAB
NTPAMP001-SY-UM9085-RPM-A-M2-Z45F-13-ETW1-1	1	2	9.732	0.294	0.125	TAB
NTPAMP001-SY-UM9085-RPM-A-M2-Z45F-15-ETW1-2	1	2	9.658	0.290	0.125	TAB
NTPAMP001-SY-UM9085-RPM-A-M2-Z45F-12-ETW1-3	1	2	9.837	0.291	0.125	TAB
NTPAMP001-SY-UM9085-RPM-A-M2-Z45F-11-ETW1-4	1	2	9.823	0.295	0.125	TAB
NTPAMP001-SY-UM9085-RPM-B-M1-Z45F-13-ETW1-1	2	1	9.845	0.286	0.127	TAB
NTPAMP001-SY-UM9085-RPM-B-M1-Z45F-15-ETW1-2	2	1	10.212	0.289	0.127	TAB
NTPAMP001-SY-UM9085-RPM-B-M1-Z45F-14-ETW1-3	2	1	9.854	0.284	0.127	TAB
NTPAMP001-SY-UM9085-RPM-B-M1-Z45F-11-ETW1-4	2	1	9.952	0.286	0.127	TAB
NTPAMP001-SY-UM9085-RPM-B-M2-Z45F-13-ETW1-1	2	2	10.169	0.291	0.126	INELASTIC DEFORMATION, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-Z45F-15-ETW1-2	2	2	10.046	0.281	0.126	INELASTIC DEFORMATION, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-Z45F-12-ETW1-3	2	2	10.019	0.280	0.127	INELASTIC DEFORMATION, TAB
NTPAMP001-SY-UM9085-RPM-B-M2-Z45F-11-ETW1-4	2	2	10.253	0.285	0.126	INELASTIC DEFORMATION, TAB
NTPAMP001-SY-UM9085-RPM-C-M1-Z45F-13-ETW1-1	3	1	8.892	0.278	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-Z45F-15-ETW1-2	3	1	9.282	0.279	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-Z45F-14-ETW1-3	3	1	9.337	0.270	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M1-Z45F-11-ETW1-4	3	1	9.328	0.274	0.126	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-Z45F-13-ETW1-1	3	2	10.080	0.277	0.127	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-Z45F-15-ETW1-2	3	2	10.030	0.271	0.128	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-Z45F-12-ETW1-3	3	2	9.794	0.271	0.127	TAB
NTPAMP001-SY-UM9085-RPM-C-M2-Z45F-11-ETW1-4	3	2	9.849	0.279	0.126	TAB

Average	9.951	0.282	0.126
Standard Dev.	0.471	0.007	
Coeff. of Var. [%]	4.736	2.635	
Min.	8.892	0.270	0.125
Max.	10.787	0.295	0.128
Number of Spec.	24	24	24



4.13 X V-Notch In-Plane Shear Properties (XVIPS)

**X Orientation In-Plane Shear Properties (XVIPS)--CTD
Strength & Modulus**
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

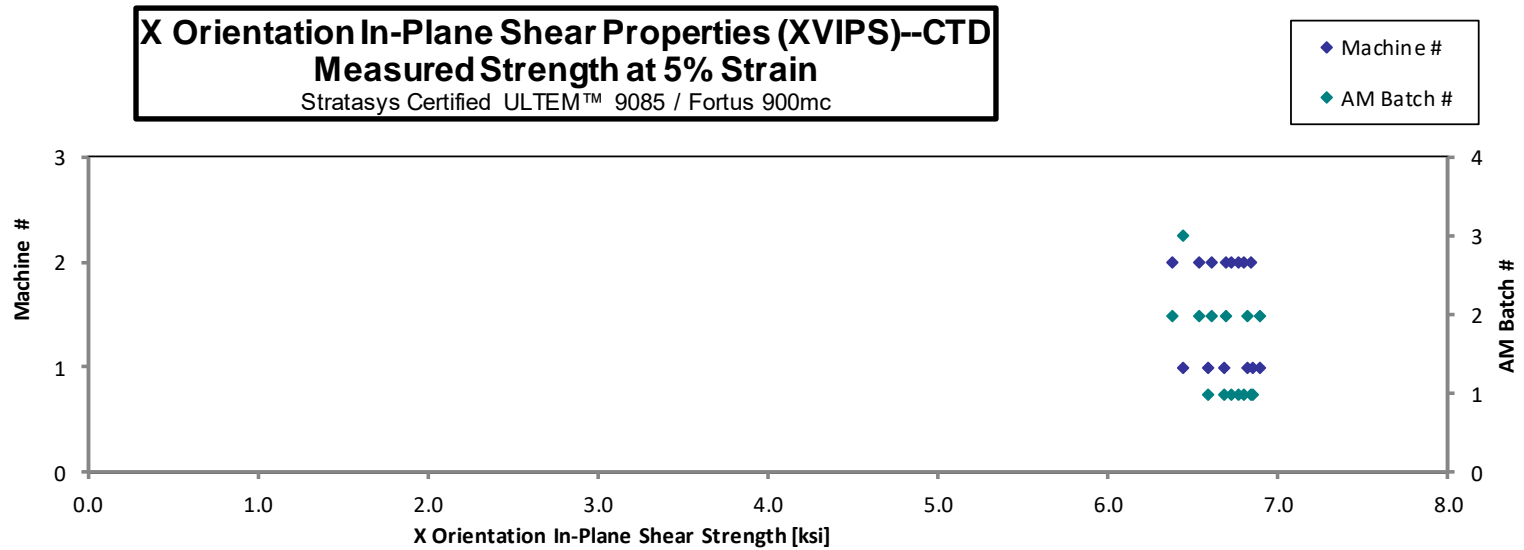
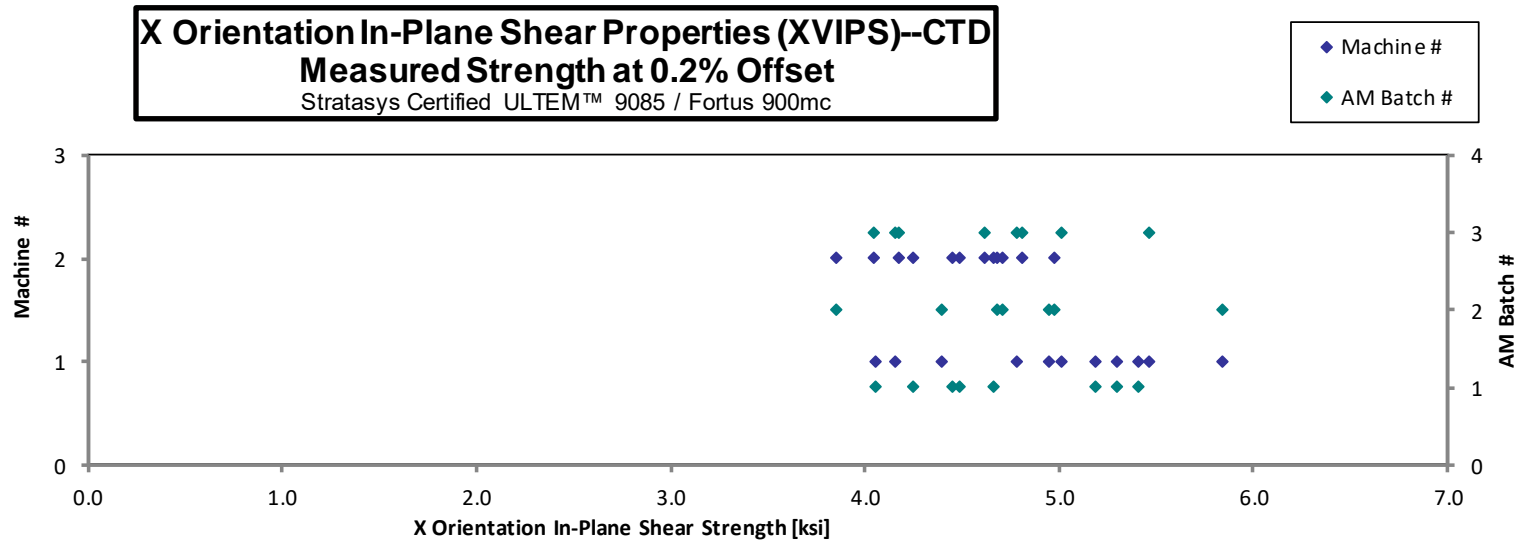
Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Ultimate Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-XVIPS-13-CTD-1	1	1	5.298	6.592		0.145	0.129	AGN
NTPAMP001-SY-UM9085-RPM-A-M1-XVIPS-15-CTD-2 (R)	1	1	5.411	6.855		0.152	0.128	AGN
NTPAMP001-SY-UM9085-RPM-A-M1-XVIPS-12-CTD-3**	1	1	5.189		6.100	0.153	0.128	AGN
NTPAMP001-SY-UM9085-RPM-A-M1-XVIPS-11-CTD-4	1	1	4.059	6.685		0.158	0.128	AGN
NTPAMP001-SY-UM9085-RPM-A-M2-XVIPS-13-CTD-1	1	2	4.458	6.846		0.154	0.129	VGN
NTPAMP001-SY-UM9085-RPM-A-M2-XVIPS-15-CTD-2	1	2	4.666	6.731		0.150	0.129	VGN
NTPAMP001-SY-UM9085-RPM-A-M2-XVIPS-14-CTD-3	1	2	4.248	6.802		0.161	0.129	VGN
NTPAMP001-SY-UM9085-RPM-A-M2-XVIPS-11-CTD-4	1	2	4.490	6.779		0.157	0.128	VGN
NTPAMP001-SY-UM9085-RPM-B-M1-XVIPS-13-CTD-1**	2	1	4.395		5.234	0.159	0.130	AGN
NTPAMP001-SY-UM9085-RPM-B-M1-XVIPS-15-CTD-2 (R)**	2	1			5.475	0.144	0.128	AGN
NTPAMP001-SY-UM9085-RPM-B-M1-XVIPS-12-CTD-3	2	1	5.848	6.895		0.151	0.129	AGN
NTPAMP001-SY-UM9085-RPM-B-M1-XVIPS-11-CTD-4	2	1	4.949	6.824		0.151	0.129	AGN
NTPAMP001-SY-UM9085-RPM-B-M2-XVIPS-13-CTD-1	2	2	4.716	6.540		0.145	0.129	AGN
NTPAMP001-SY-UM9085-RPM-B-M2-XVIPS-15-CTD-2	2	2	4.683	6.699		0.153	0.129	AGN
NTPAMP001-SY-UM9085-RPM-B-M2-XVIPS-14-CTD-3	2	2	3.856	6.617		0.156	0.129	AGN
NTPAMP001-SY-UM9085-RPM-B-M2-XVIPS-11-CTD-4	2	2	4.980	6.387		0.141	0.129	AGN
NTPAMP001-SY-UM9085-RPM-C-M1-XVIPS-13-CTD-1 (R)	3	1	4.164	6.445		0.145	0.129	AGN
NTPAMP001-SY-UM9085-RPM-C-M1-XVIPS-15-CTD-2**	3	1	5.017		5.595	0.151	0.128	HGN
NTPAMP001-SY-UM9085-RPM-C-M1-XVIPS-12-CTD-3**	3	1	5.462		5.647	0.152	0.128	HGN
NTPAMP001-SY-UM9085-RPM-C-M1-XVIPS-11-CTD-4**	3	1	4.787		5.373	0.152	0.128	HGN
NTPAMP001-SY-UM9085-RPM-C-M2-XVIPS-13-CTD-1**	3	2	4.178		5.769	0.153	0.129	HGN
NTPAMP001-SY-UM9085-RPM-C-M2-XVIPS-15-CTD-2**	3	2	4.048		5.991	0.157	0.128	HGN
NTPAMP001-SY-UM9085-RPM-C-M2-XVIPS-14-CTD-3**	3	2	4.816		5.256	0.155	0.128	HGN
NTPAMP001-SY-UM9085-RPM-C-M2-XVIPS-11-CTD-4**	3	2	4.622		6.348	0.153	0.128	HGN

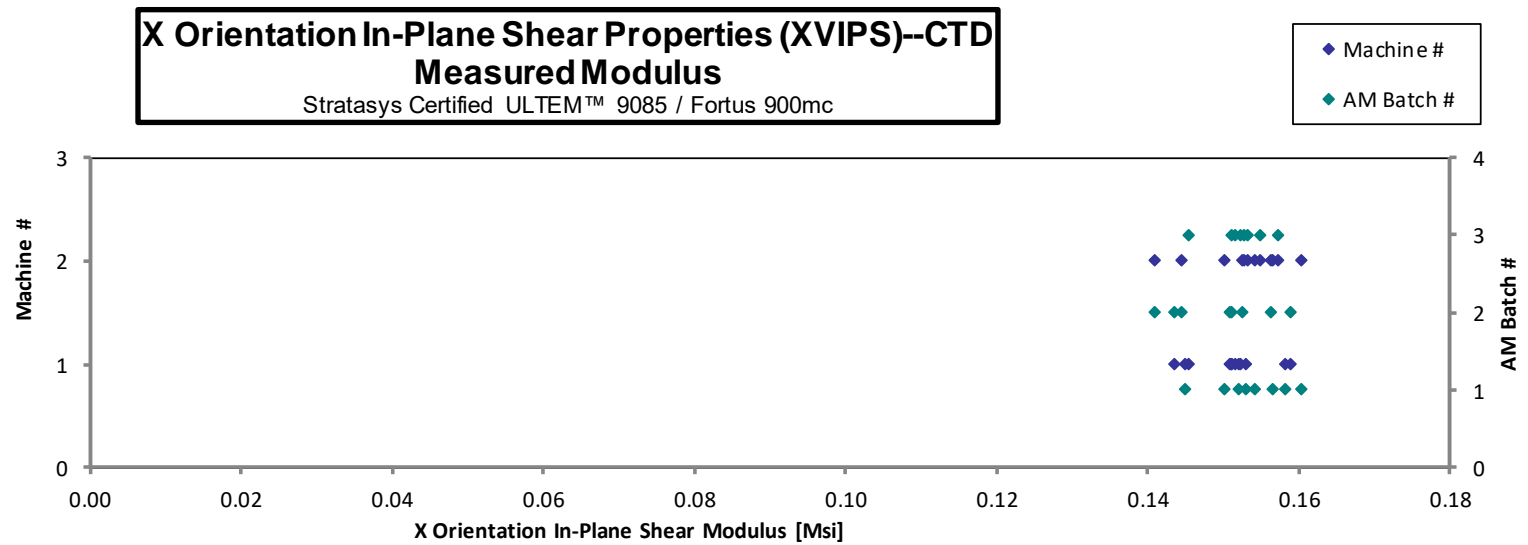
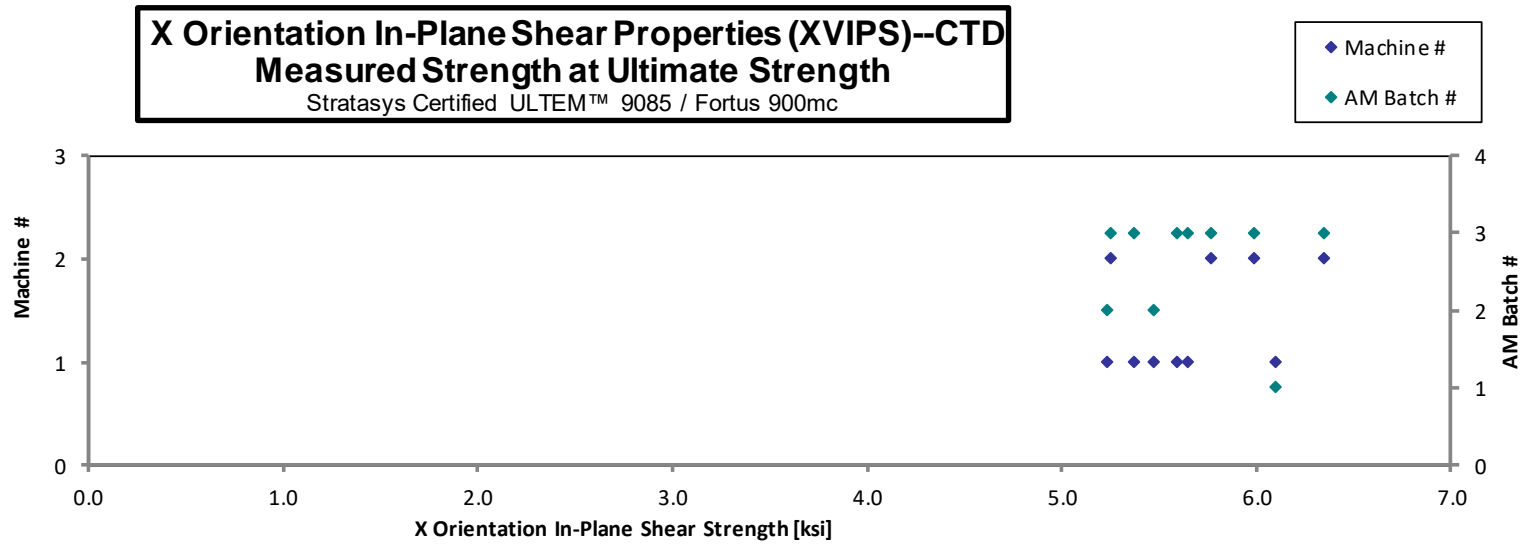
Ultimate Shear Strength may not be representative of actual coupon strength for all coupons due to failure outside of the notched region.

*Shear Strength not reported due to failure prior to reaching 0.2% Offset Strength.

**Strength reported occurred prior to reaching 5% strain.

Average	4.710	6.693	5.679	0.152	0.128
Standard Dev.	0.512	0.158	0.373	0.005	
Coeff. of Var. [%]	10.877	2.355	6.566	3.342	
Min.	3.856	6.387	5.234	0.141	0.128
Max.	5.848	6.895	6.348	0.161	0.130
Number of Spec.	23	14	10	24	24





**X Orientation In-Plane Shear Properties (XVIPS)--RTD
Strength & Modulus**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

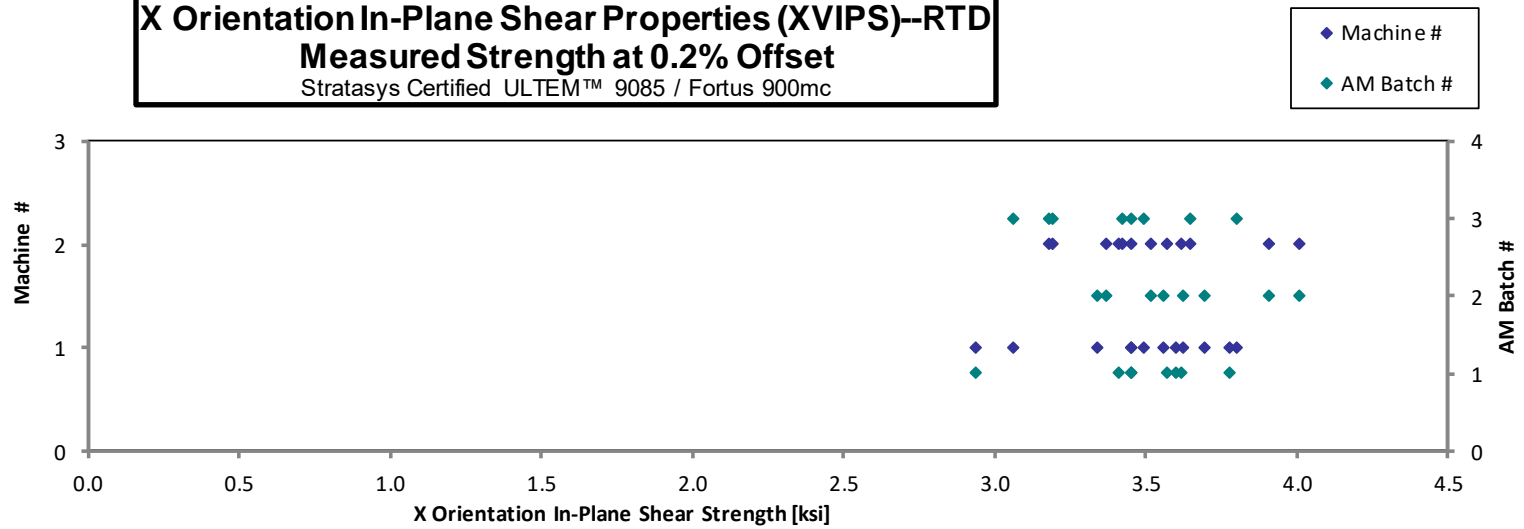
Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Ultimate Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-XVIPS-13-RTD-1	1	1	3.779	5.312		0.123	0.129	AGN
NTPAMP001-SY-UM9085-RPM-A-M1-XVIPS-15-RTD-2	1	1	2.939	5.602		0.140	0.129	AGN
NTPAMP001-SY-UM9085-RPM-A-M1-XVIPS-12-RTD-3	1	1	3.605	5.486		0.129	0.128	AGN
NTPAMP001-SY-UM9085-RPM-A-M1-XVIPS-11-RTD-4	1	1	3.456	5.595		0.134	0.128	AGN
NTPAMP001-SY-UM9085-RPM-A-M2-XVIPS-13-RTD-1 (R)	1	2	3.618	5.696		0.132	0.128	AGN
NTPAMP001-SY-UM9085-RPM-A-M2-XVIPS-15-RTD-2	1	2	3.573	5.624		0.130	0.129	AGN
NTPAMP001-SY-UM9085-RPM-A-M2-XVIPS-14-RTD-3	1	2	3.411	5.773		0.141	0.129	AGN
NTPAMP001-SY-UM9085-RPM-A-M2-XVIPS-11-RTD-4	1	2	3.455	5.867		0.141	0.128	AGN
NTPAMP001-SY-UM9085-RPM-B-M1-XVIPS-13-RTD-1	2	1	3.340	5.484		0.129	0.130	AGN
NTPAMP001-SY-UM9085-RPM-B-M1-XVIPS-15-RTD-2	2	1	3.697	5.640		0.132	0.128	AGN
NTPAMP001-SY-UM9085-RPM-B-M1-XVIPS-12-RTD-3	2	1	3.626	5.573		0.130	0.129	AGN
NTPAMP001-SY-UM9085-RPM-B-M1-XVIPS-11-RTD-4	2	1	3.560	5.685		0.134	0.129	AGN
NTPAMP001-SY-UM9085-RPM-B-M2-XVIPS-13-RTD-1	2	2	3.911	5.577		0.129	0.129	AGN
NTPAMP001-SY-UM9085-RPM-B-M2-XVIPS-15-RTD-2	2	2	4.013	5.515		0.126	0.129	AGN
NTPAMP001-SY-UM9085-RPM-B-M2-XVIPS-14-RTD-3	2	2	3.519	5.396		0.127	0.129	AGN
NTPAMP001-SY-UM9085-RPM-B-M2-XVIPS-11-RTD-4	2	2	3.369	5.399		0.129	0.129	AGN
NTPAMP001-SY-UM9085-RPM-C-M1-XVIPS-13-RTD-1*	3	1	3.495		5.080	0.143	0.128	HGN
NTPAMP001-SY-UM9085-RPM-C-M1-XVIPS-15-RTD-2*	3	1	3.455		4.681	0.146	0.128	HGN
NTPAMP001-SY-UM9085-RPM-C-M1-XVIPS-12-RTD-3	3	1	3.065	5.806		0.148	0.128	HGN
NTPAMP001-SY-UM9085-RPM-C-M1-XVIPS-11-RTD-4	3	1	3.805	5.796		0.137	0.127	HGN
NTPAMP001-SY-UM9085-RPM-C-M2-XVIPS-13-RTD-1*	3	2	3.192		4.602	0.150	0.128	HGN
NTPAMP001-SY-UM9085-RPM-C-M2-XVIPS-15-RTD-2*	3	2	3.180		4.919	0.152	0.128	HGN
NTPAMP001-SY-UM9085-RPM-C-M2-XVIPS-14-RTD-3	3	2	3.427	5.776		0.143	0.128	HGN
NTPAMP001-SY-UM9085-RPM-C-M2-XVIPS-11-RTD-4	3	2	3.651	5.982		0.145	0.128	HGN

Ultimate Shear Strength may not be representative of actual coupon strength for all coupons due to failure outside of the notched region

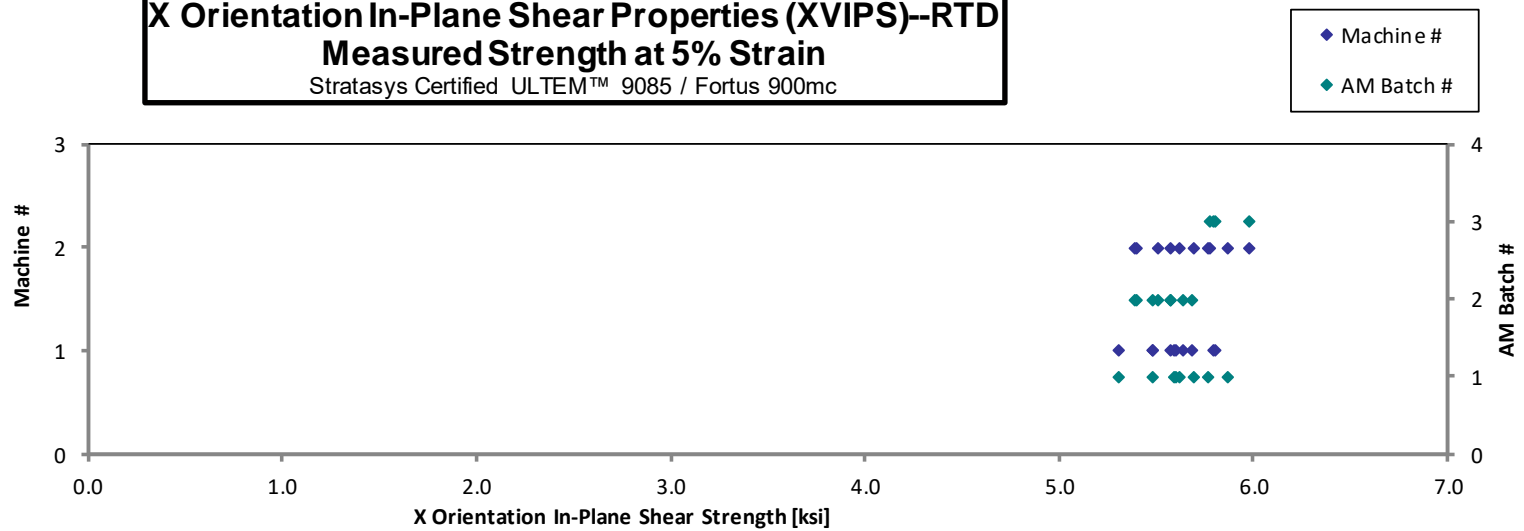
*Strength reported occurred prior to reaching 5% strain

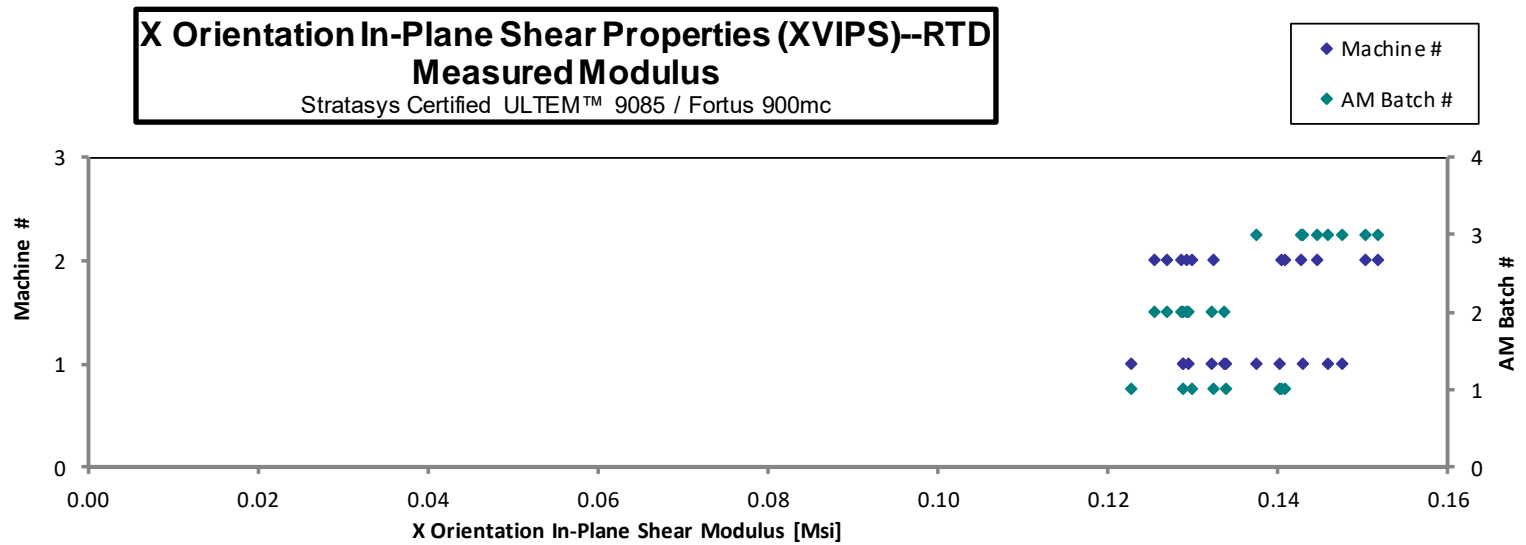
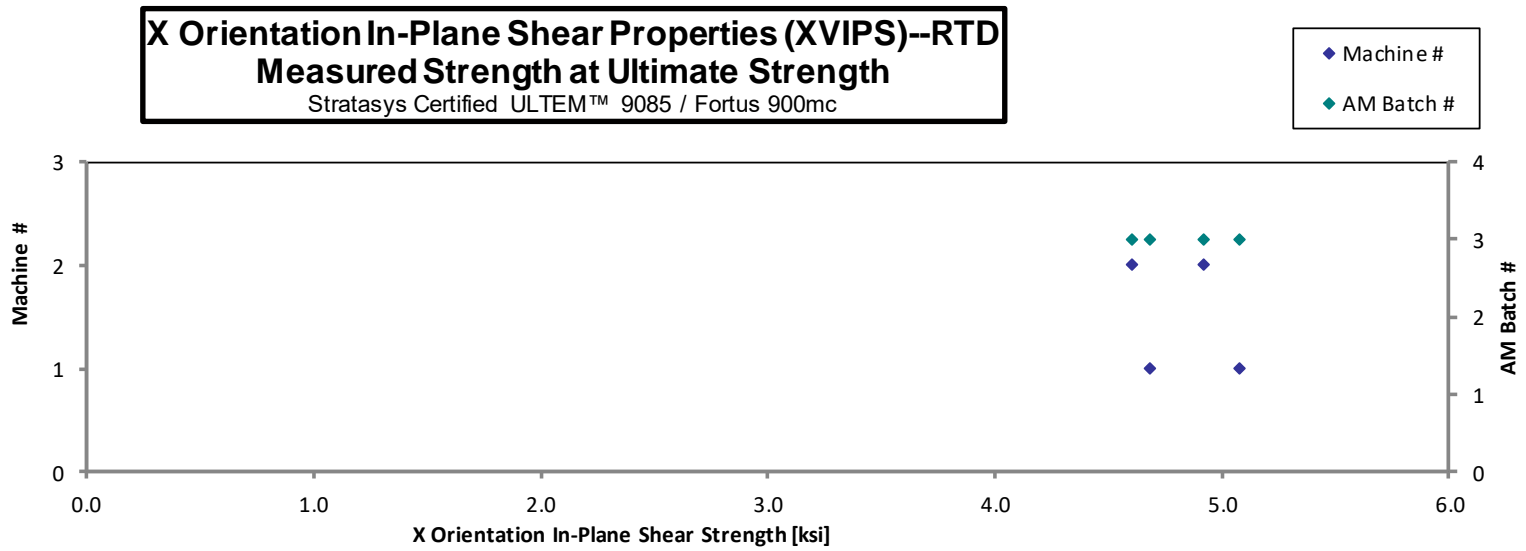
Average	3.506	5.629	4.820	0.136	0.128
Standard Dev.	0.253	0.172	0.219	0.008	
Coeff. of Var. [%]	7.225	3.051	4.552	6.142	
Min.	2.939	5.312	4.602	0.123	0.127
Max.	4.013	5.982	5.080	0.152	0.130
Number of Spec.	24	20	4	24	24

X Orientation In-Plane Shear Properties (XVIPS)--RTD
Measured Strength at 0.2% Offset
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc



X Orientation In-Plane Shear Properties (XVIPS)--RTD
Measured Strength at 5% Strain
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc



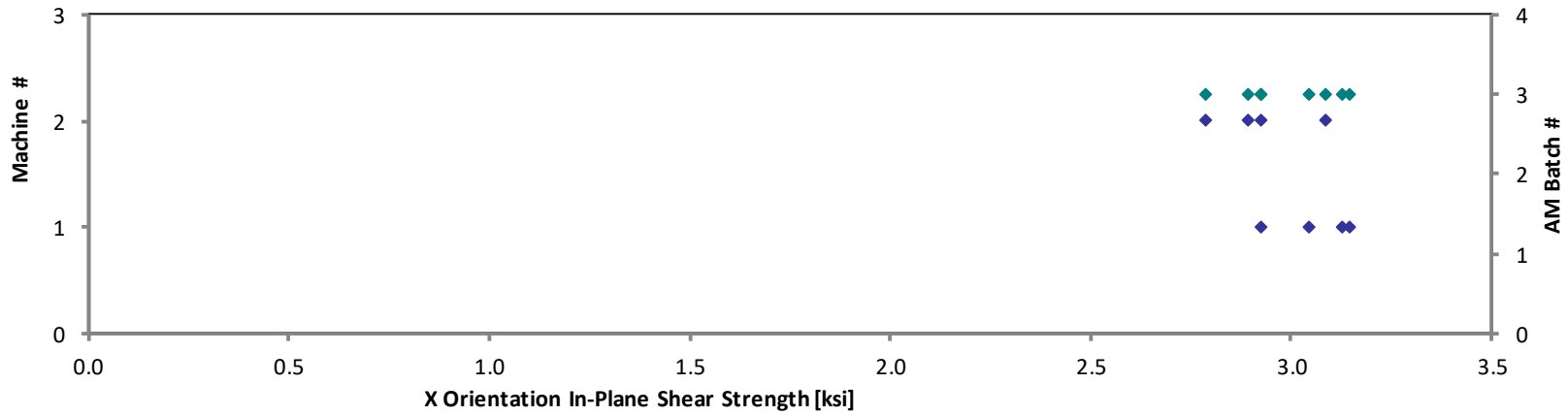


X Orientation In-Plane Shear Properties (XVIPS)--RTW
Strength & Modulus
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

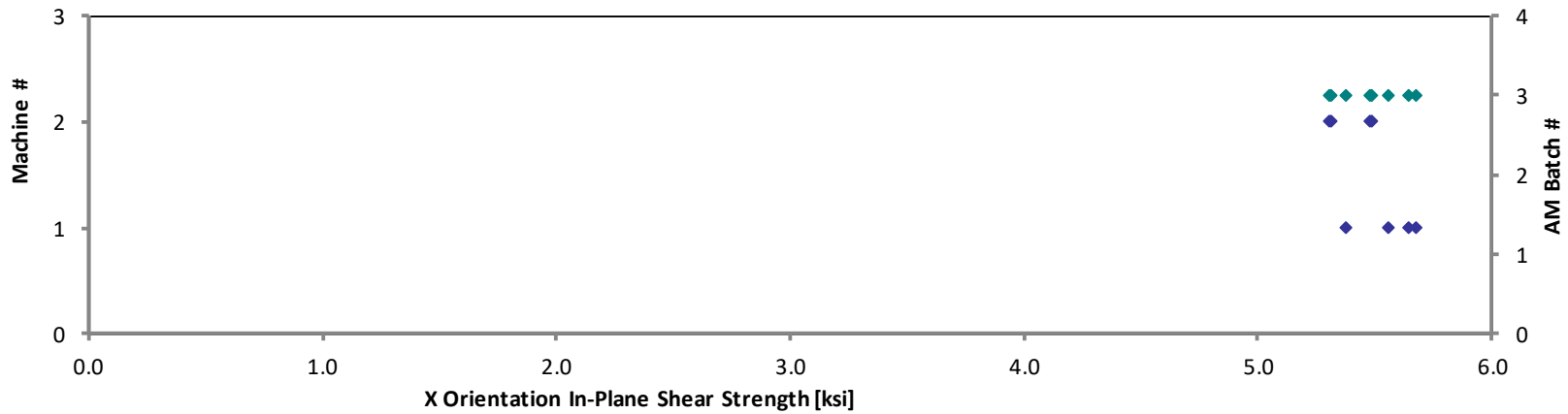
Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksj]	Strength at 5% Strain [ksj]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-C-M1-XVIPS-13-RTW-1	3	1	3.048	5.382	0.136	0.128	HGN
NTPAMP001-SY-UM9085-RPM-C-M1-XVIPS-15-RTW-2	3	1	3.130	5.562	0.139	0.128	HGN
NTPAMP001-SY-UM9085-RPM-C-M1-XVIPS-14-RTW-3	3	1	3.149	5.678	0.145	0.127	HGN
NTPAMP001-SY-UM9085-RPM-C-M1-XVIPS-11-RTW-4	3	1	2.925	5.649	0.149	0.128	HGN
NTPAMP001-SY-UM9085-RPM-C-M2-XVIPS-13-RTW-1	3	2	2.789	5.311	0.134	0.129	HGN
NTPAMP001-SY-UM9085-RPM-C-M2-XVIPS-15-RTW-2	3	2	2.928	5.318	0.135	0.129	HGN
NTPAMP001-SY-UM9085-RPM-C-M2-XVIPS-12-RTW-3	3	2	3.087	5.491	0.137	0.128	HGN
NTPAMP001-SY-UM9085-RPM-C-M2-XVIPS-11-RTW-4	3	2	2.895	5.486	0.143	0.128	HGN

Average	2.994	5.485	0.140	0.128
Standard Dev.	0.128	0.141	0.005	
Coeff. of Var. [%]	4.285	2.568	3.806	
Min.	2.789	5.311	0.134	0.127
Max.	3.149	5.678	0.149	0.129
Number of Spec.	8	8	8	8

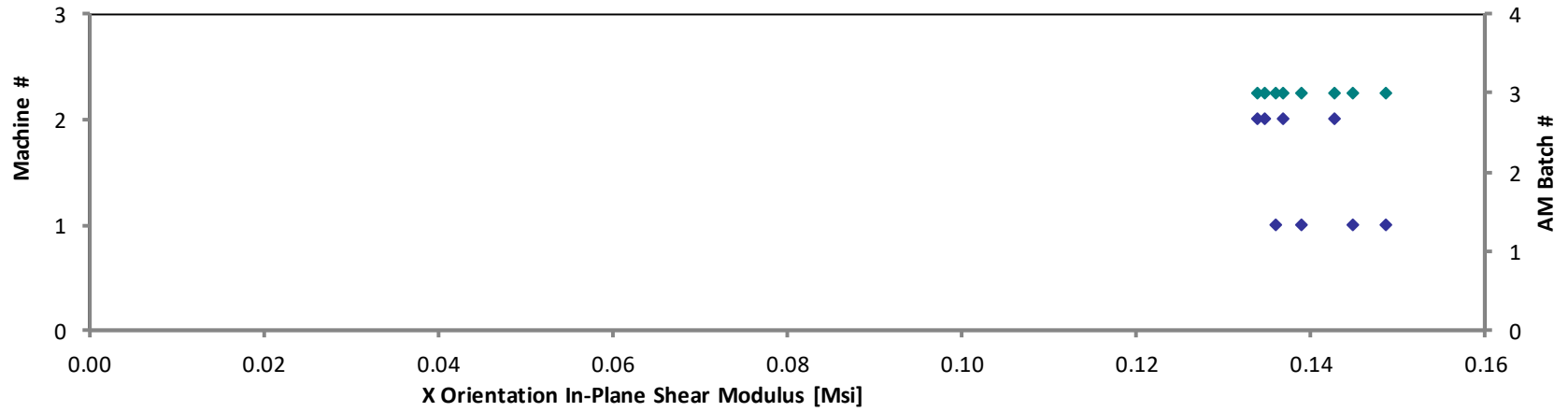
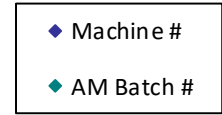
X Orientation In-Plane Shear Properties (XVIPS)--RTW
Measured Strength at 0.2% Offset
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



X Orientation In-Plane Shear Properties (XVIPS)--RTW
Measured Strength at 5% Strain
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



X Orientation In-Plane Shear Properties (XVIPS)--RTW
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



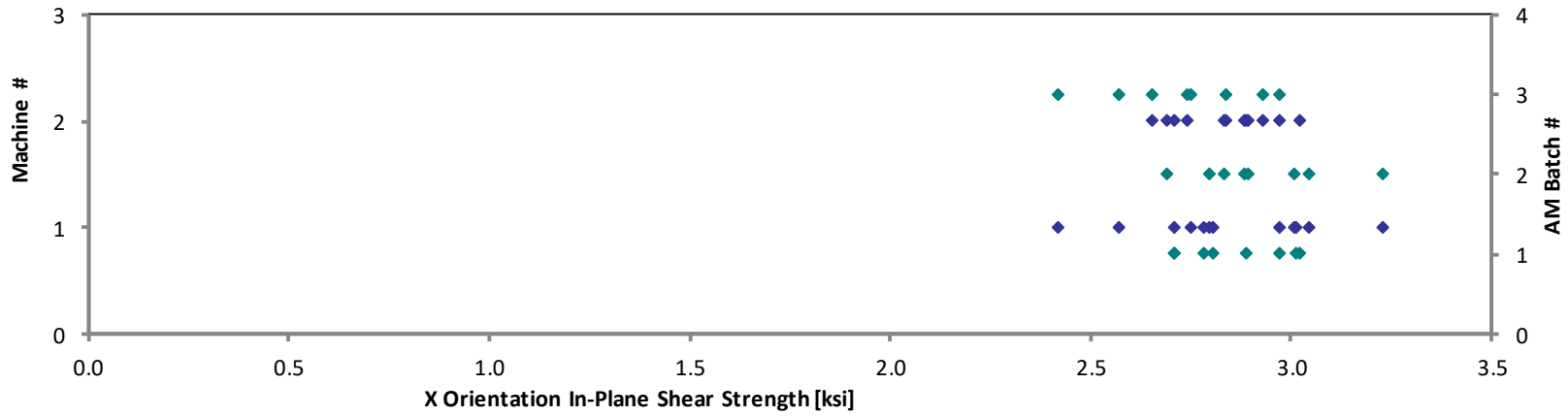
**X Orientation In-Plane Shear Properties (XVIPS)--ETW1
Strength & Modulus**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

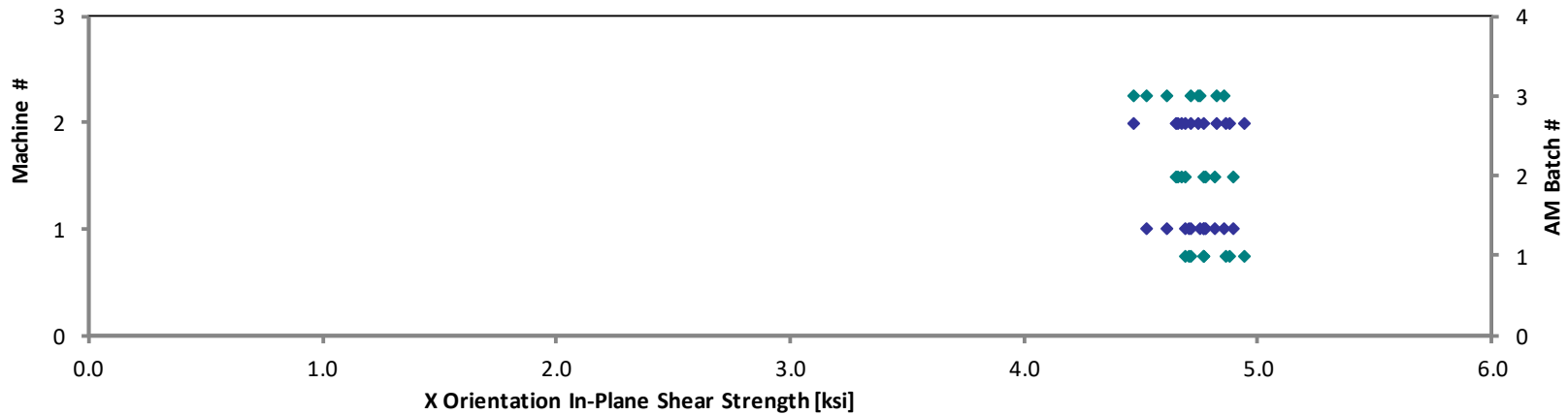
Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-XVIPS-13-ETW1-1	1	1	3.015	4.717	0.123	0.129	AGN
NTPAMP001-SY-UM9085-RPM-A-M1-XVIPS-15-ETW1-2	1	1	2.709	4.706	0.126	0.128	AGN
NTPAMP001-SY-UM9085-RPM-A-M1-XVIPS-12-ETW1-3	1	1	2.806	4.770	0.128	0.128	AGN
NTPAMP001-SY-UM9085-RPM-A-M1-XVIPS-11-ETW1-4	1	1	2.785	4.773	0.126	0.128	AGN
NTPAMP001-SY-UM9085-RPM-A-M2-XVIPS-13-ETW1-1	1	2	2.971	4.867	0.126	0.129	AGN
NTPAMP001-SY-UM9085-RPM-A-M2-XVIPS-15-ETW1-2	1	2	2.708	4.693	0.125	0.129	AGN
NTPAMP001-SY-UM9085-RPM-A-M2-XVIPS-14-ETW1-3	1	2	3.024	4.943	0.129	0.129	AGN
NTPAMP001-SY-UM9085-RPM-A-M2-XVIPS-11-ETW1-4	1	2	2.890	4.879	0.127	0.128	AGN
NTPAMP001-SY-UM9085-RPM-B-M1-XVIPS-13-ETW1-1	2	1	3.010	4.778	0.125	0.129	ANA
NTPAMP001-SY-UM9085-RPM-B-M1-XVIPS-15-ETW1-2	2	1	3.231	4.901	0.124	0.129	ANA
NTPAMP001-SY-UM9085-RPM-B-M1-XVIPS-12-ETW1-3	2	1	2.796	4.694	0.127	0.129	ANA
NTPAMP001-SY-UM9085-RPM-B-M1-XVIPS-11-ETW1-4	2	1	3.046	4.819	0.124	0.129	ANA
NTPAMP001-SY-UM9085-RPM-B-M2-XVIPS-13-ETW1-1	2	2	2.837	4.776	0.128	0.129	AGN
NTPAMP001-SY-UM9085-RPM-B-M2-XVIPS-15-ETW1-2	2	2	2.692	4.675	0.125	0.129	AGN
NTPAMP001-SY-UM9085-RPM-B-M2-XVIPS-14-ETW1-3	2	2	2.883	4.663	0.126	0.129	AGN
NTPAMP001-SY-UM9085-RPM-B-M2-XVIPS-11-ETW1-4	2	2	2.893	4.656	0.128	0.129	AGN
NTPAMP001-SY-UM9085-RPM-C-M1-XVIPS-13-ETW1-1	3	1	2.420	4.526	0.119	0.129	AGN
NTPAMP001-SY-UM9085-RPM-C-M1-XVIPS-15-ETW1-2	3	1	2.975	4.756	0.123	0.128	AGN
NTPAMP001-SY-UM9085-RPM-C-M1-XVIPS-12-ETW1-3	3	1	2.572	4.612	0.123	0.128	AGN
NTPAMP001-SY-UM9085-RPM-C-M1-XVIPS-11-ETW1-4	3	1	2.753	4.856	0.131	0.128	AGN
NTPAMP001-SY-UM9085-RPM-C-M2-XVIPS-13-ETW1-1	3	2	2.741	4.476	0.129	0.129	AGN
NTPAMP001-SY-UM9085-RPM-C-M2-XVIPS-15-ETW1-2	3	2	2.933	4.831	0.124	0.128	AGN
NTPAMP001-SY-UM9085-RPM-C-M2-XVIPS-13-ETW1-3	3	2	2.655	4.747	0.127	0.129	AGN
NTPAMP001-SY-UM9085-RPM-C-M2-XVIPS-11-ETW1-4	3	2	2.838	4.714	0.124	0.129	AGN

Average	2.841	4.743	0.126	0.129
Standard Dev.	0.175	0.113	0.003	
Coeff. of Var. [%]	6.149	2.373	2.070	
Min.	2.420	4.476	0.119	0.128
Max.	3.231	4.943	0.131	0.129
Number of Spec.	24	24	24	24

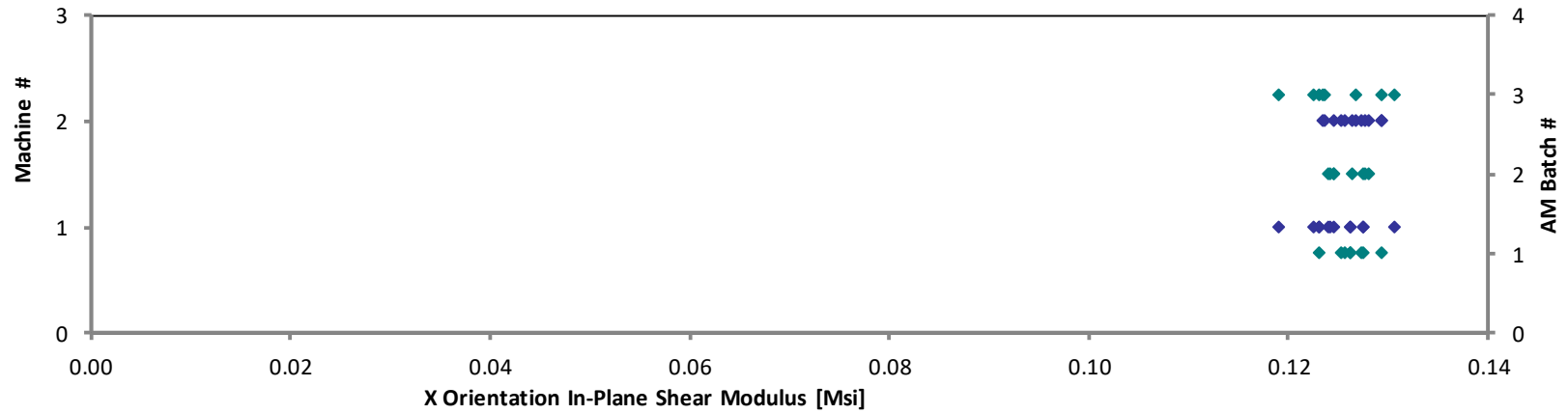
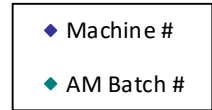
X Orientation In-Plane Shear Properties (XVIPS)--ETW1
Measured Strength at 0.2% Offset
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



X Orientation In-Plane Shear Properties (XVIPS)--ETW1
Measured Strength at 5% Strain
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



X Orientation In-Plane Shear Properties (XVIPS)--ETW1
Measured Modulus
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

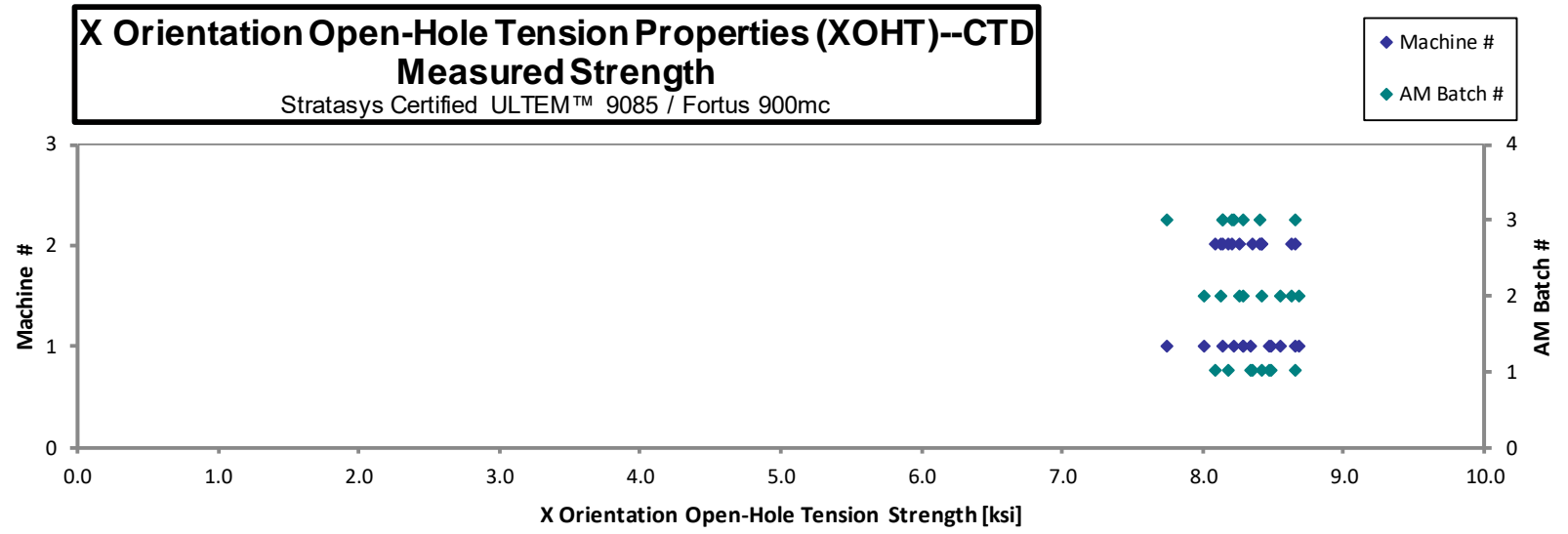


4.14 X Open-Hole Tension Properties (XOHT)

X Orientation Open-Hole Tension Properties (XOHT)--CTD Strength Stratasys Certified ULTEM™ 9085 / Fortus 900mc
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Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-XOHT-13-CTD-1	1	1	8.485	0.128	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-A-M1-XOHT-15-CTD-2	1	1	8.662	0.128	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-A-M1-XOHT-14-CTD-3	1	1	8.473	0.128	AGM
NTPAMP001-SY-UM9085-RPM-A-M1-XOHT-11-CTD-4	1	1	8.347	0.129	AGM
NTPAMP001-SY-UM9085-RPM-A-M2-XOHT-13-CTD-1	1	2	8.091	0.129	AGM
NTPAMP001-SY-UM9085-RPM-A-M2-XOHT-15-CTD-2	1	2	8.416	0.128	AGM
NTPAMP001-SY-UM9085-RPM-A-M2-XOHT-12-CTD-3	1	2	8.183	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-A-M2-XOHT-11-CTD-4	1	2	8.355	0.128	AGM
NTPAMP001-SY-UM9085-RPM-B-M1-XOHT-13-CTD-1	2	1	8.290	0.128	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M1-XOHT-15-CTD-2	2	1	8.554	0.128	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M1-XOHT-14-CTD-3	2	1	8.013	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M1-XOHT-11-CTD-4	2	1	8.689	0.128	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M2-XOHT-13-CTD-1	2	2	8.129	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M2-XOHT-15-CTD-2	2	2	8.424	0.128	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M2-XOHT-12-CTD-3	2	2	8.265	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M2-XOHT-11-CTD-4	2	2	8.635	0.127	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M1-XOHT-13-CTD-1	3	1	7.743	0.128	AGM
NTPAMP001-SY-UM9085-RPM-C-M1-XOHT-15-CTD-2	3	1	8.228	0.128	M(L,A)GM
NTPAMP001-SY-UM9085-RPM-C-M1-XOHT-14-CTD-3	3	1	8.149	0.128	M(L,A)GM
NTPAMP001-SY-UM9085-RPM-C-M1-XOHT-11-CTD-4	3	1	8.292	0.128	AGM
NTPAMP001-SY-UM9085-RPM-C-M2-XOHT-13-CTD-1	3	2	8.141	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M2-XOHT-15-CTD-2	3	2	8.215	0.128	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M2-XOHT-12-CTD-3	3	2	8.403	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M2-XOHT-11-CTD-4	3	2	8.653	0.128	AGM

Average	8.327	0.128
Standard Dev.	0.230	
Coeff. of Var. [%]	2.762	
Min.	7.743	0.127
Max.	8.689	0.129
Number of Spec.	24	24

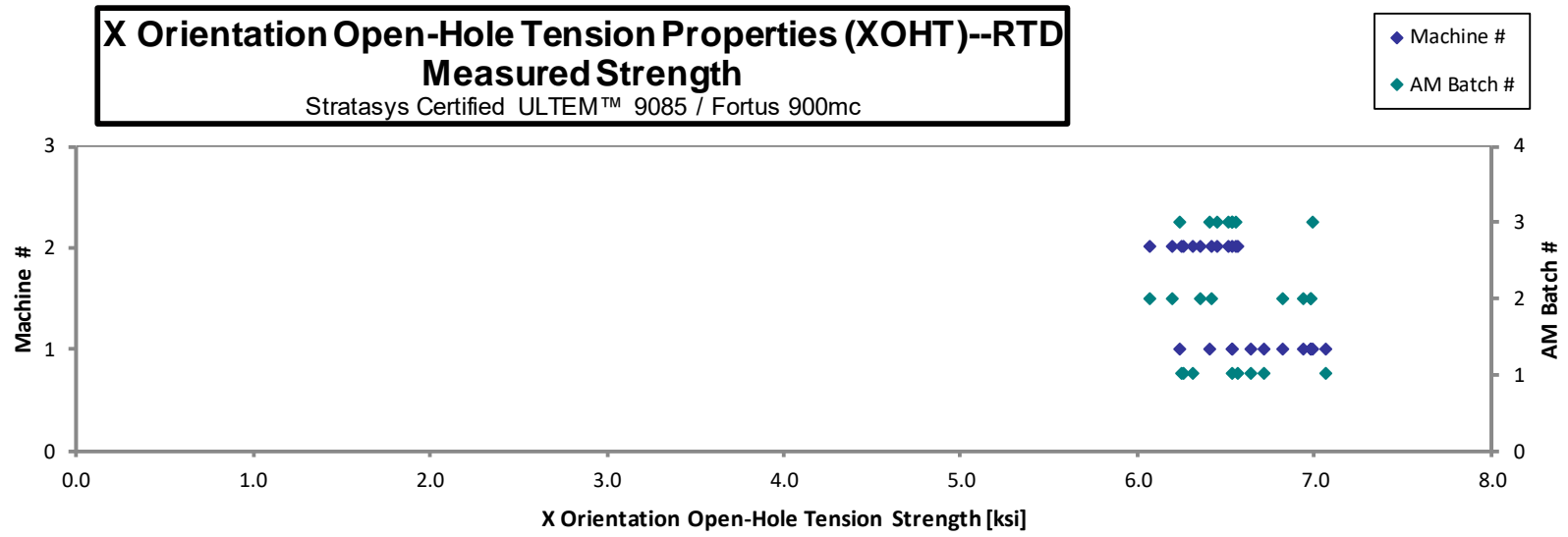


**X Orientation Open-Hole Tension Properties (XOHT)--RTD
Strength**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-XOHT-13-RTD-1	1	1	6.644	0.128	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-XOHT-15-RTD-2	1	1	7.067	0.126	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-XOHT-14-RTD-3	1	1	6.714	0.128	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-XOHT-11-RTD-4	1	1	6.537	0.128	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-XOHT-13-RTD-1	1	2	6.310	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-A-M2-XOHT-15-RTD-2	1	2	6.265	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-A-M2-XOHT-12-RTD-3	1	2	6.249	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-A-M2-XOHT-11-RTD-4	1	2	6.563	0.128	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M1-XOHT-13-RTD-1	2	1	6.937	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-XOHT-15-RTD-2	2	1	6.982	0.128	AGM
NTPAMP001-SY-UM9085-RPM-B-M1-XOHT-14-RTD-3	2	1	6.983	0.128	AGM
NTPAMP001-SY-UM9085-RPM-B-M1-XOHT-11-RTD-4	2	1	6.823	0.127	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-XOHT-13-RTD-1	2	2	6.200	0.130	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M2-XOHT-15-RTD-2	2	2	6.358	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-XOHT-12-RTD-3	2	2	6.071	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-XOHT-11-RTD-4	2	2	6.420	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-XOHT-13-RTD-1	3	1	6.405	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-XOHT-15-RTD-2	3	1	6.995	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-XOHT-14-RTD-3	3	1	6.534	0.127	AGM, LGM
NTPAMP001-SY-UM9085-RPM-C-M1-XOHT-11-RTD-4	3	1	6.243	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-XOHT-13-RTD-1	3	2	6.553	0.128	AGM
NTPAMP001-SY-UM9085-RPM-C-M2-XOHT-15-RTD-2	3	2	6.446	0.128	AGM
NTPAMP001-SY-UM9085-RPM-C-M2-XOHT-12-RTD-3	3	2	6.534	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-XOHT-11-RTD-4	3	2	6.509	0.128	AGM

Average	6.556	0.128
Standard Dev.	0.284	
Coeff. of Var. [%]	4.339	
Min.	6.071	0.126
Max.	7.067	0.130
Number of Spec.	24	24

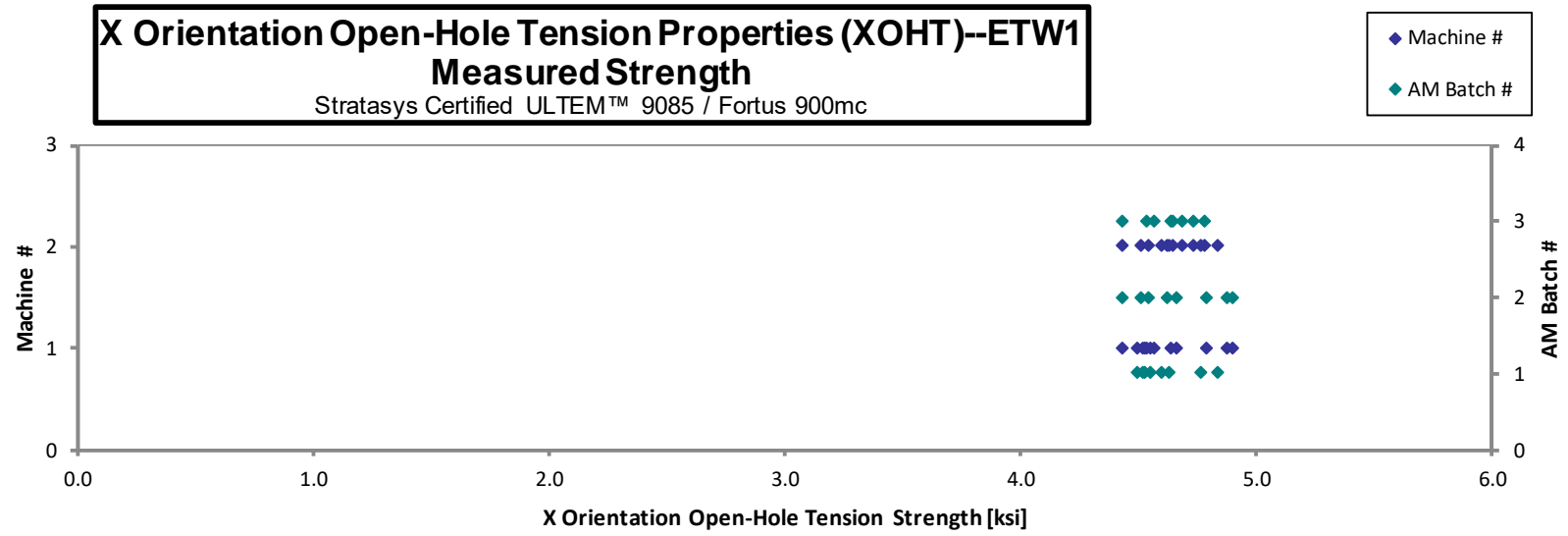


**X Orientation Open-Hole Tension Properties (XOHT)--ETW1
Strength**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-XOHT-13-ETW1-1	1	1	4.497	0.128	M(L,A)GM
NTPAMP001-SY-UM9085-RPM-A-M1-XOHT-15-ETW1-2	1	1	4.525	0.128	AGM
NTPAMP001-SY-UM9085-RPM-A-M1-XOHT-14-ETW1-3	1	1	4.552	0.128	AGM
NTPAMP001-SY-UM9085-RPM-A-M1-XOHT-11-ETW1-4	1	1	4.519	0.128	AGM
NTPAMP001-SY-UM9085-RPM-A-M2-XOHT-13-ETW1-1	1	2	4.602	0.129	AGM
NTPAMP001-SY-UM9085-RPM-A-M2-XOHT-15-ETW1-2	1	2	4.770	0.128	M(L,A)GM
NTPAMP001-SY-UM9085-RPM-A-M2-XOHT-12-ETW1-3	1	2	4.633	0.129	AGM
NTPAMP001-SY-UM9085-RPM-A-M2-XOHT-11-ETW1-4	1	2	4.838	0.128	M(L,A)GM
NTPAMP001-SY-UM9085-RPM-B-M1-XOHT-13-ETW1-1	2	1	4.666	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M1-XOHT-15-ETW1-2	2	1	4.787	0.128	AGM
NTPAMP001-SY-UM9085-RPM-B-M1-XOHT-14-ETW1-3	2	1	4.900	0.127	AGM
NTPAMP001-SY-UM9085-RPM-B-M1-XOHT-11-ETW1-4	2	1	4.879	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M2-XOHT-13-ETW1-1	2	2	4.510	0.129	AGM
NTPAMP001-SY-UM9085-RPM-B-M2-XOHT-15-ETW1-2	2	2	4.543	0.129	AGM
NTPAMP001-SY-UM9085-RPM-B-M2-XOHT-12-ETW1-3	2	2	4.435	0.129	AGM
NTPAMP001-SY-UM9085-RPM-B-M2-XOHT-11-ETW1-4	2	2	4.621	0.128	AGM
NTPAMP001-SY-UM9085-RPM-C-M1-XOHT-13-ETW1-1	3	1	4.433	0.128	MGM
NTPAMP001-SY-UM9085-RPM-C-M1-XOHT-15-ETW1-2	3	1	4.572	0.127	MGM
NTPAMP001-SY-UM9085-RPM-C-M1-XOHT-14-ETW1-3	3	1	4.538	0.127	AGM
NTPAMP001-SY-UM9085-RPM-C-M1-XOHT-11-ETW1-4	3	1	4.640	0.127	AGM
NTPAMP001-SY-UM9085-RPM-C-M2-XOHT-13-ETW1-1	3	2	4.646	0.128	AGM
NTPAMP001-SY-UM9085-RPM-C-M2-XOHT-15-ETW1-2	3	2	4.736	0.129	AGM
NTPAMP001-SY-UM9085-RPM-C-M2-XOHT-12-ETW1-3	3	2	4.688	0.129	AGM
NTPAMP001-SY-UM9085-RPM-C-M2-XOHT-11-ETW1-4	3	2	4.779	0.127	AGM

Average	4.638	0.128
Standard Dev.	0.135	
Coeff. of Var. [%]	2.906	
Min.	4.433	0.127
Max.	4.900	0.129
Number of Spec.	24	24

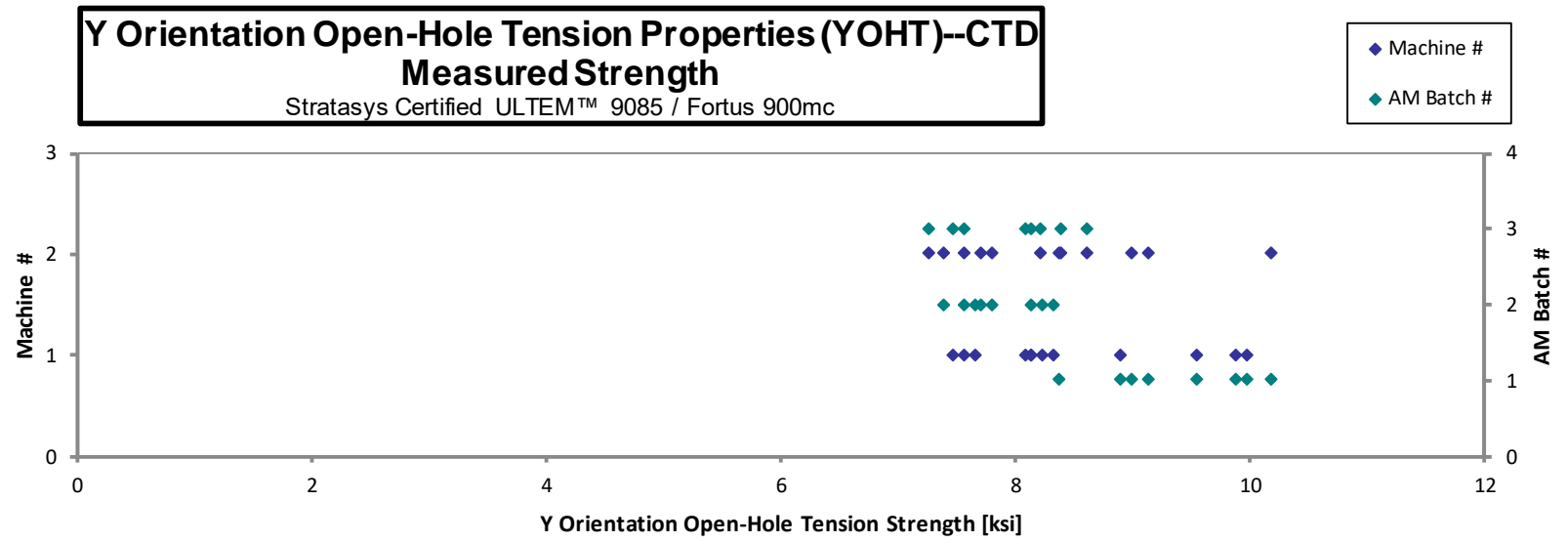


4.15 Y Open-Hole Tension Properties (YOHT)

Y Orientation Open-Hole Tension Properties (YOHT)--CTD Strength Stratasys Certified ULTEM™ 9085 / Fortus 900mc
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Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-YOHT-13-CTD-1	1	1	9.553	0.129	M(L,A)GM
NTPAMP001-SY-UM9085-RPM-A-M1-YOHT-15-CTD-2	1	1	8.900	0.130	M(L,A)GM
NTPAMP001-SY-UM9085-RPM-A-M1-YOHT-14-CTD-3	1	1	9.985	0.129	M(L,A)GM
NTPAMP001-SY-UM9085-RPM-A-M1-YOHT-11-CTD-4	1	1	9.877	0.129	M(L,A)GM
NTPAMP001-SY-UM9085-RPM-A-M2-YOHT-13-CTD-1	1	2	8.373	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-A-M2-YOHT-15-CTD-2	1	2	9.136	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-A-M2-YOHT-12-CTD-3	1	2	9.000	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-A-M2-YOHT-11-CTD-4	1	2	10.189	0.129	AGM
NTPAMP001-SY-UM9085-RPM-B-M1-YOHT-13-CTD-1	2	1	7.660	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YOHT-15-CTD-2	2	1	8.331	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YOHT-14-CTD-3	2	1	8.226	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YOHT-11-CTD-4	2	1	8.138	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YOHT-13-CTD-1	2	2	7.397	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YOHT-15-CTD-2	2	2	7.800	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YOHT-12-CTD-3	2	2	7.567	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YOHT-11-CTD-4	2	2	7.710	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-YOHT-13-CTD-1	3	1	7.461	0.128	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M1-YOHT-15-CTD-2	3	1	7.568	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M1-YOHT-14-CTD-3 (R)	3	1	8.083	0.128	M(L,A)GM
NTPAMP001-SY-UM9085-RPM-C-M1-YOHT-11-CTD-4 (R)	3	1	8.135	0.129	M(L,A)GM
NTPAMP001-SY-UM9085-RPM-C-M2-YOHT-13-CTD-1	3	2	8.217	0.129	M(L,A)GM
NTPAMP001-SY-UM9085-RPM-C-M2-YOHT-15-CTD-2	3	2	8.611	0.129	M(L,A)GM
NTPAMP001-SY-UM9085-RPM-C-M2-YOHT-12-CTD-3	3	2	8.395	0.128	M(L,A)GM
NTPAMP001-SY-UM9085-RPM-C-M2-YOHT-11-CTD-4	3	2	7.269	0.129	LGM

Average	8.399	0.129
Standard Dev.	0.851	
Coeff. of Var. [%]	10.135	
Min.	7.269	0.128
Max.	10.189	0.131
Number of Spec.	24	24

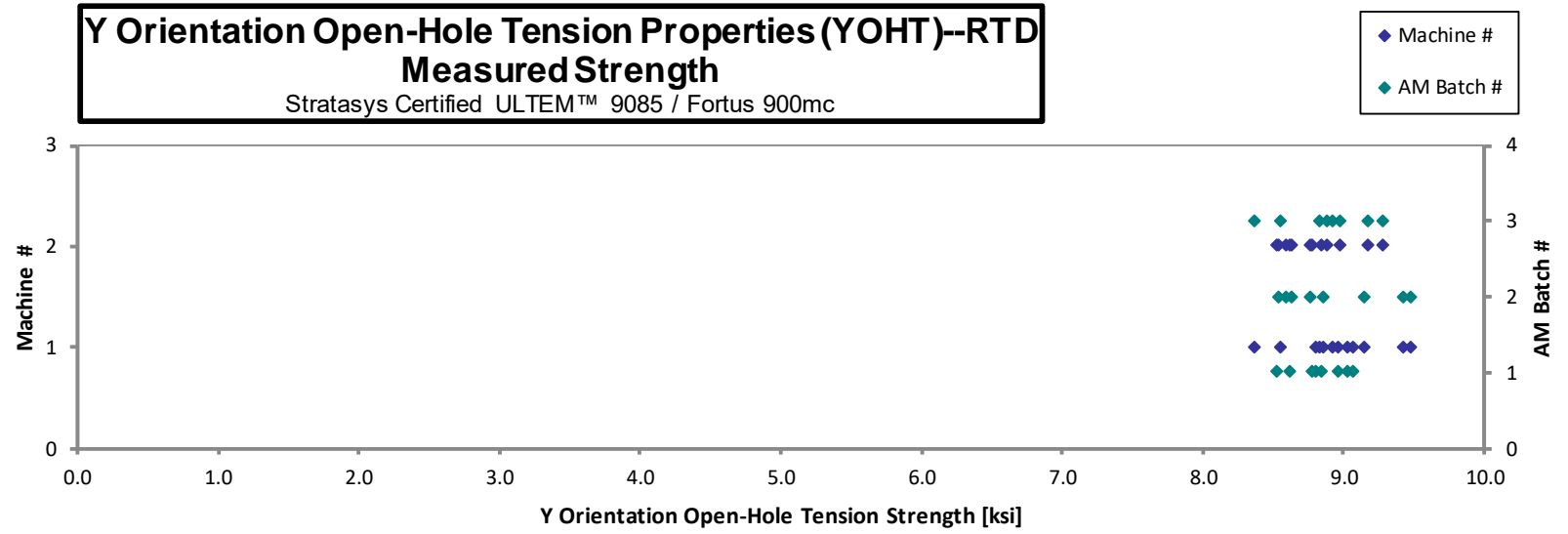


**Y Orientation Open-Hole Tension Properties (YOHT)--RTD
Strength**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-YOHT-13-RTD-1	1	1	8.969	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-YOHT-15-RTD-2	1	1	9.024	0.128	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-YOHT-14-RTD-3	1	1	9.071	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-YOHT-11-RTD-4	1	1	8.798	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-YOHT-13-RTD-1	1	2	8.849	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-YOHT-15-RTD-2	1	2	8.624	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-YOHT-12-RTD-3	1	2	8.533	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-YOHT-11-RTD-4	1	2	8.781	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YOHT-13-RTD-1	2	1	9.421	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YOHT-15-RTD-2	2	1	9.473	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YOHT-14-RTD-3	2	1	8.856	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YOHT-11-RTD-4	2	1	9.152	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YOHT-13-RTD-1	2	2	8.632	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YOHT-15-RTD-2	2	2	8.538	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YOHT-12-RTD-3	2	2	8.764	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YOHT-11-RTD-4	2	2	8.590	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-YOHT-13-RTD-1	3	1	8.835	0.128	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M1-YOHT-15-RTD-2	3	1	8.922	0.128	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M1-YOHT-14-RTD-3	3	1	8.553	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M1-YOHT-11-RTD-4	3	1	8.365	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YOHT-13-RTD-1	3	2	9.176	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YOHT-15-RTD-2	3	2	8.882	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YOHT-12-RTD-3	3	2	8.972	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YOHT-11-RTD-4	3	2	9.279	0.129	LGM

Average	8.877	0.129
Standard Dev.	0.287	
Coeff. of Var. [%]	3.234	
Min.	8.365	0.128
Max.	9.473	0.130
Number of Spec.	24	24

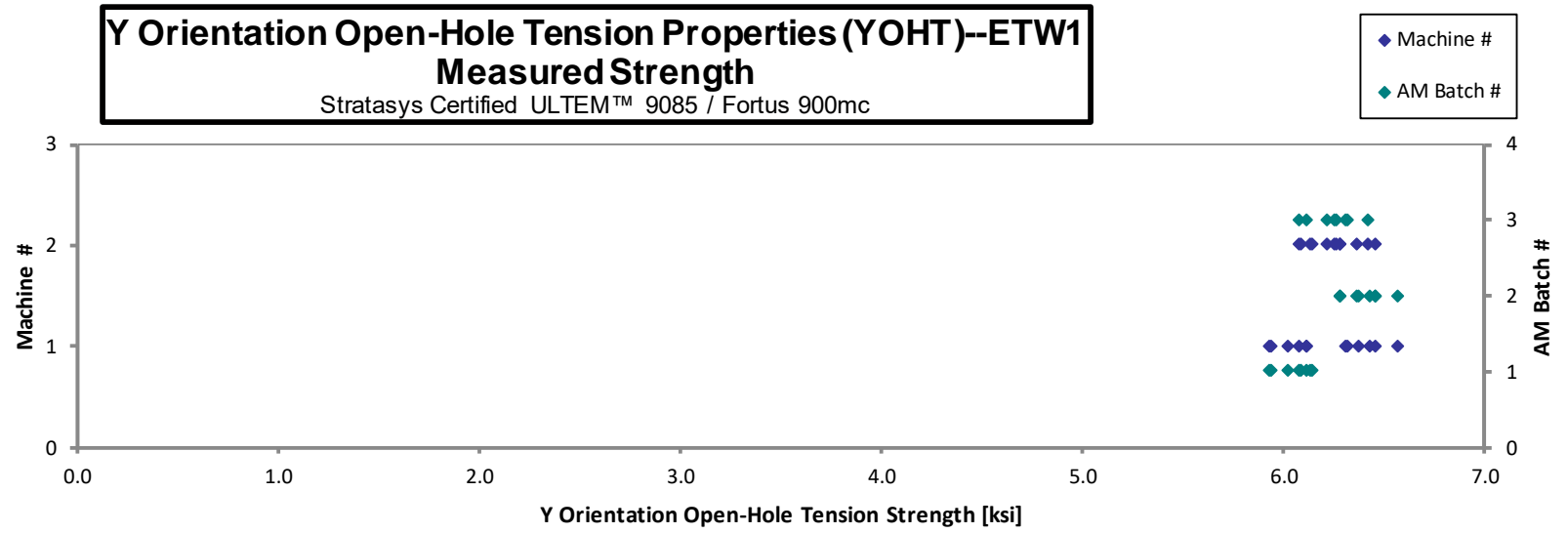


**Y Orientation Open-Hole Tension Properties (YOHT)--ETW1
Strength**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-YOHT-13-ETW1-1	1	1	6.120	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-YOHT-15-ETW1-2	1	1	5.937	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-YOHT-14-ETW1-3	1	1	6.022	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-YOHT-11-ETW1-4	1	1	5.931	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-YOHT-13-ETW1-1	1	2	6.082	0.129	LGT,LGM
NTPAMP001-SY-UM9085-RPM-A-M2-YOHT-15-ETW1-2	1	2	6.132	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-YOHT-12-ETW1-3	1	2	6.090	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-YOHT-11-ETW1-4	1	2	6.149	0.129	LGM,LGB
NTPAMP001-SY-UM9085-RPM-B-M1-YOHT-13-ETW1-1	2	1	6.430	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YOHT-15-ETW1-2	2	1	6.461	0.130	LGB,LGT
NTPAMP001-SY-UM9085-RPM-B-M1-YOHT-14-ETW1-3	2	1	6.573	0.129	LGB,LGT
NTPAMP001-SY-UM9085-RPM-B-M1-YOHT-11-ETW1-4	2	1	6.374	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YOHT-13-ETW1-1	2	2	6.279	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YOHT-15-ETW1-2	2	2	6.282	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YOHT-12-ETW1-3	2	2	6.457	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YOHT-11-ETW1-4	2	2	6.369	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-YOHT-13-ETW1-1	3	1	6.115	0.129	LGB
NTPAMP001-SY-UM9085-RPM-C-M1-YOHT-15-ETW1-2	3	1	6.311	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-YOHT-14-ETW1-3	3	1	6.319	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-YOHT-11-ETW1-4	3	1	6.077	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YOHT-13-ETW1-1	3	2	6.217	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YOHT-15-ETW1-2	3	2	6.264	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YOHT-12-ETW1-3	3	2	6.255	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YOHT-11-ETW1-4	3	2	6.421	0.128	LGM

Average	6.236	0.129
Standard Dev.	0.173	
Coeff. of Var. [%]	2.767	
Min.	5.931	0.128
Max.	6.573	0.130
Number of Spec.	24	24

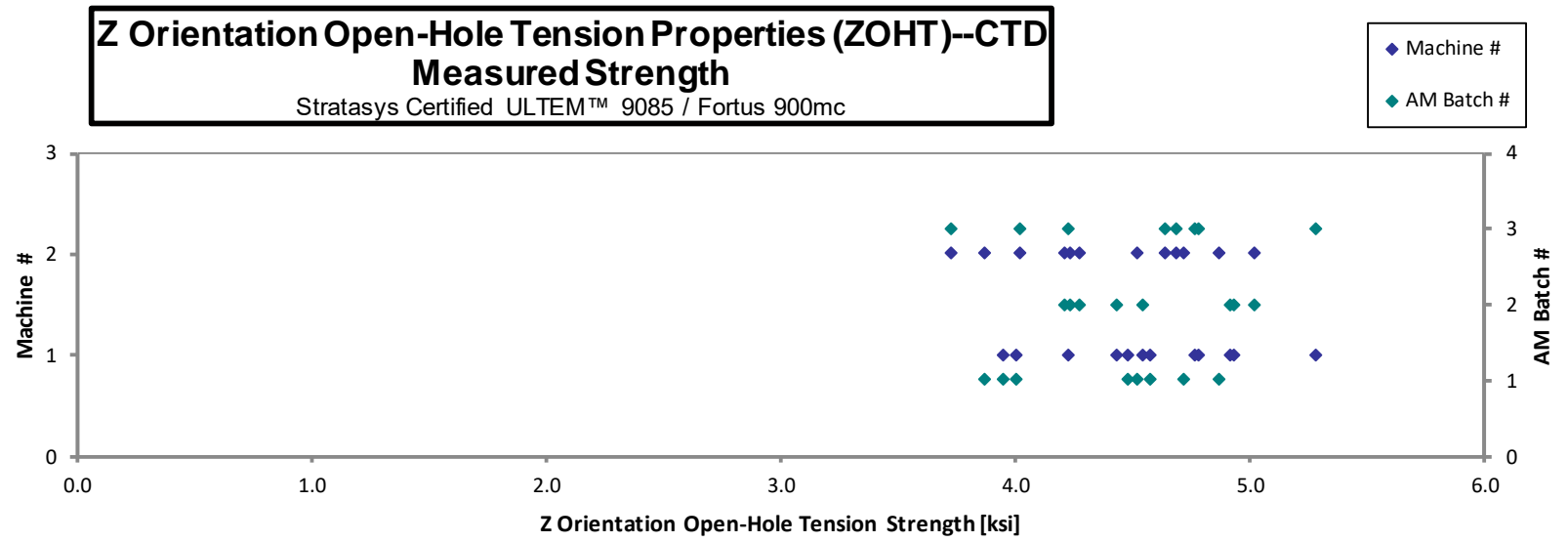


4.16 Z Open-Hole Tension Properties (ZOHT)

Z Orientation Open-Hole Tension Properties (ZOHT)--CTD Strength Stratasys Certified ULTEM™ 9085 / Fortus 900mc
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Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHT-13-CTD-1	1	1	3.948	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHT-15-CTD-2	1	1	4.482	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHT-12-CTD-3	1	1	4.573	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHT-11-CTD-4	1	1	4.002	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHT-13-CTD-1	1	2	4.522	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHT-15-CTD-2	1	2	4.721	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHT-14-CTD-3	1	2	4.867	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHT-11-CTD-4	1	2	3.866	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHT-13-CTD-1	2	1	4.937	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHT-15-CTD-2	2	1	4.546	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHT-12-CTD-3	2	1	4.432	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHT-11-CTD-4	2	1	4.917	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHT-13-CTD-1	2	2	4.237	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHT-15-CTD-2	2	2	4.278	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHT-14-CTD-3	2	2	4.213	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHT-11-CTD-4	2	2	5.021	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHT-13-CTD-1	3	1	4.230	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHT-15-CTD-2	3	1	4.786	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHT-12-CTD-3	3	1	4.768	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHT-11-CTD-4	3	1	5.283	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHT-13-CTD-1	3	2	4.016	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHT-15-CTD-2	3	2	4.639	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHT-14-CTD-3	3	2	4.683	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHT-11-CTD-4	3	2	3.728	0.129	LGM

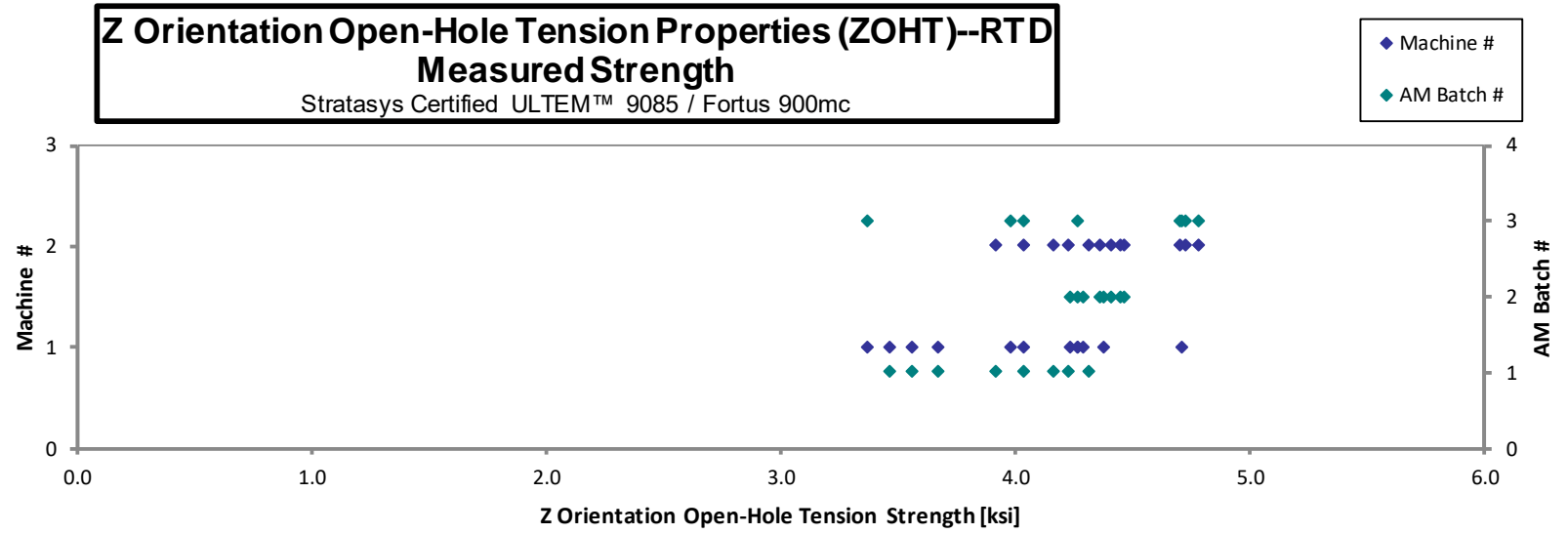
Average	4.487	0.129
Standard Dev.	0.401	
Coeff. of Var. [%]	8.945	
Min.	3.728	0.128
Max.	5.283	0.131
Number of Spec.	24	24



Z Orientation Open-Hole Tension Properties (ZOHT)--RTD Strength Stratasys Certified ULTEM™ 9085 / Fortus 900mc
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Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHT-13-RTD-1	1	1	3.467	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHT-15-RTD-2	1	1	4.035	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHT-12-RTD-3	1	1	3.558	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHT-11-RTD-4	1	1	3.672	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHT-13-RTD-1	1	2	4.164	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHT-15-RTD-2	1	2	4.224	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHT-14-RTD-3	1	2	4.314	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHT-11-RTD-4	1	2	3.917	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHT-13-RTD-1	2	1	4.288	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHT-15-RTD-2	2	1	4.233	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHT-12-RTD-3	2	1	4.374	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHT-11-RTD-4	2	1	4.265	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHT-13-RTD-1	2	2	4.448	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHT-15-RTD-2	2	2	4.464	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHT-14-RTD-3	2	2	4.408	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHT-11-RTD-4	2	2	4.362	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHT-13-RTD-1	3	1	3.369	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHT-15-RTD-2	3	1	3.978	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHT-12-RTD-3	3	1	4.712	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHT-11-RTD-4	3	1	4.268	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHT-13-RTD-1	3	2	4.699	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHT-15-RTD-2	3	2	4.729	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHT-14-RTD-3	3	2	4.786	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHT-11-RTD-4	3	2	4.036	0.129	LGM

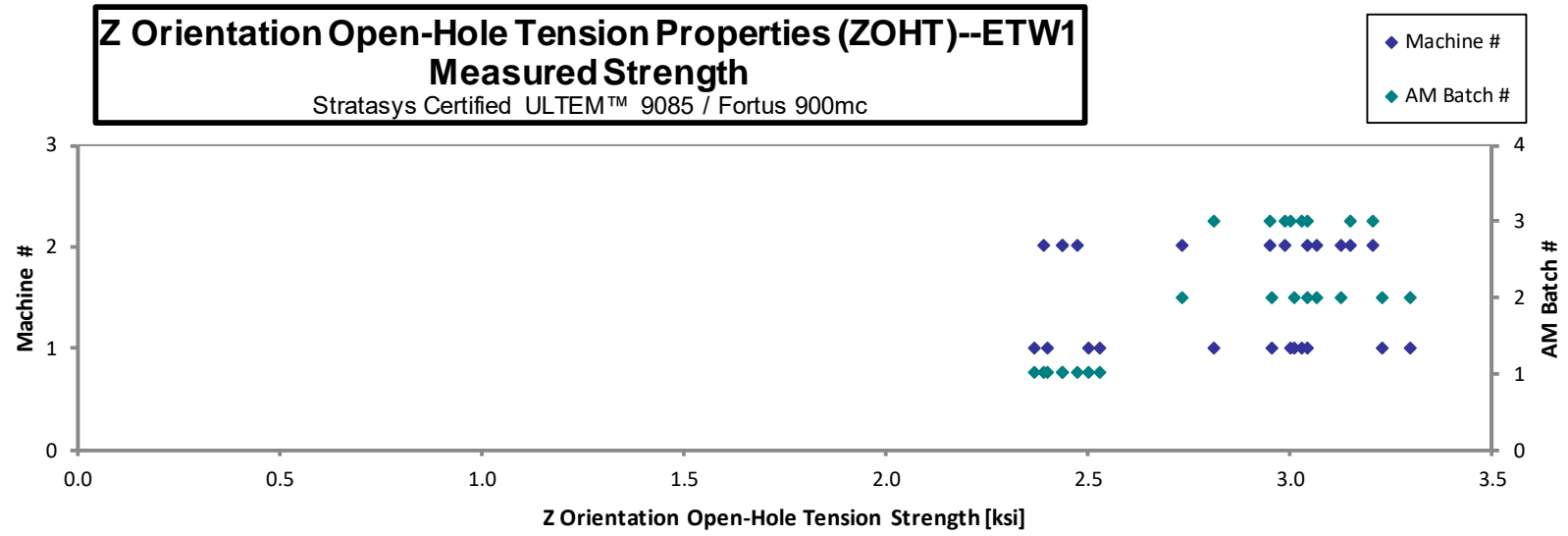
Average	4.199	0.129
Standard Dev.	0.390	
Coeff. of Var. [%]	9.291	
Min.	3.369	0.128
Max.	4.786	0.130
Number of Spec.	24	24



Z Orientation Open-Hole Tension Properties (ZOHT)--ETW1 Strength Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHT-13-ETW1-1 (R)	1	1	2.505	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHT-15-ETW1-2 (R)	1	1	2.401	0.128	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHT-12-ETW1-3 (R)	1	1	2.370	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHT-11-ETW1-4 (R)	1	1	2.528	0.128	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHT-13-ETW1-1 (R)	1	2	2.439	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHT-15-ETW1-2 (R)	1	2	2.440	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHT-14-ETW1-3 (R)	1	2	2.475	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHT-11-ETW1-4 (R)	1	2	2.393	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHT-13-ETW1-1	2	1	3.230	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHT-15-ETW1-2	2	1	3.014	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHT-12-ETW1-3	2	1	3.297	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHT-11-ETW1-4	2	1	2.958	0.127	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHT-13-ETW1-1	2	2	3.068	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHT-15-ETW1-2	2	2	3.045	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHT-14-ETW1-3	2	2	3.126	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHT-11-ETW1-4	2	2	2.736	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHT-13-ETW1-1	3	1	2.813	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHT-15-ETW1-2	3	1	3.042	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHT-12-ETW1-3	3	1	3.004	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHT-11-ETW1-4	3	1	3.031	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHT-13-ETW1-1	3	2	2.991	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHT-15-ETW1-2	3	2	3.149	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHT-14-ETW1-3	3	2	3.207	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHT-11-ETW1-4	3	2	2.950	0.129	LGM

Average	2.842	0.129
Standard Dev.	0.312	
Coeff. of Var. [%]	10.978	
Min.	2.370	0.127
Max.	3.297	0.130
Number of Spec.	24	24

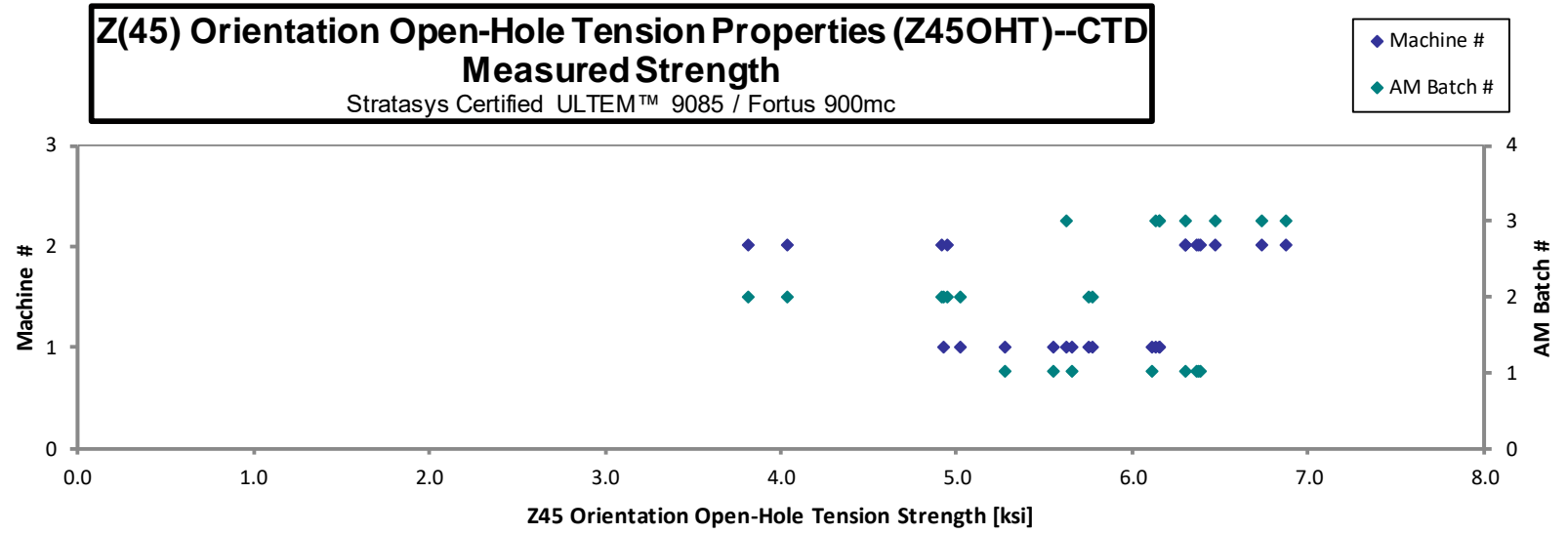


4.17 Z45 Open-Hole Tension Properties (Z45OHT)

Z(45) Orientation Open-Hole Tension Properties (Z45OHT)--CTD Strength
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHT-13-CTD-1	1	1	6.110	0.131	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHT-15-CTD-2	1	1	5.552	0.131	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHT-12-CTD-3	1	1	5.661	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHT-11-CTD-4	1	1	5.276	0.131	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHT-13-CTD-1	1	2	6.305	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHT-15-CTD-2	1	2	6.370	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHT-14-CTD-3	1	2	6.385	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHT-11-CTD-4	1	2	6.378	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHT-13-CTD-1	2	1	5.753	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHT-15-CTD-2	2	1	5.024	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHT-12-CTD-3	2	1	5.775	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHT-11-CTD-4	2	1	4.930	0.133	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHT-13-CTD-1 (R)	2	2	3.813	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHT-15-CTD-2 (R)	2	2	4.951	0.132	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHT-14-CTD-3 (R)	2	2	4.034	0.132	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHT-11-CTD-4 (R)	2	2	4.920	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHT-13-CTD-1	3	1	5.622	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHT-15-CTD-2	3	1	6.159	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHT-12-CTD-3	3	1	6.159	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHT-11-CTD-4	3	1	6.129	0.132	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHT-13-CTD-1	3	2	6.732	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHT-15-CTD-2	3	2	6.303	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHT-14-CTD-3	3	2	6.467	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHT-11-CTD-4	3	2	6.872	0.131	LGM

Average	5.737	0.131
Standard Dev.	0.798	
Coeff. of Var. [%]	13.911	
Min.	3.813	0.129
Max.	6.872	0.133
Number of Spec.	24	24

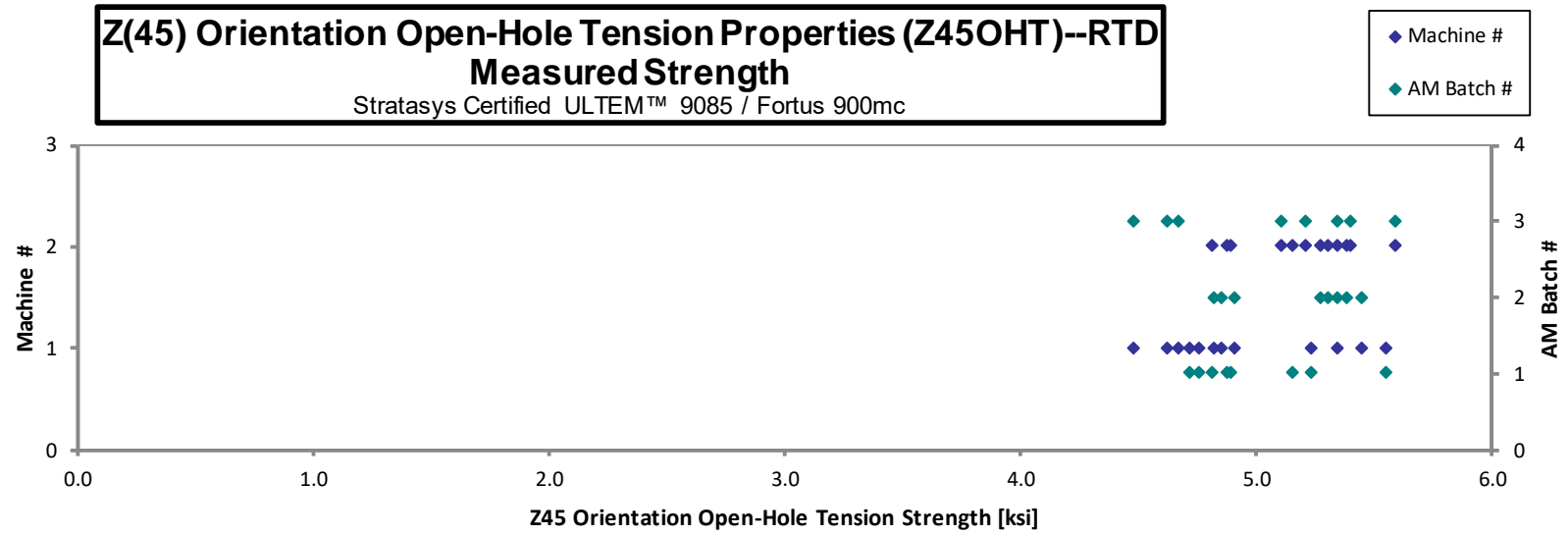


**Z(45) Orientation Open-Hole Tension Properties (Z45OHT)--RTD
Strength**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHT-13-RTD-1	1	1	5.237	0.131	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHT-15-RTD-2	1	1	4.718	0.131	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHT-12-RTD-3	1	1	5.549	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHT-11-RTD-4	1	1	4.758	0.132	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHT-13-RTD-1	1	2	4.817	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHT-15-RTD-2	1	2	4.891	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHT-14-RTD-3	1	2	5.159	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHT-11-RTD-4	1	2	4.878	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHT-13-RTD-1	2	1	5.451	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHT-15-RTD-2	2	1	4.825	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHT-12-RTD-3	2	1	4.909	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHT-11-RTD-4	2	1	4.851	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHT-13-RTD-1	2	2	5.305	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHT-15-RTD-2	2	2	5.271	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHT-14-RTD-3	2	2	5.345	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHT-11-RTD-4	2	2	5.390	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHT-13-RTD-1	3	1	5.345	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHT-15-RTD-2	3	1	4.478	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHT-12-RTD-3	3	1	4.673	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHT-11-RTD-4	3	1	4.624	0.132	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHT-13-RTD-1	3	2	5.214	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHT-15-RTD-2	3	2	5.400	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHT-14-RTD-3	3	2	5.111	0.132	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHT-11-RTD-4	3	2	5.589	0.132	LGM

Average	5.075	0.131
Standard Dev.	0.320	
Coeff. of Var. [%]	6.305	
Min.	4.478	0.129
Max.	5.589	0.132
Number of Spec.	24	24

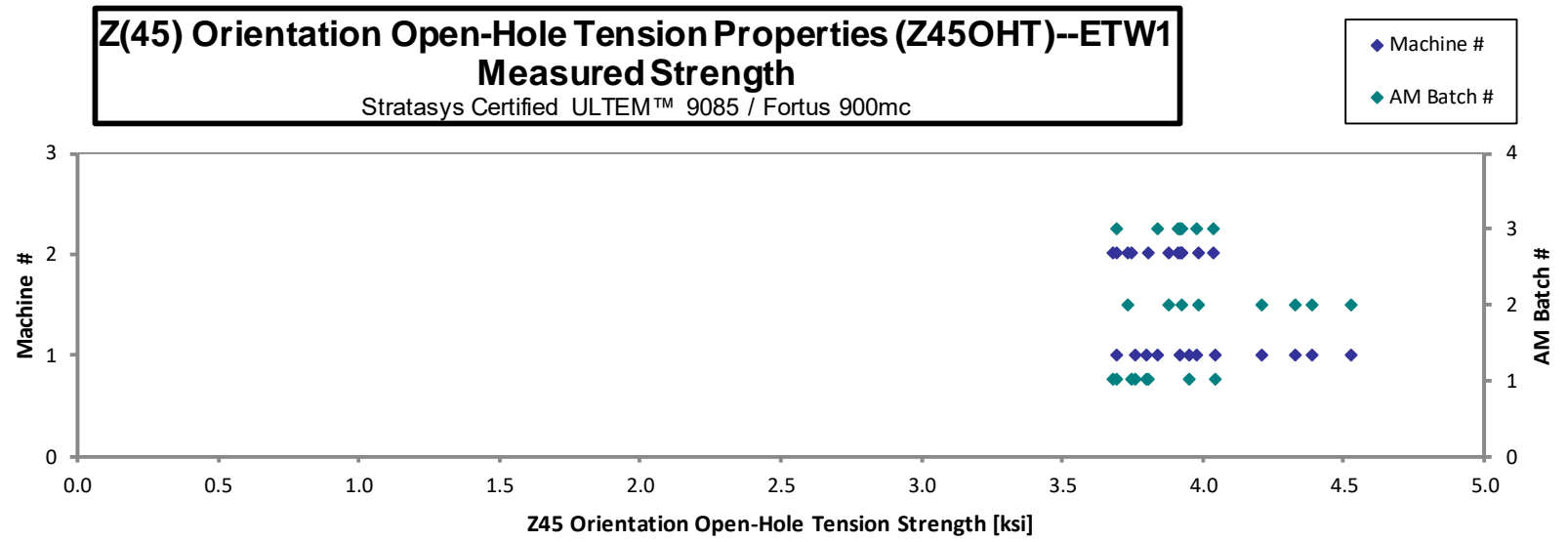


**Z(45) Orientation Open-Hole Tension Properties (Z45OHT)--ETW1
Strength**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksij]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHT-13-ETW1-1	1	1	4.046	0.131	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHT-15-ETW1-2	1	1	3.800	0.131	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHT-12-ETW1-3	1	1	3.954	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHT-11-ETW1-4	1	1	3.763	0.131	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHT-13-ETW1-1	1	2	3.747	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHT-15-ETW1-2	1	2	3.682	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHT-14-ETW1-3	1	2	3.810	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHT-11-ETW1-4	1	2	3.696	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHT-13-ETW1-1	2	1	4.526	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHT-15-ETW1-2	2	1	4.392	0.132	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHT-12-ETW1-3	2	1	4.212	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHT-11-ETW1-4	2	1	4.331	0.132	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHT-13-ETW1-1	2	2	3.737	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHT-15-ETW1-2	2	2	3.877	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHT-14-ETW1-3	2	2	3.985	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHT-11-ETW1-4	2	2	3.924	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHT-13-ETW1-1	3	1	3.922	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHT-15-ETW1-2	3	1	3.837	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHT-12-ETW1-3	3	1	3.977	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHT-11-ETW1-4	3	1	3.696	0.132	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHT-13-ETW1-1	3	2	4.039	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHT-15-ETW1-2	3	2	3.912	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHT-14-ETW1-3	3	2	3.925	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHT-11-ETW1-4	3	2	3.917	0.131	LGM

Average	3.946	0.131
Standard Dev.	0.223	
Coeff. of Var. [%]	5.658	
Min.	3.682	0.129
Max.	4.526	0.132
Number of Spec.	24	24

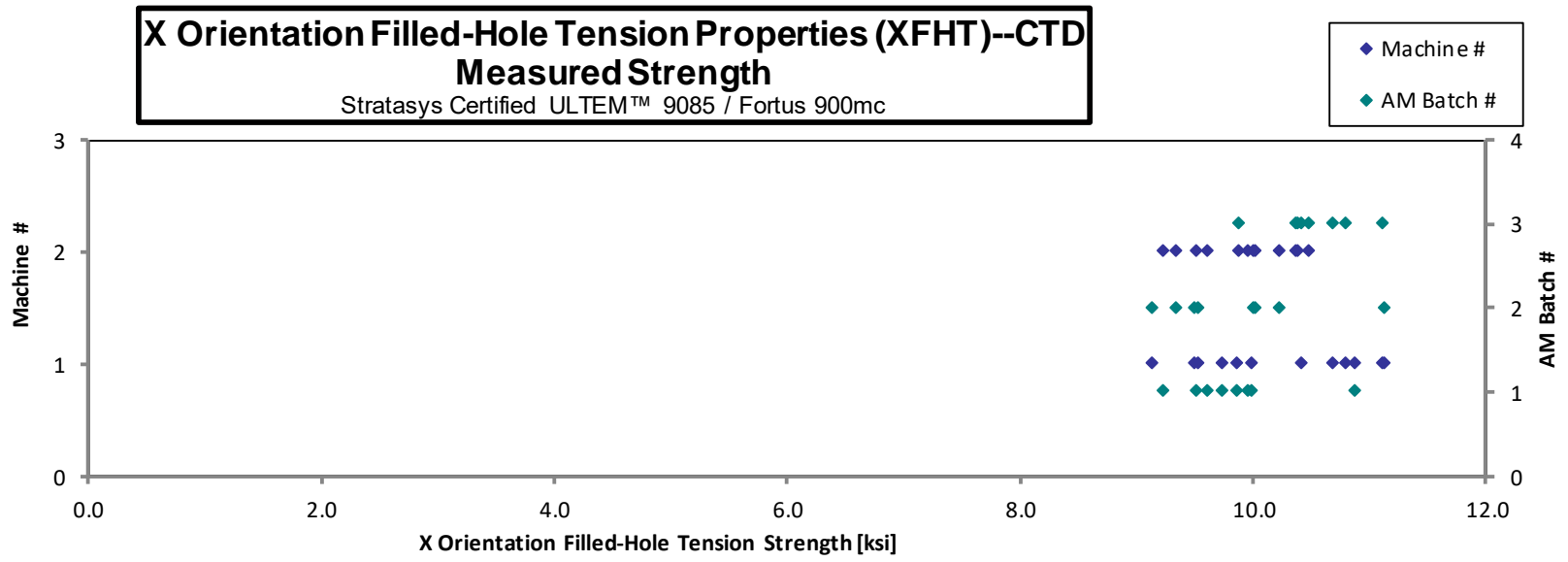


4.18 X Filled-Hole Tension Properties (XFHT)

**X Orientation Filled-Hole Tension Properties (XFHT)--CTD
Strength**
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-XFHT-13-CTD-1	1	1	9.986	0.127	LAT, AGM
NTPAMP001-SY-UM9085-RPM-A-M1-XFHT-15-CTD-2	1	1	9.857	0.128	AGM
NTPAMP001-SY-UM9085-RPM-A-M1-XFHT-12-CTD-3	1	1	9.732	0.128	LGT, AGM
NTPAMP001-SY-UM9085-RPM-A-M1-XFHT-11-CTD-4	1	1	10.874	0.127	LGM, AAB
NTPAMP001-SY-UM9085-RPM-A-M2-XFHT-13-CTD-1	1	2	9.229	0.129	AGM, AGT
NTPAMP001-SY-UM9085-RPM-A-M2-XFHT-15-CTD-2	1	2	9.607	0.128	LGT, AGM
NTPAMP001-SY-UM9085-RPM-A-M2-XFHT-14-CTD-3	1	2	9.964	0.128	LGM, AGM
NTPAMP001-SY-UM9085-RPM-A-M2-XFHT-11-CTD-4	1	2	9.522	0.129	LGT, AGM
NTPAMP001-SY-UM9085-RPM-B-M1-XFHT-13-CTD-1	2	1	9.537	0.128	AAT, AWB, LGM
NTPAMP001-SY-UM9085-RPM-B-M1-XFHT-15-CTD-2	2	1	11.127	0.125	LGO, LWB
NTPAMP001-SY-UM9085-RPM-B-M1-XFHT-12-CTD-3	2	1	9.138	0.128	AWB, AWT, LGM
NTPAMP001-SY-UM9085-RPM-B-M1-XFHT-11-CTD-4	2	1	9.495	0.128	AAT, LGB, LGM
NTPAMP001-SY-UM9085-RPM-B-M2-XFHT-13-CTD-1	2	2	9.340	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M2-XFHT-15-CTD-2	2	2	10.232	0.128	AGB, AGT, LGM
NTPAMP001-SY-UM9085-RPM-B-M2-XFHT-14-CTD-3	2	2	10.010	0.128	AAB, AAT, M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M2-XFHT-11-CTD-4	2	2	10.022	0.127	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M1-XFHT-13-CTD-1	3	1	10.412	0.128	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M1-XFHT-15-CTD-2	3	1	11.108	0.127	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M1-XFHT-12-CTD-3	3	1	10.681	0.127	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M1-XFHT-11-CTD-4	3	1	10.799	0.127	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M2-XFHT-13-CTD-1	3	2	9.877	0.128	LGM, AGT, AGB
NTPAMP001-SY-UM9085-RPM-C-M2-XFHT-15-CTD-2	3	2	10.368	0.128	LGM, AGT, AGB
NTPAMP001-SY-UM9085-RPM-C-M2-XFHT-14-CTD-3	3	2	10.391	0.128	AGM, AGT, AGB
NTPAMP001-SY-UM9085-RPM-C-M2-XFHT-11-CTD-4	3	2	10.481	0.128	LGM, AGT, AGB

Average	10.075	0.128
Standard Dev.	0.579	
Coeff. of Var. [%]	5.747	
Min.	9.138	0.125
Max.	11.127	0.129
Number of Spec.	24	24



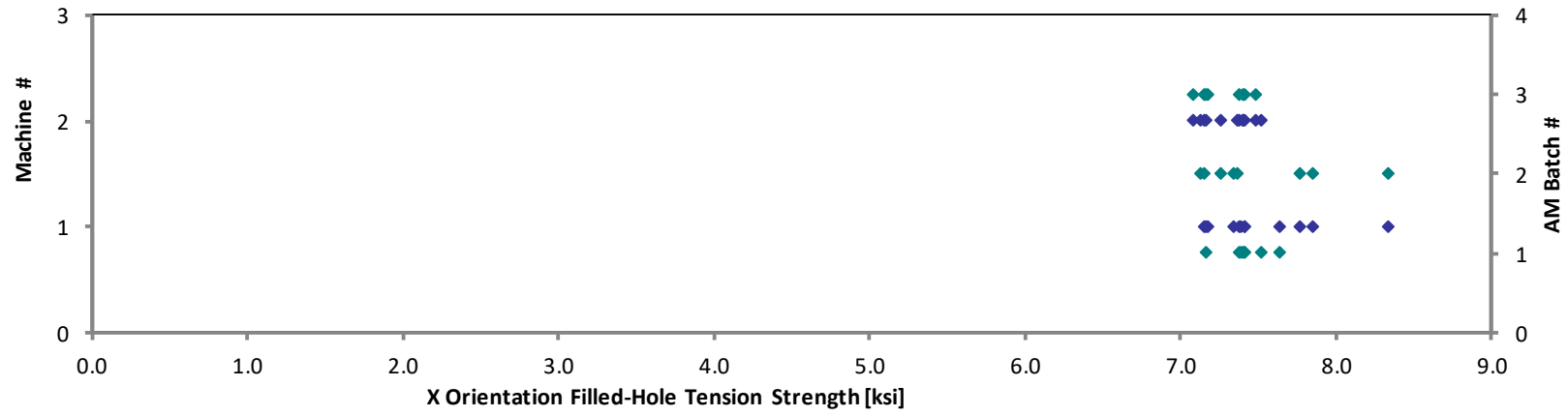
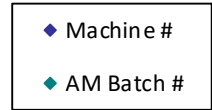
**X Orientation Filled-Hole Tension Properties (XFHT)--RTD
Strength**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-XFHT-13-RTD-1	1	1	7.392	0.127	AGM, AGB
NTPAMP001-SY-UM9085-RPM-A-M1-XFHT-15-RTD-2	1	1	7.646	0.127	AGM
NTPAMP001-SY-UM9085-RPM-A-M1-XFHT-12-RTD-3	1	1	7.422	0.127	AGM
NTPAMP001-SY-UM9085-RPM-A-M1-XFHT-11-RTD-4	1	1	7.386	0.127	AGM
NTPAMP001-SY-UM9085-RPM-A-M2-XFHT-13-RTD-1	1	2	7.173	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-A-M2-XFHT-15-RTD-2	1	2	7.417	0.128	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-A-M2-XFHT-14-RTD-3	1	2	7.520	0.128	AGM
NTPAMP001-SY-UM9085-RPM-A-M2-XFHT-11-RTD-4	1	2	7.413	0.128	AGM
NTPAMP001-SY-UM9085-RPM-B-M1-XFHT-13-RTD-1	2	1	8.341	0.126	AGM
NTPAMP001-SY-UM9085-RPM-B-M1-XFHT-15-RTD-2	2	1	7.342	0.125	AGM
NTPAMP001-SY-UM9085-RPM-B-M1-XFHT-12-RTD-3	2	1	7.775	0.127	AGM
NTPAMP001-SY-UM9085-RPM-B-M1-XFHT-11-RTD-4	2	1	7.853	0.127	AGM
NTPAMP001-SY-UM9085-RPM-B-M2-XFHT-13-RTD-1	2	2	7.267	0.129	AGM
NTPAMP001-SY-UM9085-RPM-B-M2-XFHT-15-RTD-2	2	2	7.135	0.128	AGM
NTPAMP001-SY-UM9085-RPM-B-M2-XFHT-14-RTD-3	2	2	7.372	0.128	AGM
NTPAMP001-SY-UM9085-RPM-B-M2-XFHT-11-RTD-4	2	2	7.153	0.129	AGM
NTPAMP001-SY-UM9085-RPM-C-M1-XFHT-13-RTD-1	3	1	7.183	0.128	AGM
NTPAMP001-SY-UM9085-RPM-C-M1-XFHT-15-RTD-2	3	1	7.425	0.127	AGM
NTPAMP001-SY-UM9085-RPM-C-M1-XFHT-12-RTD-3	3	1	7.154	0.127	AGM
NTPAMP001-SY-UM9085-RPM-C-M1-XFHT-11-RTD-4	3	1	7.175	0.128	AGM
NTPAMP001-SY-UM9085-RPM-C-M2-XFHT-13-RTD-1	3	2	7.403	0.129	AGM
NTPAMP001-SY-UM9085-RPM-C-M2-XFHT-15-RTD-2	3	2	7.386	0.128	AGM
NTPAMP001-SY-UM9085-RPM-C-M2-XFHT-14-RTD-3	3	2	7.493	0.128	AGM
NTPAMP001-SY-UM9085-RPM-C-M2-XFHT-11-RTD-4	3	2	7.092	0.128	AGM

Average	7.413	0.128
Standard Dev.	0.277	
Coeff. of Var. [%]	3.742	
Min.	7.092	0.125
Max.	8.341	0.129
Number of Spec.	24	24

X Orientation Filled-Hole Tension Properties (XFHT)--RTD
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



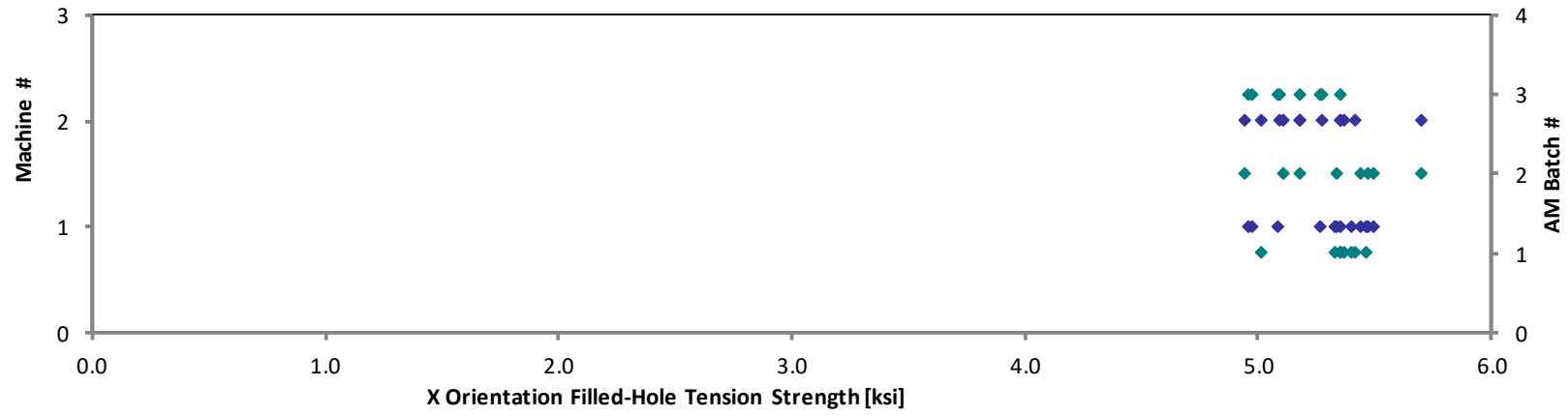
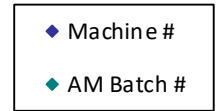
X Orientation Filled-Hole Tension Properties (XFHT)--ETW1 Strength Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-XFHT-13-ETW1-1	1	1	5.405	0.127	AGM
NTPAMP001-SY-UM9085-RPM-A-M1-XFHT-15-ETW1-2	1	1	5.468	0.127	AGM
NTPAMP001-SY-UM9085-RPM-A-M1-XFHT-12-ETW1-3	1	1	5.360	0.127	LWT
NTPAMP001-SY-UM9085-RPM-A-M1-XFHT-11-ETW1-4	1	1	5.336	0.127	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-A-M2-XFHT-13-ETW1-1*	1	2	5.016	0.129	LAB
NTPAMP001-SY-UM9085-RPM-A-M2-XFHT-15-ETW1-2	1	2	5.416	0.128	AGM
NTPAMP001-SY-UM9085-RPM-A-M2-XFHT-14-ETW1-3	1	2	5.374	0.128	LGF
NTPAMP001-SY-UM9085-RPM-A-M2-XFHT-11-ETW1-4	1	2	5.358	0.128	M(L,A)GM
NTPAMP001-SY-UM9085-RPM-B-M1-XFHT-13-ETW1-1	2	1	5.338	0.126	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M1-XFHT-15-ETW1-2	2	1	5.472	0.124	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M1-XFHT-12-ETW1-3	2	1	5.442	0.127	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M1-XFHT-11-ETW1-4	2	1	5.499	0.127	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M2-XFHT-13-ETW1-1	2	2	5.111	0.127	AGM
NTPAMP001-SY-UM9085-RPM-B-M2-XFHT-15-ETW1-2	2	2	5.708	0.125	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M2-XFHT-14-ETW1-3	2	2	5.186	0.126	AGM
NTPAMP001-SY-UM9085-RPM-B-M2-XFHT-11-ETW1-4	2	2	4.945	0.126	AGM
NTPAMP001-SY-UM9085-RPM-C-M1-XFHT-13-ETW1-1	3	1	4.975	0.127	MGM
NTPAMP001-SY-UM9085-RPM-C-M1-XFHT-15-ETW1-2	3	1	5.270	0.128	MGM
NTPAMP001-SY-UM9085-RPM-C-M1-XFHT-12-ETW1-3	3	1	4.965	0.127	AGM
NTPAMP001-SY-UM9085-RPM-C-M1-XFHT-11-ETW1-4	3	1	5.088	0.127	MGM
NTPAMP001-SY-UM9085-RPM-C-M2-XFHT-13-ETW1-1	3	2	5.183	0.127	AGM
NTPAMP001-SY-UM9085-RPM-C-M2-XFHT-15-ETW1-2	3	2	5.279	0.127	AGM
NTPAMP001-SY-UM9085-RPM-C-M2-XFHT-14-ETW1-3	3	2	5.095	0.127	AGM
NTPAMP001-SY-UM9085-RPM-C-M2-XFHT-11-ETW1-4	3	2	5.358	0.127	AGM

* Failure occurred away from hole

Average	5.277	0.127
Standard Dev.	0.197	
Coeff. of Var. [%]	3.724	
Min.	4.945	0.124
Max.	5.708	0.129
Number of Spec.	24	24

X Orientation Filled-Hole Tension Properties (XFHT)--ETW1
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



4.19 Y Filled-Hole Tension Properties (YFHT)

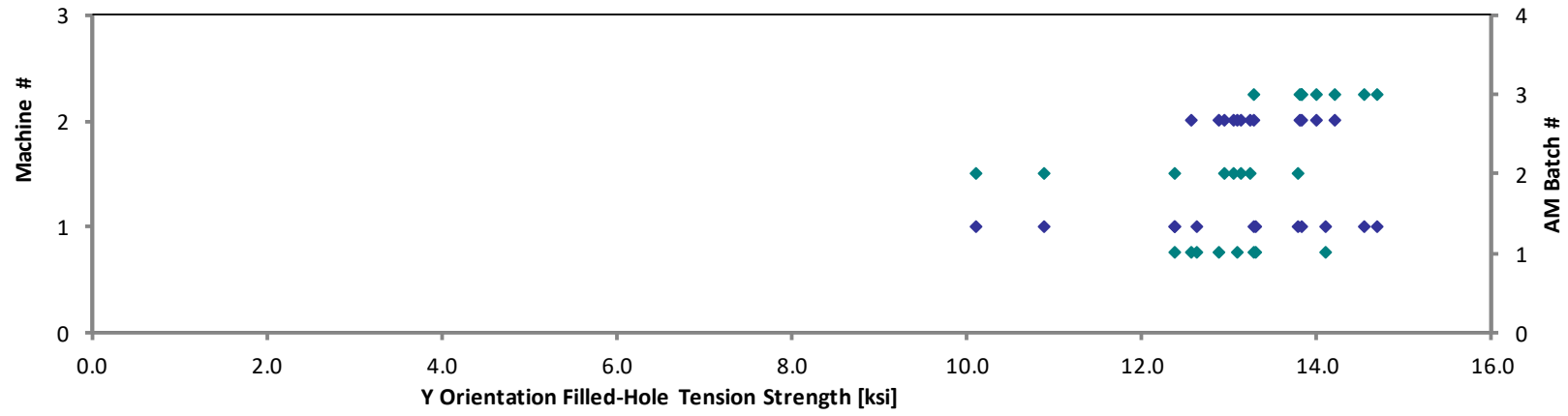
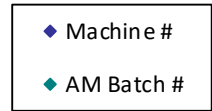
**Y Orientation Filled-Hole Tension Properties (YFHT)--CTD
Strength**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-YFHT-13-CTD-1	1	1	12.648	0.130	AGM
NTPAMP001-SY-UM9085-RPM-A-M1-YFHT-15-CTD-2	1	1	13.321	0.128	AGM
NTPAMP001-SY-UM9085-RPM-A-M1-YFHT-12-CTD-3 (R)	1	1	14.109	0.129	M(L,A)GM
NTPAMP001-SY-UM9085-RPM-A-M1-YFHT-11-CTD-4	1	1	12.392	0.129	AGM
NTPAMP001-SY-UM9085-RPM-A-M2-YFHT-13-CTD-1	1	2	13.098	0.128	LGM, LAB, AGT, AGB
NTPAMP001-SY-UM9085-RPM-A-M2-YFHT-15-CTD-2	1	2	12.900	0.128	LGT, LGM, AGM
NTPAMP001-SY-UM9085-RPM-A-M2-YFHT-14-CTD-3	1	2	12.588	0.127	LGM, AGM
NTPAMP001-SY-UM9085-RPM-A-M2-YFHT-11-CTD-4	1	2	13.293	0.128	LGM, AGM
NTPAMP001-SY-UM9085-RPM-B-M1-YFHT-13-CTD-1	2	1	12.398	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YFHT-15-CTD-2	2	1	13.804	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YFHT-12-CTD-3	2	1	10.886	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YFHT-11-CTD-4	2	1	10.120	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YFHT-13-CTD-1	2	2	13.262	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YFHT-15-CTD-2	2	2	13.060	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YFHT-14-CTD-3	2	2	12.959	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YFHT-11-CTD-4	2	2	13.154	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-YFHT-13-CTD-1	3	1	13.845	0.129	LGM, AGT, AGB
NTPAMP001-SY-UM9085-RPM-C-M1-YFHT-15-CTD-2	3	1	14.697	0.127	LGM, AGT
NTPAMP001-SY-UM9085-RPM-C-M1-YFHT-12-CTD-3	3	1	14.561	0.127	AGM
NTPAMP001-SY-UM9085-RPM-C-M1-YFHT-11-CTD-4	3	1	13.293	0.128	AGM
NTPAMP001-SY-UM9085-RPM-C-M2-YFHT-13-CTD-1	3	2	14.228	0.128	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M2-YFHT-15-CTD-2	3	2	13.823	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M2-YFHT-14-CTD-3	3	2	13.841	0.128	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M2-YFHT-11-CTD-4	3	2	14.013	0.129	M(A,L)GM

Average	13.179	0.128
Standard Dev.	1.048	
Coeff. of Var. [%]	7.948	
Min.	10.120	0.127
Max.	14.697	0.130
Number of Spec.	24	24

Y Orientation Filled-Hole Tension Properties (YFHT)--CTD
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



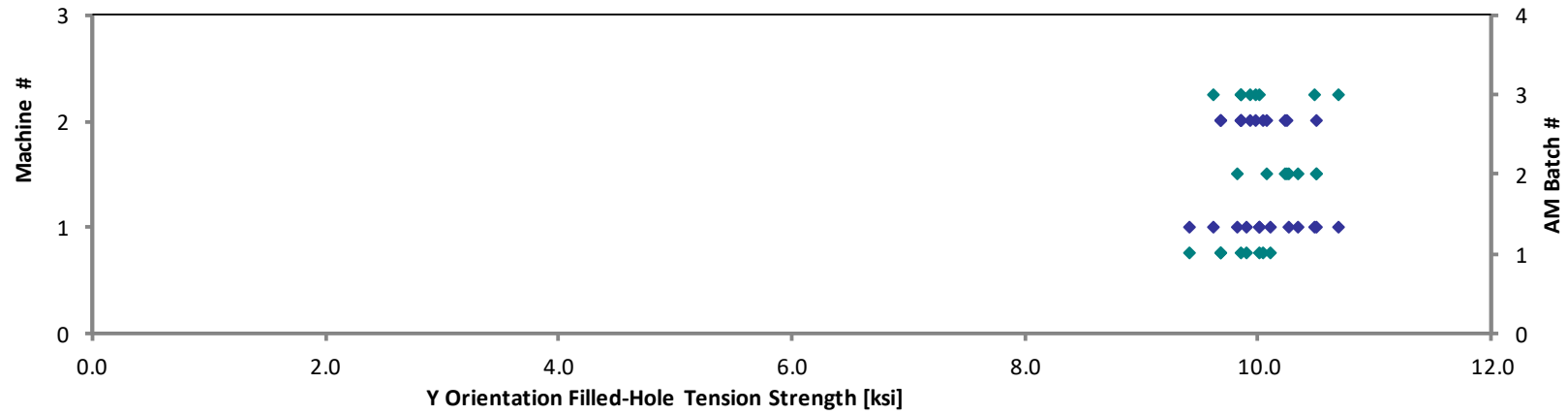
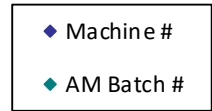
**Y Orientation Filled-Hole Tension Properties (YFHT)--RTD
Strength**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-YFHT-13-RTD-1	1	1	9.417	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-YFHT-15-RTD-2	1	1	10.111	0.128	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-YFHT-12-RTD-3	1	1	10.022	0.128	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-YFHT-11-RTD-4	1	1	9.909	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-YFHT-13-RTD-1	1	2	9.682	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-YFHT-15-RTD-2	1	2	9.694	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-YFHT-14-RTD-3	1	2	9.862	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-YFHT-11-RTD-4	1	2	10.042	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YFHT-13-RTD-1	2	1	9.824	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YFHT-15-RTD-2	2	1	10.506	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YFHT-12-RTD-3	2	1	10.346	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YFHT-11-RTD-4	2	1	10.270	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YFHT-13-RTD-1	2	2	10.236	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YFHT-15-RTD-2	2	2	10.074	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YFHT-14-RTD-3	2	2	10.259	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YFHT-11-RTD-4	2	2	10.514	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-YFHT-13-RTD-1	3	1	9.623	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-YFHT-15-RTD-2	3	1	10.698	0.127	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-YFHT-12-RTD-3	3	1	10.498	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-YFHT-11-RTD-4	3	1	10.024	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YFHT-13-RTD-1	3	2	9.991	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YFHT-15-RTD-2	3	2	9.940	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YFHT-14-RTD-3	3	2	9.856	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YFHT-11-RTD-4	3	2	9.855	0.129	LGM

Average	10.052	0.129
Standard Dev.	0.317	
Coeff. of Var. [%]	3.150	
Min.	9.417	0.127
Max.	10.698	0.131
Number of Spec.	24	24

Y Orientation Filled-Hole Tension Properties (YFHT)--RTD
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

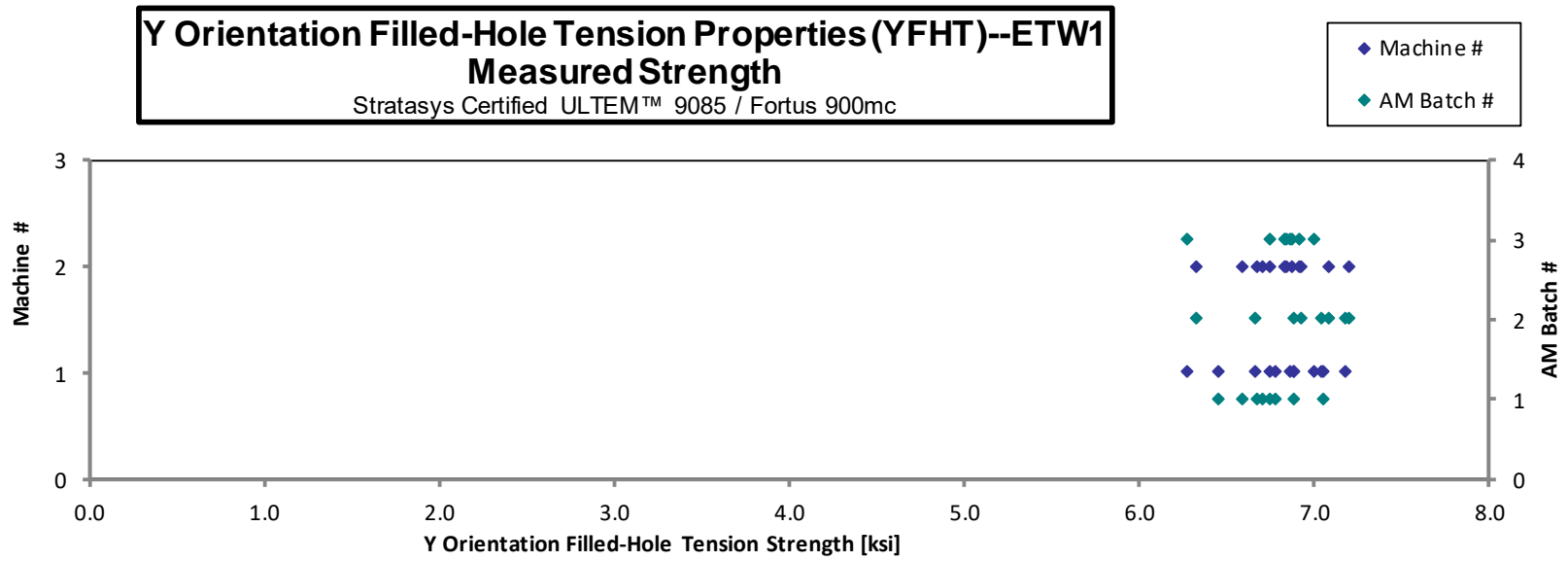


Y Orientation Filled-Hole Tension Properties (YFHT)--ETW1 Strength Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksj]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-YFHT-13-ETW1-1	1	1	6.455	0.131	LGM,LGT,LWT
NTPAMP001-SY-UM9085-RPM-A-M1-YFHT-15-ETW1-2*	1	1	7.053	0.128	LAT
NTPAMP001-SY-UM9085-RPM-A-M1-YFHT-12-ETW1-3	1	1	6.890	0.128	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-YFHT-11-ETW1-4	1	1	6.785	0.128	LGF
NTPAMP001-SY-UM9085-RPM-A-M2-YFHT-13-ETW1-1	1	2	6.674	0.129	LGM,LGF
NTPAMP001-SY-UM9085-RPM-A-M2-YFHT-15-ETW1-2	1	2	6.592	0.129	LGM,LGB
NTPAMP001-SY-UM9085-RPM-A-M2-YFHT-14-ETW1-3	1	2	6.711	0.129	LGT
NTPAMP001-SY-UM9085-RPM-A-M2-YFHT-11-ETW1-4	1	2	6.753	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YFHT-13-ETW1-1	2	1	6.666	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YFHT-15-ETW1-2	2	1	7.186	0.126	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YFHT-12-ETW1-3	2	1	7.042	0.127	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-YFHT-11-ETW1-4	2	1	6.893	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YFHT-13-ETW1-1	2	2	6.927	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YFHT-15-ETW1-2	2	2	6.327	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YFHT-14-ETW1-3	2	2	7.203	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-YFHT-11-ETW1-4	2	2	7.094	0.129	LGF,LGB
NTPAMP001-SY-UM9085-RPM-C-M1-YFHT-13-ETW1-1	3	1	6.275	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-YFHT-15-ETW1-2	3	1	7.001	0.127	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-YFHT-12-ETW1-3	3	1	6.872	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-YFHT-11-ETW1-4	3	1	6.755	0.128	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YFHT-13-ETW1-1	3	2	6.842	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YFHT-15-ETW1-2	3	2	6.843	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YFHT-14-ETW1-3	3	2	6.880	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-YFHT-11-ETW1-4	3	2	6.919	0.129	LGM

* Failure occurred away from hole

Average	6.818	0.128
Standard Dev.	0.240	
Coeff. of Var. [%]	3.518	
Min.	6.275	0.126
Max.	7.203	0.131
Number of Spec.	24	24



4.20 Z Filled-Hole Tension Properties (ZFHT)

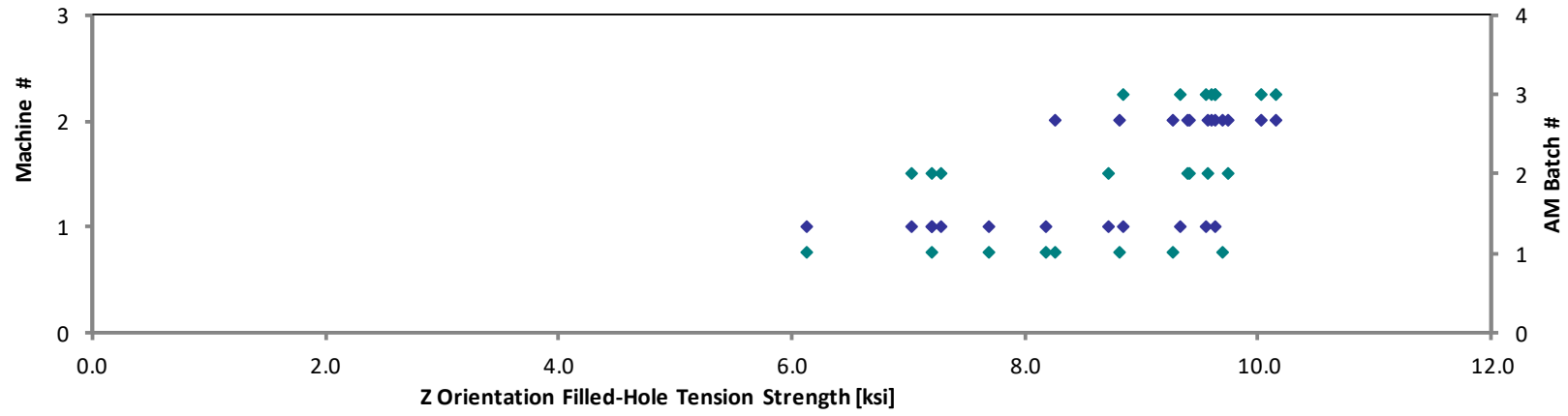
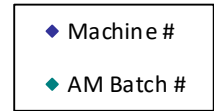
**Z Orientation Filled-Hole Tension Properties (ZFHT)--CTD
Strength**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHT-13-CTD-1 (R)	1	1	7.704	0.130	LGM, LGT
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHT-15-CTD-2 (R)	1	1	6.141	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHT-14-CTD-3 (R)	1	1	7.207	0.130	LGM, M(L,A)GB, M(L,A)GT
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHT-11-CTD-4 (R)	1	1	8.188	0.130	LGM, M(L,A)GB
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHT-13-CTD-1	1	2	9.704	0.129	LAT, LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHT-15-CTD-2	1	2	8.266	0.128	LGM, LGB, LGT
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHT-12-CTD-3	1	2	8.822	0.128	LGM, LGB, LAB
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHT-11-CTD-4	1	2	9.270	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHT-13-CTD-1	2	1	8.729	0.130	AGB, LGM, LGT
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHT-15-CTD-2	2	1	7.203	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHT-14-CTD-3	2	1	7.041	0.129	LGB, LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHT-11-CTD-4 (R)	2	1	7.282	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHT-13-CTD-1	2	2	9.746	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHT-15-CTD-2	2	2	9.580	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHT-12-CTD-3	2	2	9.421	0.129	LGM, LGB
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHT-11-CTD-4	2	2	9.395	0.130	LGM, LGB
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHT-13-CTD-1	3	1	9.343	0.130	LGM, LGT, LGB
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHT-15-CTD-2	3	1	9.561	0.129	LGM, LGT
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHT-14-CTD-3	3	1	9.632	0.129	LGM, LGT, LGB
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHT-11-CTD-4	3	1	8.851	0.129	LGM, LGT
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHT-13-CTD-1	3	2	10.039	0.129	LGM, AWB
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHT-15-CTD-2	3	2	9.601	0.129	LGM, AGB, AGT
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHT-12-CTD-3	3	2	10.157	0.129	AGM, LGT, LGB
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHT-11-CTD-4	3	2	9.643	0.129	LGT, LGM, LAT

Average	8.772	0.129
Standard Dev.	1.123	
Coeff. of Var. [%]	12.797	
Min.	6.141	0.128
Max.	10.157	0.130
Number of Spec.	24	24

Z Orientation Filled-Hole Tension Properties (ZFHT)--CTD
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



**Z Orientation Filled-Hole Tension Properties (ZFHT)--RTD
Strength**

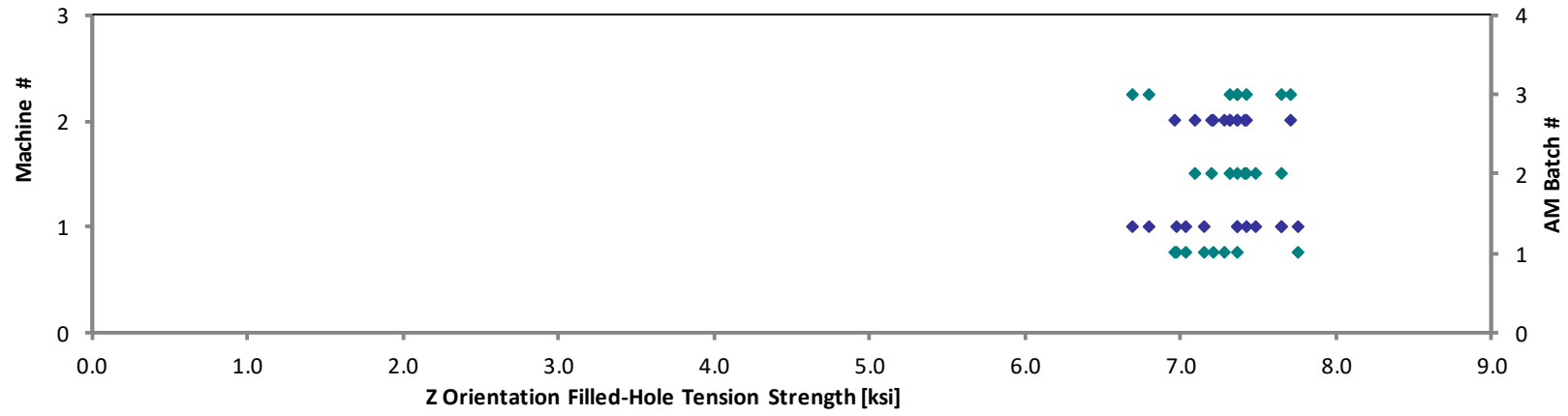
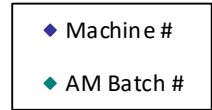
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHT-13-RTD-1	1	1	6.985	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHT-15-RTD-2	1	1	7.762	0.128	LGM, LGT
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHT-14-RTD-3	1	1	7.154	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHT-11-RTD-4	1	1	7.036	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHT-13-RTD-1	1	2	7.377	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHT-15-RTD-2	1	2	7.219	0.129	LGM, LGT
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHT-12-RTD-3	1	2	7.284	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHT-11-RTD-4	1	2	6.972	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHT-13-RTD-1	2	1	7.378	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHT-15-RTD-2	2	1	7.428	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHT-14-RTD-3	2	1	7.491	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHT-11-RTD-4	2	1	7.651	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHT-13-RTD-1	2	2	7.095	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHT-15-RTD-2	2	2	7.424	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHT-12-RTD-3	2	2	7.201	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHT-11-RTD-4	2	2	7.327	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHT-13-RTD-1	3	1	6.703	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHT-15-RTD-2	3	1	7.371	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHT-14-RTD-3	3	1	6.804	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHT-11-RTD-4	3	1	7.653	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHT-13-RTD-1	3	2	7.717	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHT-15-RTD-2	3	2	7.326	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHT-12-RTD-3*	3	2	7.428	0.129	LAB
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHT-11-RTD-4	3	2	7.377	0.129	LGM

*Failure occurred away from hole

Average	7.298	0.129
Standard Dev.	0.272	
Coeff. of Var. [%]	3.729	
Min.	6.703	0.128
Max.	7.762	0.130
Number of Spec.	24	24

Z Orientation Filled-Hole Tension Properties (ZFHT)--RTD
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z Orientation Filled-Hole Tension Properties (ZFHT)--ETW1 Strength

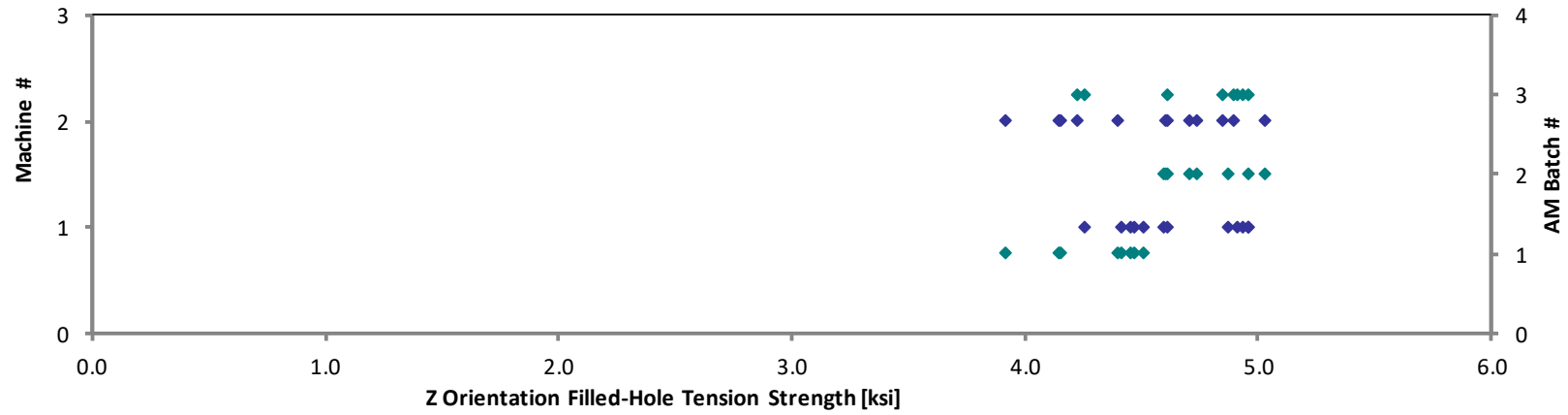
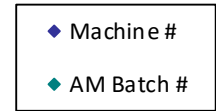
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHT-13-ETW1-1	1	1	4.415	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHT-15-ETW1-2	1	1	4.471	0.128	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHT-14-ETW1-3	1	1	4.511	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHT-11-ETW1-4	1	1	4.459	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHT-13-ETW1-1	1	2	4.150	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHT-15-ETW1-2	1	2	4.155	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHT-12-ETW1-3	1	2	4.405	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHT-11-ETW1-4	1	2	3.924	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHT-13-ETW1-1	2	1	4.596	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHT-15-ETW1-2	2	1	4.877	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHT-14-ETW1-3	2	1	4.612	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHT-11-ETW1-4	2	1	4.959	0.129	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHT-13-ETW1-1*	2	2	4.741	0.130	LGT
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHT-15-ETW1-2	2	2	4.606	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHT-12-ETW1-3	2	2	4.710	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHT-11-ETW1-4	2	2	5.034	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHT-13-ETW1-1	3	1	4.258	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHT-15-ETW1-2	3	1	4.964	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHT-14-ETW1-3	3	1	4.940	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHT-11-ETW1-4	3	1	4.914	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHT-13-ETW1-1	3	2	4.227	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHT-14-ETW1-2	3	2	4.897	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHT-12-ETW1-3	3	2	4.848	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHT-11-ETW1-4	3	2	4.611	0.130	LGM

*Failure occurred away from hole

Average	4.595	0.130
Standard Dev.	0.306	
Coeff. of Var. [%]	6.658	
Min.	3.924	0.128
Max.	5.034	0.131
Number of Spec.	24	24

Z Orientation Filled-Hole Tension Properties (ZFHT)--ETW1
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



4.21 Z45 Filled-Hole Tension Properties (Z45FHT)

**Z(45) Orientation Filled-Hole Tension Properties (Z45FHT)--CTD
Strength**

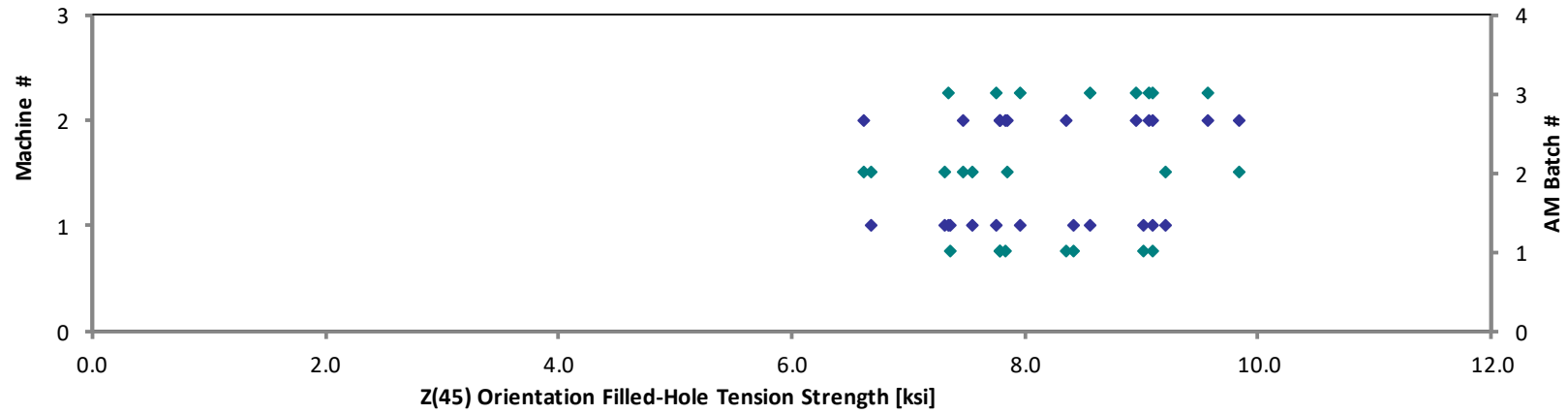
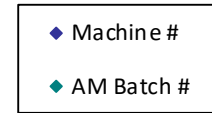
Stratays Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHT-13-CTD-1*	1	1	7.363	0.131	LAT
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHT-15-CTD-2	1	1	9.026	0.131	LGT, LGM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHT-14-CTD-3 (R)	1	1	9.105	0.130	M(L,A)GM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHT-11-CTD-4	1	1	8.430	0.132	LGM, M(L,A) GT
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHT-13-CTD-1	1	2	7.786	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHT-15-CTD-2	1	2	7.800	0.131	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHT-12-CTD-3	1	2	7.846	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHT-11-CTD-4	1	2	8.368	0.131	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHT-13-CTD-1	2	1	7.556	0.129	AGM, LGT
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHT-15-CTD-2	2	1	7.325	0.131	AGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHT-14-CTD-3	2	1	6.681	0.131	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHT-11-CTD-4	2	1	9.209	0.131	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHT-13-CTD-1	2	2	9.849	0.131	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHT-15-CTD-2	2	2	7.474	0.130	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHT-12-CTD-3	2	2	7.861	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHT-11-CTD-4	2	2	6.619	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHT-13-CTD-1	3	1	8.570	0.131	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHT-15-CTD-2	3	1	7.965	0.131	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHT-14-CTD-3	3	1	7.344	0.131	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHT-11-CTD-4	3	1	7.765	0.132	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHT-13-CTD-1	3	2	9.108	0.129	LGM, LAT
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHT-15-CTD-2	3	2	9.575	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHT-12-CTD-3	3	2	9.066	0.129	M(A,L)GM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHT-11-CTD-4	3	2	8.964	0.130	M(A,L)GM

*Failure occurred away from hole, near grip region

Average	8.194	0.130
Standard Dev.	0.891	
Coeff. of Var. [%]	10.877	
Min.	6.619	0.129
Max.	9.849	0.132
Number of Spec.	24	24

Z(45) Orientation Filled-Hole Tension Properties (Z45FHT)--CTD
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



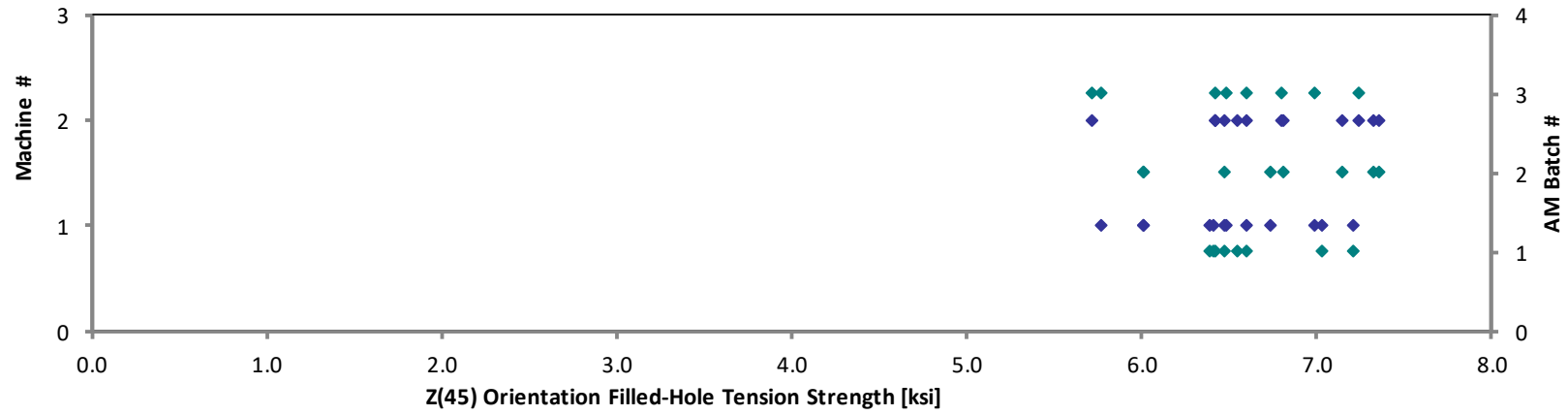
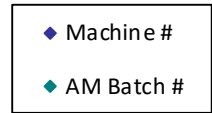
**Z(45) Orientation Filled-Hole Tension Properties (Z45FHT)--RTD
Strength**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHT-13-RTD-1	1	1	7.215	0.131	LGM, LGF
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHT-15-RTD-2	1	1	7.038	0.131	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHT-14-RTD-3	1	1	6.420	0.130	LGT, SGM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHT-11-RTD-4	1	1	6.400	0.131	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHT-13-RTD-1	1	2	6.556	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHT-15-RTD-2	1	2	6.601	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHT-12-RTD-3	1	2	6.477	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHT-11-RTD-4	1	2	6.430	0.128	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHT-13-RTD-1	2	1	6.011	0.130	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHT-15-RTD-2	2	1	6.738	0.131	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHT-14-RTD-3	2	1	6.480	0.130	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHT-11-RTD-4	2	1	6.014	0.132	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHT-13-RTD-1	2	2	7.334	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHT-15-RTD-2	2	2	7.150	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHT-12-RTD-3	2	2	6.821	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHT-11-RTD-4	2	2	7.360	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHT-13-RTD-1	3	1	6.995	0.129	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHT-15-RTD-2	3	1	6.490	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHT-14-RTD-3	3	1	6.610	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHT-11-RTD-4	3	1	5.771	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHT-13-RTD-1	3	2	7.243	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHT-15-RTD-2	3	2	5.719	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHT-12-RTD-3	3	2	6.806	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHT-11-RTD-4	3	2	6.422	0.131	LGM

Average	6.629	0.130
Standard Dev.	0.465	
Coeff. of Var. [%]	7.018	
Min.	5.719	0.128
Max.	7.360	0.132
Number of Spec.	24	24

Z(45) Orientation Filled-Hole Tension Properties (Z45FHT)--RTD
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



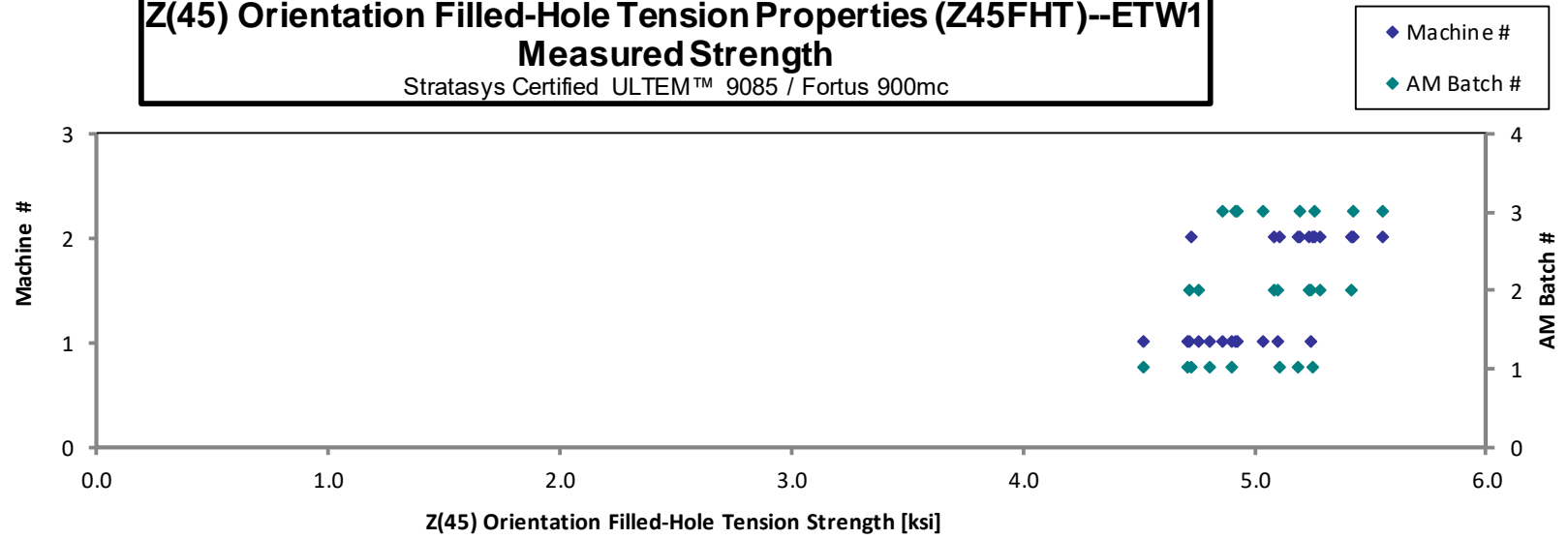
<p>Z(45) Orientation Filled-Hole Tension Properties (Z45FHT)--ETW1</p> <p>Strength</p> <p>Stratasys Certified ULTEM™ 9085 / Fortus 900mc</p>
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Specimen Number	AM Batch #	Machine #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHT-13-ETW1-1	1	1	4.521	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHT-15-ETW1-2	1	1	4.806	0.131	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHT-14-ETW1-3	1	1	4.900	0.130	LGM
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHT-11-ETW1-4	1	1	4.716	0.132	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHT-13-ETW1-1	1	2	4.726	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHT-15-ETW1-2	1	2	5.253	0.129	LGM
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHT-12-ETW1-3	1	2	5.114	0.129	LGO
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHT-11-ETW1-4	1	2	5.190	0.130	LGB
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHT-13-ETW1-1	2	1	5.103	0.130	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHT-15-ETW1-2	2	1	4.760	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHT-14-ETW1-3	2	1	5.243	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHT-11-ETW1-4	2	1	4.723	0.133	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHT-13-ETW1-1	2	2	5.085	0.132	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHT-15-ETW1-2	2	2	5.241	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHT-12-ETW1-3	2	2	5.423	0.131	LGM
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHT-11-ETW1-4	2	2	5.283	0.130	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHT-13-ETW1-1*	3	1	5.042	0.131	LWB
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHT-15-ETW1-2	3	1	4.919	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHT-14-ETW1-3	3	1	4.868	0.132	LGM
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHT-11-ETW1-4	3	1	4.930	0.132	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHT-13-ETW1-1	3	2	5.263	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHT-14-ETW1-2	3	2	5.425	0.132	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHT-12-ETW1-3	3	2	5.555	0.131	LGM
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHT-11-ETW1-4	3	2	5.201	0.132	LGM

*Failure occurred away from hole

Average	5.054	0.131
Standard Dev.	0.267	
Coeff. of Var. [%]	5.275	
Min.	4.521	0.129
Max.	5.555	0.133
Number of Spec.	24	24

Z(45) Orientation Filled-Hole Tension Properties (Z45FHT)--ETW1
Measured Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



4.22 X Open-Hole Compression Properties (XOHC) – Reference Only

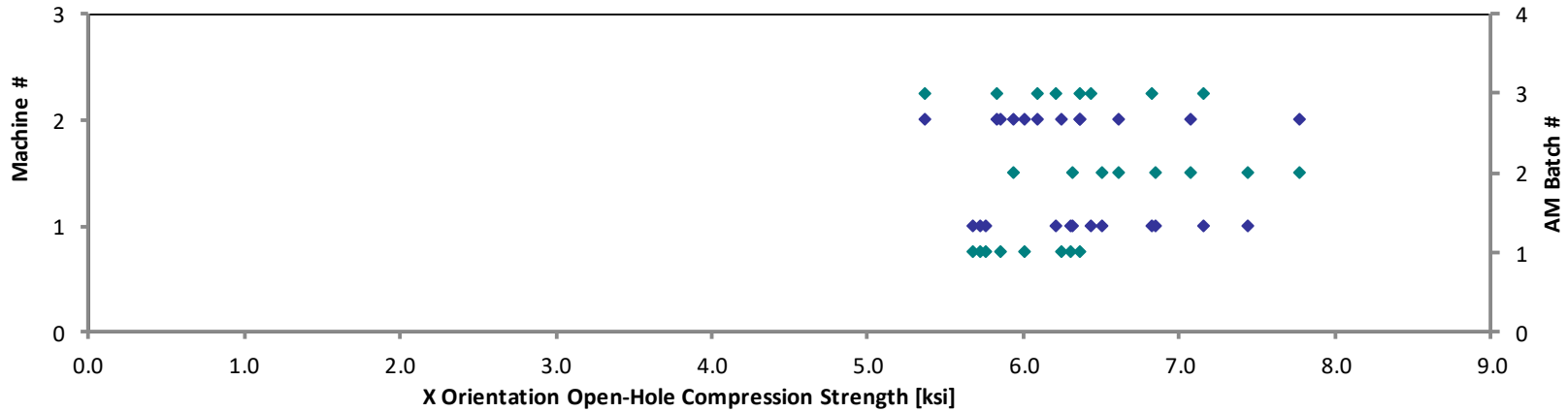
X Orientation Open-Hole Compression Properties (XOHC)--RTD Strength
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1% Offset Strength [ksi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-XOHC-13-RTD-1 (R)	1	1	6.306	8.627	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-XOHC-15-RTD-2 (R)	1	1	5.726	8.136	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-XOHC-12-RTD-3 (R)	1	1	5.677	8.191	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-XOHC-11-RTD-4 (R)	1	1	5.763	8.248	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-XOHC-11-RTD-1 (R)	1	2	6.249	8.818	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-XOHC-13-RTD-2 (R)	1	2	6.002	8.363	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-XOHC-15-RTD-3 (R)	1	2	6.362	8.833	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-XOHC-12-RTD-4 (R)	1	2	5.854	8.215	0.130
NTPAMP001-SY-UM9085-RPM-B-M1-XOHC-13-RTD-1 (R)	2	1	6.316	8.802	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-XOHC-15-RTD-2	2	1	6.507	9.044	0.126
NTPAMP001-SY-UM9085-RPM-B-M1-XOHC-12-RTD-3	2	1	6.850	9.433	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-XOHC-11-RTD-4	2	1	7.437	9.873	0.127
NTPAMP001-SY-UM9085-RPM-B-M2-XOHC-13-RTD-1	2	2	6.612	8.955	0.128
NTPAMP001-SY-UM9085-RPM-B-M2-XOHC-15-RTD-2	2	2	7.769	10.913	0.125
NTPAMP001-SY-UM9085-RPM-B-M2-XOHC-14-RTD-3	2	2	7.068	9.490	0.128
NTPAMP001-SY-UM9085-RPM-B-M2-XOHC-11-RTD-4	2	2	5.936	9.136	0.127
NTPAMP001-SY-UM9085-RPM-C-M1-XOHC-13-RTD-1	3	1	6.204	8.883	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-XOHC-15-RTD-2	3	1	6.433	9.308	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-XOHC-12-RTD-3	3	1	6.824	9.581	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-XOHC-11-RTD-4	3	1	7.153	9.846	0.128
NTPAMP001-SY-UM9085-RPM-C-M2-XOHC-13-RTD-1	3	2	5.833	8.564	0.128
NTPAMP001-SY-UM9085-RPM-C-M2-XOHC-15-RTD-2	3	2	6.362	8.847	0.127
NTPAMP001-SY-UM9085-RPM-C-M2-XOHC-14-RTD-3	3	2	6.090	8.588	0.128
NTPAMP001-SY-UM9085-RPM-C-M2-XOHC-11-RTD-4	3	2	5.366	8.600	0.128

Average	6.362	8.971	0.128
Standard Dev.	0.589	0.652	
Coeff. of Var. [%]	9.263	7.270	
Min.	5.366	8.136	0.125
Max.	7.769	10.913	0.130
Number of Spec.	24	24	24

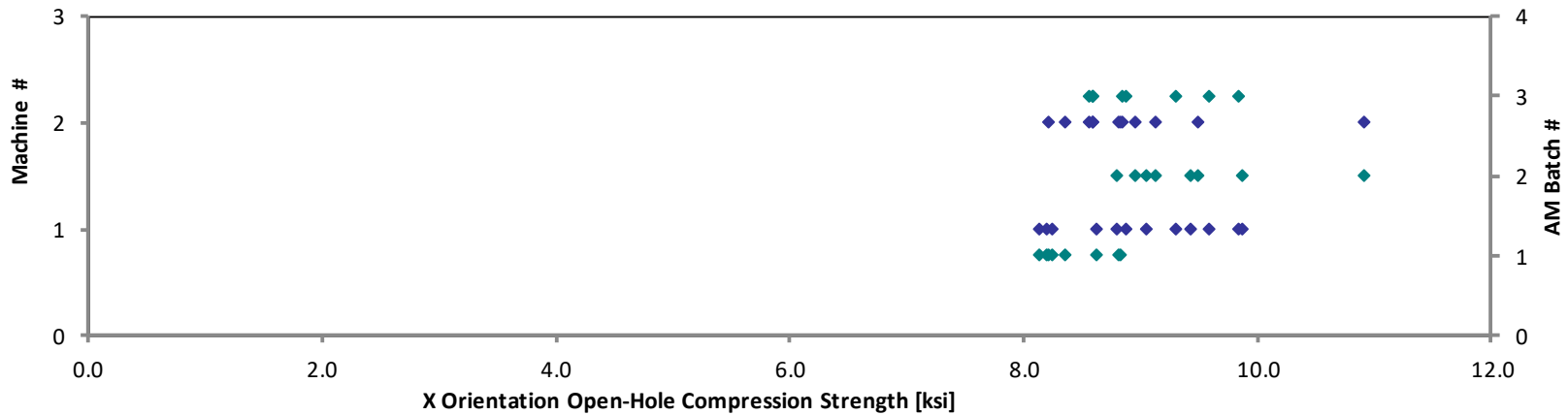
X Orientation Open-Hole Compression Properties (XOHC)--RTD
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



X Orientation Open-Hole Compression Properties (XOHC)--RTD
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



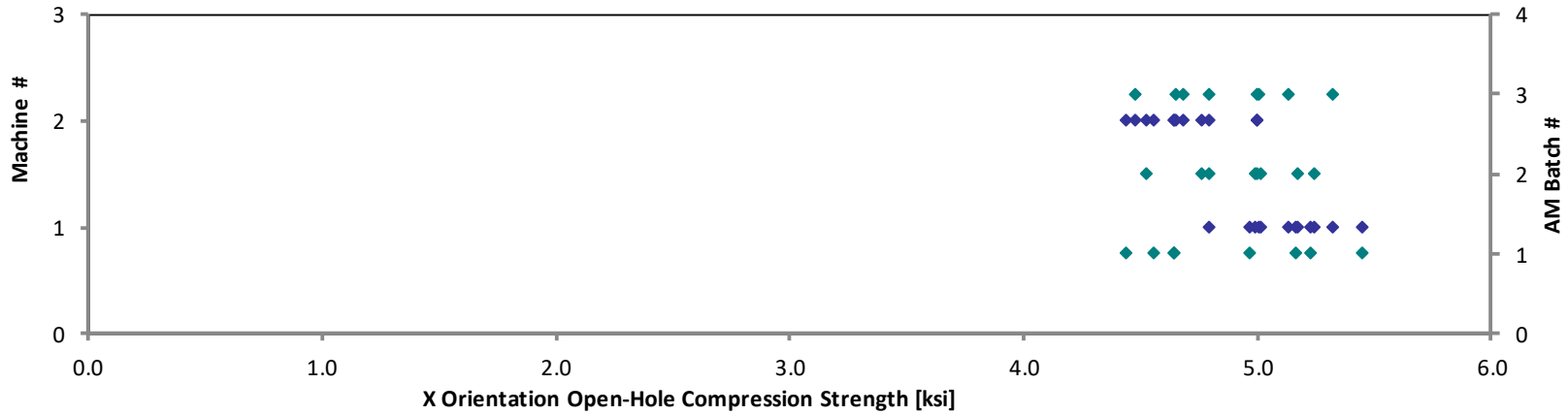
X Orientation Open-Hole Compression Properties (XOHC)--ETW1 Strength Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1% Offset Strength [ksi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-XOHC-13-ETW1-1	1	1	5.231	6.346	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-XOHC-15-ETW1-2	1	1	5.166	6.459	0.127
NTPAMP001-SY-UM9085-RPM-A-M1-XOHC-12-ETW1-3	1	1	4.969	6.350	0.127
NTPAMP001-SY-UM9085-RPM-A-M1-XOHC-11-ETW1-4	1	1	5.448	6.754	0.127
NTPAMP001-SY-UM9085-RPM-A-M2-XOHC-13-ETW1-1	1	2	4.435	5.800	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-XOHC-15-ETW1-2	1	2	4.554	6.014	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-XOHC-14-ETW1-3	1	2	4.643	5.990	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-XOHC-11-ETW1-4	1	2	4.643	6.094	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-XOHC-13-ETW1-1	2	1	5.170	6.381	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-XOHC-15-ETW1-2	2	1	4.993	6.249	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-XOHC-12-ETW1-3	2	1	5.241	6.724	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-XOHC-11-ETW1-4	2	1	5.015	6.453	0.127
NTPAMP001-SY-UM9085-RPM-B-M2-XOHC-13-ETW1-1	2	2	4.760	5.993	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-XOHC-15-ETW1-2	2	2	4.529	5.870	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-XOHC-14-ETW1-3	2	2	4.794	6.150	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-XOHC-11-ETW1-4	2	2	4.996	6.273	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-XOHC-13-ETW1-1	3	1	5.006	6.527	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-XOHC-15-ETW1-2	3	1	4.796	6.256	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-XOHC-12-ETW1-3	3	1	5.132	6.710	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-XOHC-11-ETW1-4	3	1	5.321	6.775	0.128
NTPAMP001-SY-UM9085-RPM-C-M2-XOHC-13-ETW1-1	3	2	4.653	5.994	0.128
NTPAMP001-SY-UM9085-RPM-C-M2-XOHC-15-ETW1-2	3	2	4.475	5.741	0.131
NTPAMP001-SY-UM9085-RPM-C-M2-XOHC-14-ETW1-3	3	2	5.002	6.495	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-XOHC-11-ETW1-4	3	2	4.684	6.037	0.129

Average	4.902	6.268	0.129
Standard Dev.	0.287	0.306	
Coeff. of Var. [%]	5.855	4.884	
Min.	4.435	5.741	0.127
Max.	5.448	6.775	0.131
Number of Spec.	24	24	24

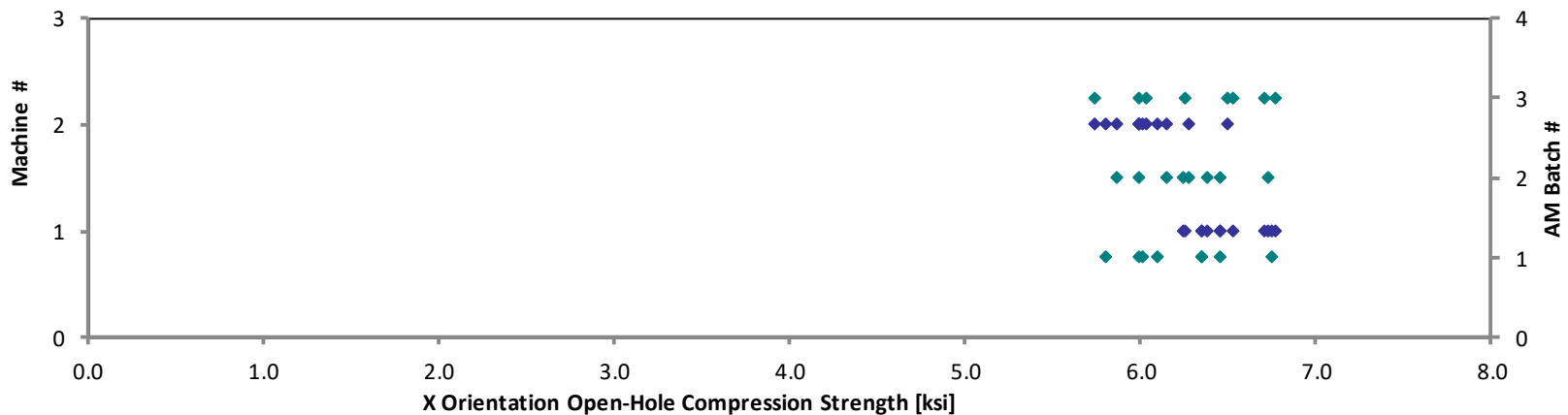
X Orientation Open-Hole Compression Properties (XOHC)--ETW1
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



X Orientation Open-Hole Compression Properties (XOHC)--ETW1
Measured 1.0 % Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



4.23 Y Open-Hole Compression Properties (YOHC) – Reference Only

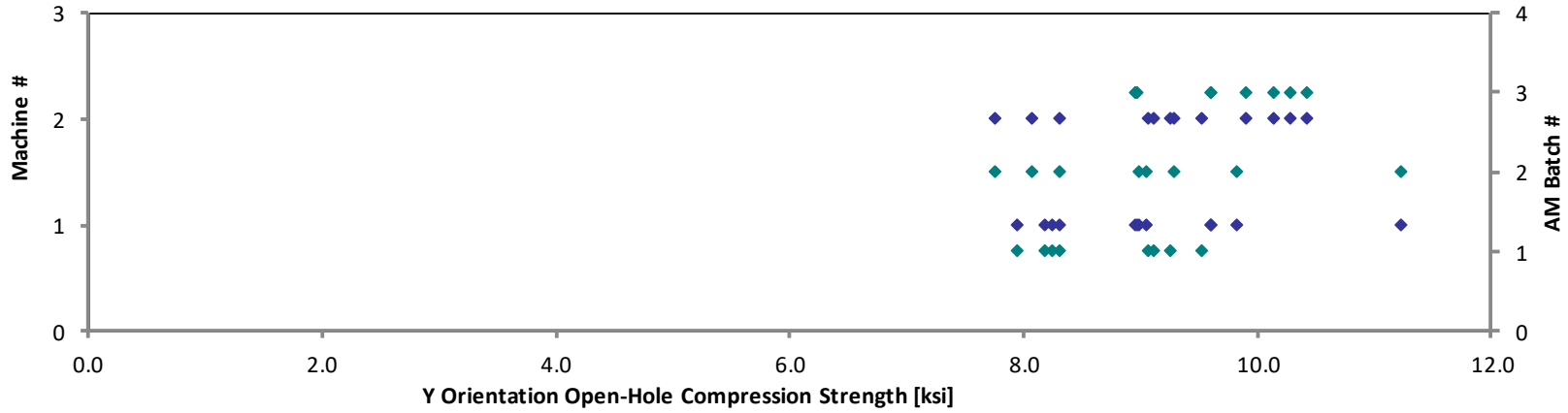
Y Orientation Open-Hole Compression Properties (YOHC)--RTD Strength Stratasys Certified ULTEM™ 9085 / Fortus 900mc
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Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1% Offset Strength [ksi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-YOHC-13-RTD-1 (R)	1	1	7.947	11.295	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-YOHC-15-RTD-2 (R)	1	1	8.175	11.295	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-YOHC-12-RTD-3 (R)	1	1	8.302	12.017	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-YOHC-11-RTD-4 (R)	1	1	8.253	11.537	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-YOHC-13-RTD-1 (R)	1	2	9.118	12.386	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-YOHC-15-RTD-2 (R)	1	2	9.064	12.452	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-YOHC-14-RTD-3 (R)	1	2	9.251	12.568	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-YOHC-11-RTD-4 (R)	1	2	9.525	12.586	0.131
NTPAMP001-SY-UM9085-RPM-B-M1-YOHC-13-RTD-1 (R)	2	1	9.047	12.611	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-YOHC-15-RTD-2 (R)	2	1	8.980	11.918	0.130
NTPAMP001-SY-UM9085-RPM-B-M1-YOHC-12-RTD-3	2	1	11.226	13.437	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-YOHC-11-RTD-4	2	1	9.821	12.805	0.128
NTPAMP001-SY-UM9085-RPM-B-M2-YOHC-13-RTD-1	2	2	9.292	12.244	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-YOHC-15-RTD-2	2	2	7.751	11.491	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-YOHC-14-RTD-3	2	2	8.070	11.788	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-YOHC-11-RTD-4	2	2	8.309	11.896	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-YOHC-13-RTD-1	3	1	9.607	12.695	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-YOHC-15-RTD-2	3	1	8.965	12.546	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-YOHC-12-RTD-3	3	1	9.605	13.197	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-YOHC-11-RTD-4	3	1	8.958	12.758	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YOHC-13-RTD-1	3	2	10.427	12.934	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YOHC-15-RTD-2	3	2	10.138	12.417	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-YOHC-14-RTD-3	3	2	10.280	12.652	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YOHC-11-RTD-4	3	2	9.900	12.603	0.129

Average	9.167	12.339	0.129
Standard Dev.	0.876	0.573	
Coeff. of Var. [%]	9.559	4.648	
Min.	7.751	11.295	0.128
Max.	11.226	13.437	0.131
Number of Spec.	24	24	24

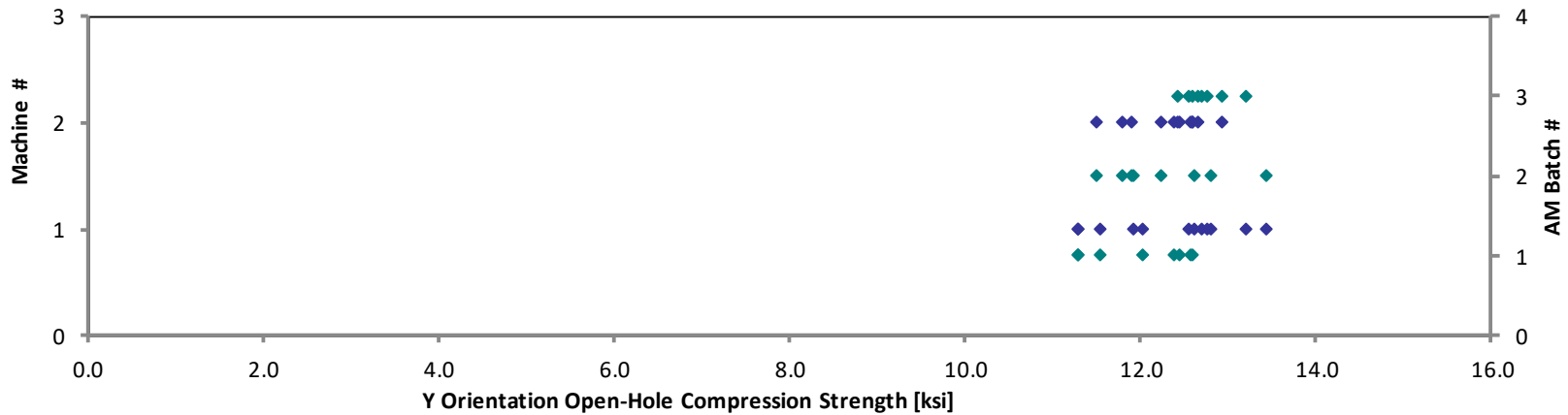
Y Orientation Open-Hole Compression Properties (YOHC)--RTD
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Y Orientation Open-Hole Compression Properties (YOHC)--RTD
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #

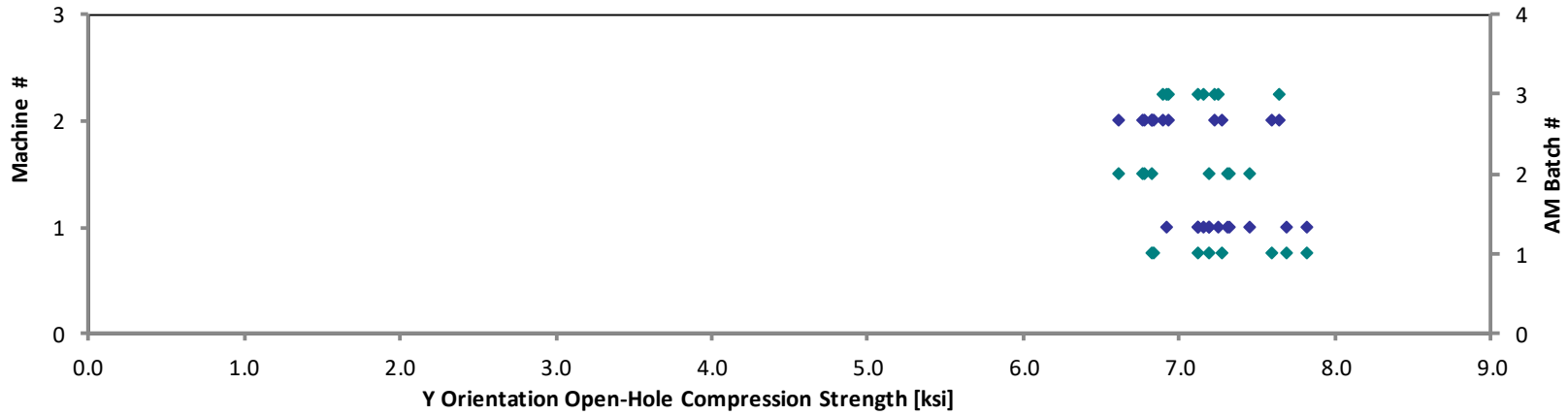


Y Orientation Open-Hole Compression Properties (YOHC)--ETW1 Strength Stratasys Certified ULTEM™ 9085 / Fortus 900mc

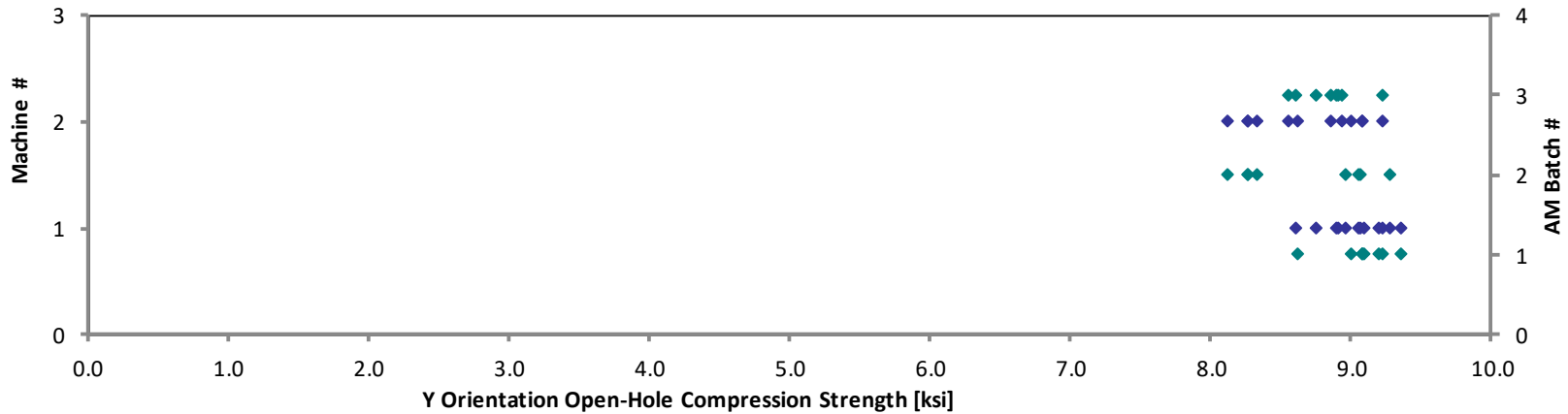
Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1% Offset Strength [ksi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-YOHC-13-ETW1-1	1	1	7.193	9.226	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-YOHC-15-ETW1-2	1	1	7.119	9.100	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-YOHC-12-ETW1-3	1	1	7.816	9.355	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-YOHC-11-ETW1-4	1	1	7.689	9.204	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-YOHC-13-ETW1-1	1	2	7.277	8.996	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-YOHC-15-ETW1-2	1	2	6.830	8.616	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-YOHC-14-ETW1-3	1	2	7.587	9.075	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-YOHC-11-ETW1-4	1	2	6.827	9.080	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-YOHC-13-ETW1-1	2	1	7.450	9.055	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-YOHC-15-ETW1-2	2	1	7.192	8.963	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-YOHC-12-ETW1-3	2	1	7.319	9.278	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-YOHC-11-ETW1-4	2	1	7.304	9.067	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YOHC-13-ETW1-1	2	2	6.768	8.270	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YOHC-15-ETW1-2	2	2	6.609	8.120	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-YOHC-14-ETW1-3	2	2	6.827	8.333	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YOHC-11-ETW1-4	2	2	6.771	8.265	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-YOHC-13-ETW1-1	3	1	7.160	8.753	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-YOHC-15-ETW1-2	3	1	6.917	8.611	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-YOHC-12-ETW1-3	3	1	7.252	8.912	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-YOHC-11-ETW1-4	3	1	7.122	8.891	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YOHC-13-ETW1-1	3	2	6.926	8.861	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YOHC-15-ETW1-2	3	2	6.891	8.560	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-YOHC-14-ETW1-3	3	2	7.221	8.937	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YOHC-11-ETW1-4	3	2	7.644	9.223	0.129

Average	7.155	8.865	0.129
Standard Dev.	0.324	0.351	
Coeff. of Var. [%]	4.527	3.954	
Min.	6.609	8.120	0.128
Max.	7.816	9.355	0.130
Number of Spec.	24	24	24

Y Orientation Open-Hole Compression Properties (YOHC)--ETW1
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Y Orientation Open-Hole Compression Properties (YOHC)--ETW1
Measured 1.0 % Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



4.24 Z Open-Hole Compression Properties (ZOHC) – Reference Only

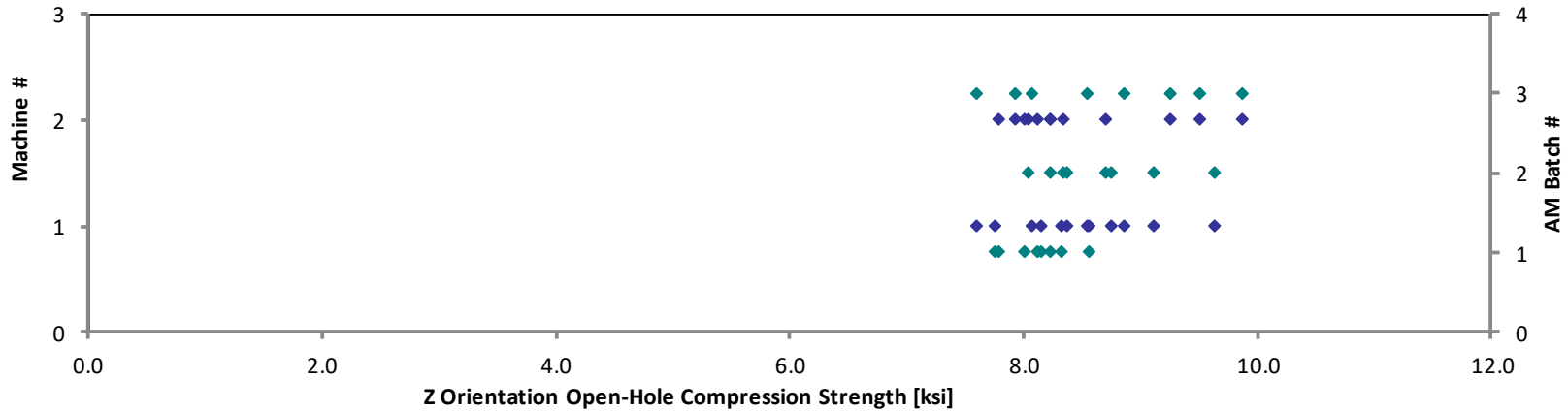
Z Orientation Open-Hole Compression Properties (ZOHC)--RTD Strength
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1% Offset Strength [ksi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHC-13-RTD-1 (R)	1	1	7.760	11.186	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHC-15-RTD-2 (R)	1	1	8.154	11.587	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHC-14-RTD-3 (R)	1	1	8.323	11.507	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHC-11-RTD-4 (R)	1	1	8.556	11.703	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHC-13-RTD-1 (R)	1	2	8.231	11.591	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHC-15-RTD-2 (R)	1	2	8.119	11.574	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHC-12-RTD-3 (R)	1	2	7.793	11.162	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHC-11-RTD-4 (R)	1	2	8.003	11.353	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHC-13-RTD-1	2	1	9.638	12.821	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHC-15-RTD-2	2	1	8.364	11.861	0.131
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHC-14-RTD-3	2	1	8.750	12.475	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHC-11-RTD-4	2	1	9.119	12.175	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHC-13-RTD-1	2	2	8.707	11.582	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHC-15-RTD-2	2	2	8.048	11.261	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHC-12-RTD-3	2	2	8.340	11.375	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHC-11-RTD-4	2	2	8.226	11.637	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHC-13-RTD-1	3	1	8.865	11.939	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHC-15-RTD-2	3	1	8.553	11.285	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHC-14-RTD-3	3	1	8.077	11.693	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHC-11-RTD-4	3	1	7.597	11.731	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHC-13-RTD-1	3	2	9.249	12.583	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHC-15-RTD-2	3	2	9.877	12.459	0.128
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHC-12-RTD-3	3	2	9.513	12.298	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHC-11-RTD-4	3	2	7.928	11.907	0.129

Average	8.491	11.781	0.129
Standard Dev.	0.615	0.466	
Coeff. of Var. [%]	7.248	3.960	
Min.	7.597	11.162	0.128
Max.	9.877	12.821	0.131
Number of Spec.	24	24	24

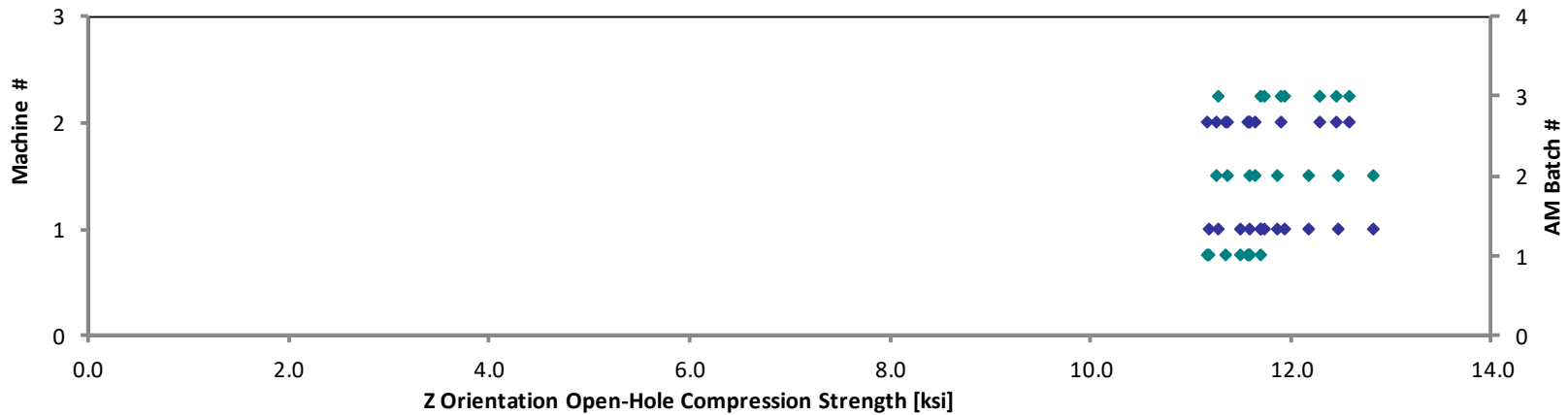
Z Orientation Open-Hole Compression Properties (ZOHC)--RTD
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Z Orientation Open-Hole Compression Properties (ZOHC)--RTD
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



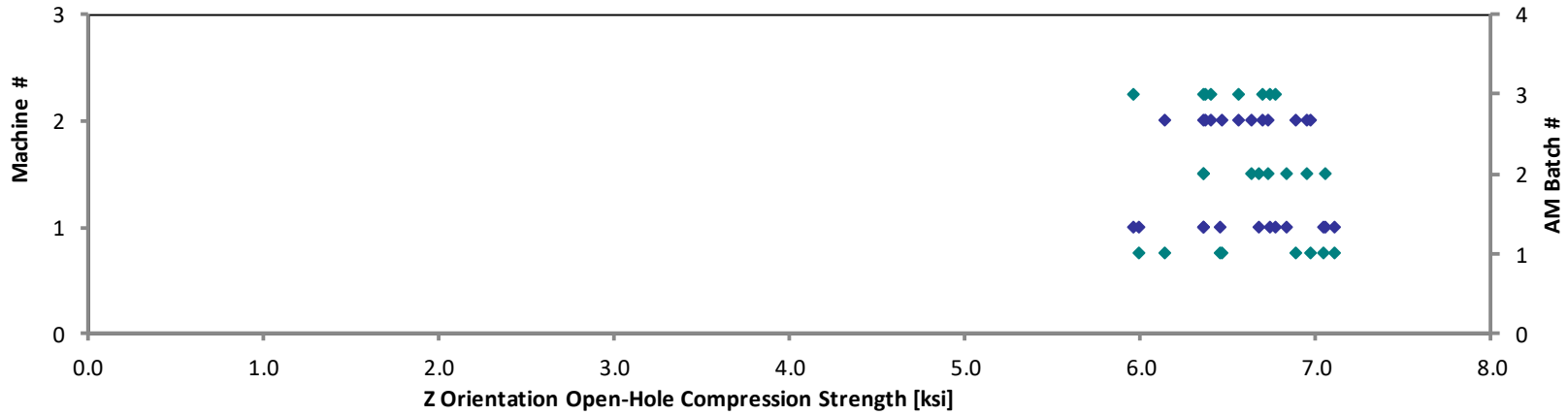
**Z Orientation Open-Hole Compression Properties (ZOHC)--ETW1
Strength**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

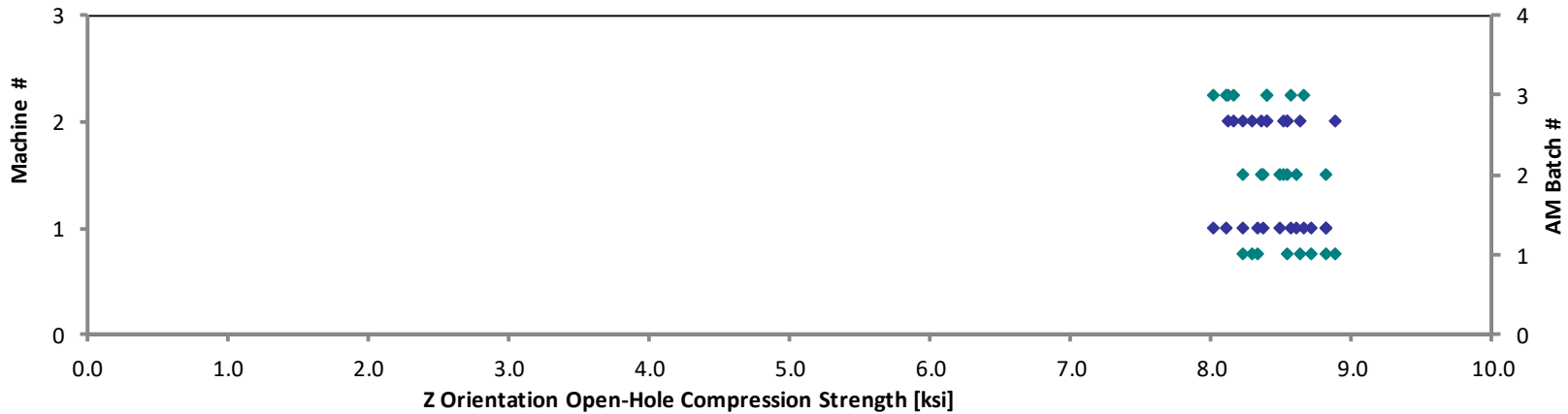
Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1% Offset Strength [ksi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHC-13-ETW1-1	1	1	6.454	8.334	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHC-15-ETW1-2	1	1	5.988	8.223	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHC-14-ETW1-3	1	1	7.040	8.707	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-ZOHC-11-ETW1-4	1	1	7.111	8.813	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHC-13-ETW1-1	1	2	6.888	8.886	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHC-15-ETW1-2	1	2	6.470	8.538	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHC-12-ETW1-3	1	2	6.136	8.294	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-ZOHC-11-ETW1-4	1	2	6.967	8.639	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHC-13-ETW1-1	2	1	6.837	8.823	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHC-15-ETW1-2	2	1	7.052	8.611	0.130
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHC-14-ETW1-3	2	1	6.672	8.486	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-ZOHC-11-ETW1-4	2	1	6.362	8.375	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHC-13-ETW1-1	2	2	6.634	8.548	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHC-15-ETW1-2	2	2	6.732	8.355	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHC-12-ETW1-3	2	2	6.363	8.226	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-ZOHC-11-ETW1-4	2	2	6.952	8.521	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHC-13-ETW1-1	3	1	6.735	8.570	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHC-15-ETW1-2	3	1	5.964	8.009	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHC-14-ETW1-3	3	1	6.771	8.656	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-ZOHC-11-ETW1-4	3	1	6.360	8.104	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHC-13-ETW1-1	3	2	6.402	8.157	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHC-15-ETW1-2	3	2	6.695	8.395	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHC-12-ETW1-3	3	2	6.373	8.127	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-ZOHC-11-ETW1-4	3	2	6.565	8.390	0.129

Average	6.605	8.449	0.129
Standard Dev.	0.325	0.241	
Coeff. of Var. [%]	4.922	2.851	
Min.	5.964	8.009	0.128
Max.	7.111	8.886	0.130
Number of Spec.	24	24	24

Z Orientation Open-Hole Compression Properties (ZOHC)--ETW1
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z Orientation Open-Hole Compression Properties (ZOHC)--ETW1
Measured 1.0 % Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



4.25 Z45 Open-Hole Compression Properties (Z45OHC) – Reference Only

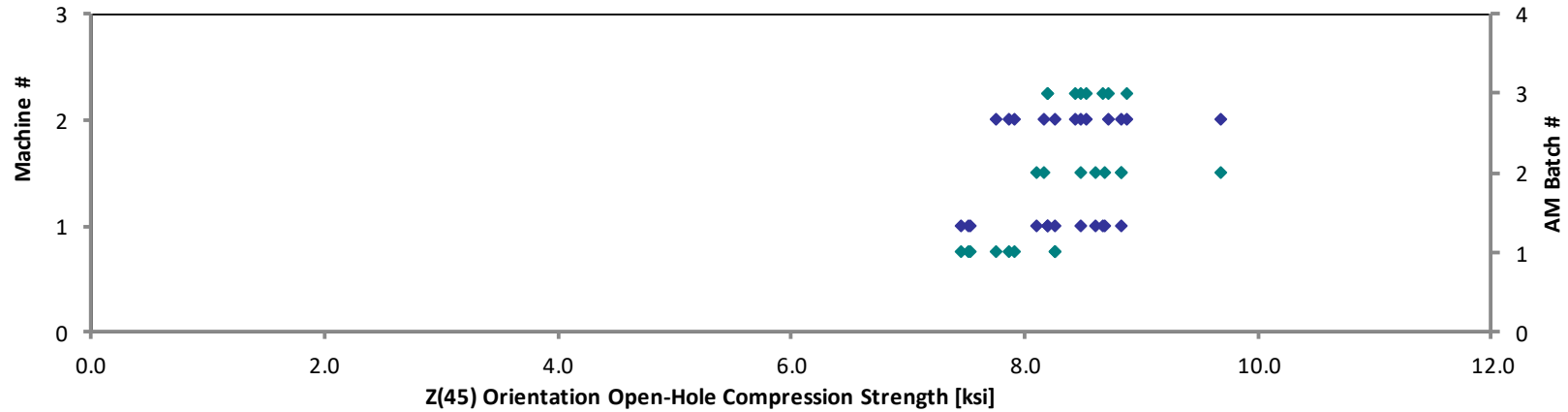
Z(45) Orientation Open-Hole Compression Properties (Z45OHC)--RTD Strength
 Stratays Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1% Offset Strength [ksi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHC-13-RTD-1 (R)	1	1	8.255	10.953	0.132
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHC-15-RTD-2 (R)	1	1	7.520	10.800	0.132
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHC-14-RTD-3 (R)	1	1	7.537	10.625	0.133
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHC-11-RTD-4 (R)	1	1	7.449	10.533	0.132
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHC-13-RTD-1 (R)	1	2	7.916	10.818	0.132
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHC-15-RTD-2 (R)	1	2	7.860	11.089	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHC-12-RTD-3 (R)	1	2	7.749	10.862	0.131
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHC-11-RTD-4 (R)	1	2	8.253	11.423	0.131
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHC-13-RTD-1	2	1	8.607	11.435	0.131
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHC-15-RTD-2	2	1	8.693	11.375	0.131
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHC-14-RTD-3	2	1	8.101	11.291	0.131
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHC-11-RTD-4	2	1	8.827	11.464	0.132
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHC-13-RTD-1	2	2	9.682	11.511	0.132
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHC-15-RTD-2	2	2	8.489	11.363	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHC-12-RTD-3	2	2	8.171	11.250	0.131
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHC-11-RTD-4	2	2	8.825	11.358	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHC-13-RTD-1	3	1	8.480	11.288	0.133
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHC-15-RTD-2	3	1	8.676	11.413	0.133
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHC-14-RTD-3	3	1	8.203	11.225	0.132
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHC-11-RTD-4	3	1	8.205	11.257	0.132
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHC-13-RTD-1	3	2	8.438	11.560	0.131
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHC-15-RTD-2	3	2	8.871	11.827	0.131
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHC-12-RTD-3	3	2	8.727	11.549	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHC-11-RTD-4	3	2	8.523	11.597	0.131

Average	8.336	11.244	0.131
Standard Dev.	0.515	0.326	
Coeff. of Var. [%]	6.182	2.898	
Min.	7.449	10.533	0.130
Max.	9.682	11.827	0.133
Number of Spec.	24	24	24

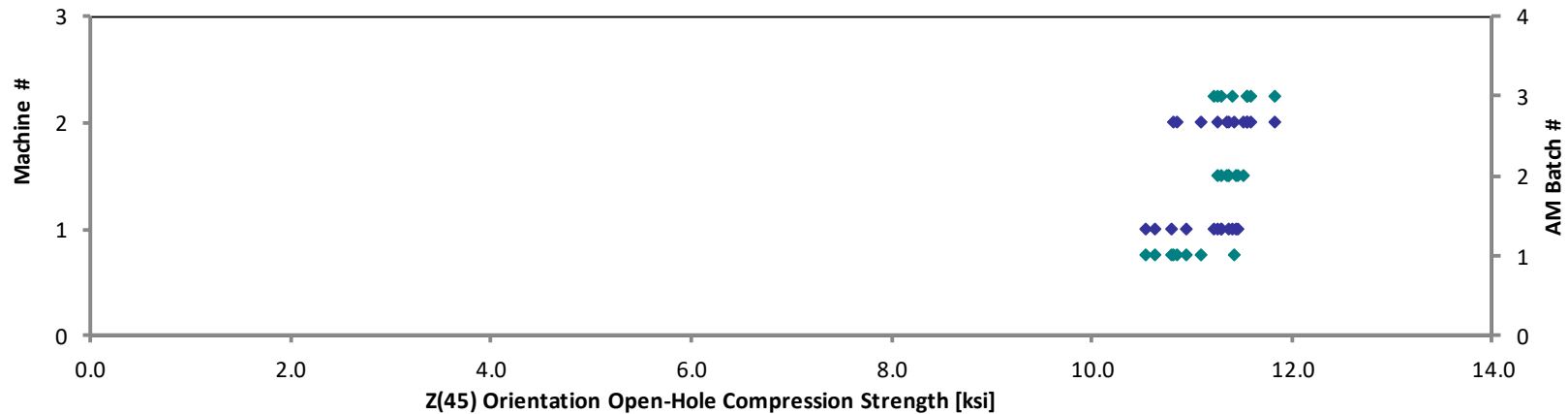
Z(45) Orientation Open-Hole Compression Properties (Z45OHC)--RTD
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Z(45) Orientation Open-Hole Compression Properties (Z45OHC)--RTD
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



**Z(45) Orientation Open-Hole Compression Properties (Z45OHC)--ETW1
Strength**

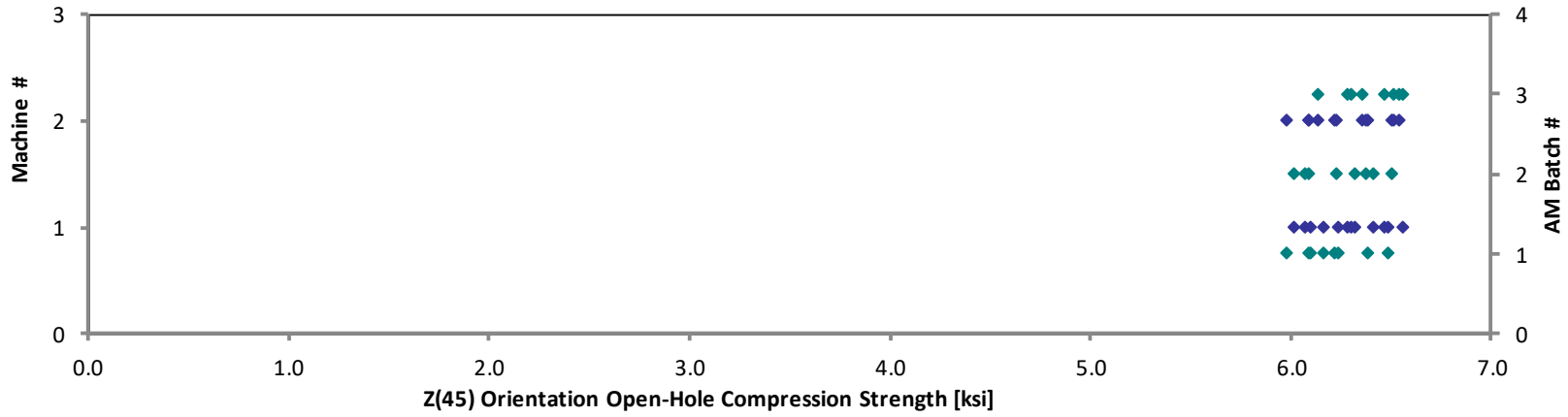
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1% Offset Strength [ksi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHC-13-ETW1-1	1	1	6.166	7.560	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHC-15-ETW1-2	1	1	6.100	7.599	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHC-14-ETW1-3	1	1	6.241	7.878	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHC-11-ETW1-4	1	1	6.484	7.977	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHC-13-ETW1-1	1	2	6.221	7.566	0.132
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHC-15-ETW1-2	1	2	6.088	7.771	0.131
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHC-12-ETW1-3	1	2	5.979	7.482	0.132
NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHC-11-ETW1-4	1	2	6.380	8.011	0.131
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHC-13-ETW1-1	2	1	6.315	7.828	0.131
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHC-15-ETW1-2	2	1	6.017	7.766	0.133
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHC-14-ETW1-3	2	1	6.071	7.785	0.131
NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHC-11-ETW1-4	2	1	6.413	7.993	0.132
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHC-13-ETW1-1	2	2	6.374	7.597	0.132
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHC-14-ETW1-2	2	2	6.226	7.703	0.132
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHC-12-ETW1-3	2	2	6.089	7.459	0.131
NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHC-11-ETW1-4	2	2	6.504	7.925	0.131
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHC-13-ETW1-1	3	1	6.282	7.919	0.131
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHC-15-ETW1-2	3	1	6.556	8.019	0.132
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHC-14-ETW1-3	3	1	6.303	8.016	0.132
NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHC-11-ETW1-4	3	1	6.465	8.259	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHC-13-ETW1-1	3	2	6.357	7.884	0.131
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHC-15-ETW1-2	3	2	6.539	7.969	0.131
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHC-12-ETW1-3	3	2	6.511	8.128	0.131
NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHC-11-ETW1-4	3	2	6.136	7.548	0.131

Average	6.284	7.818	0.131
Standard Dev.	0.177	0.216	
Coeff. of Var. [%]	2.809	2.766	
Min.	5.979	7.459	0.130
Max.	6.556	8.259	0.133
Number of Spec.	24	24	24

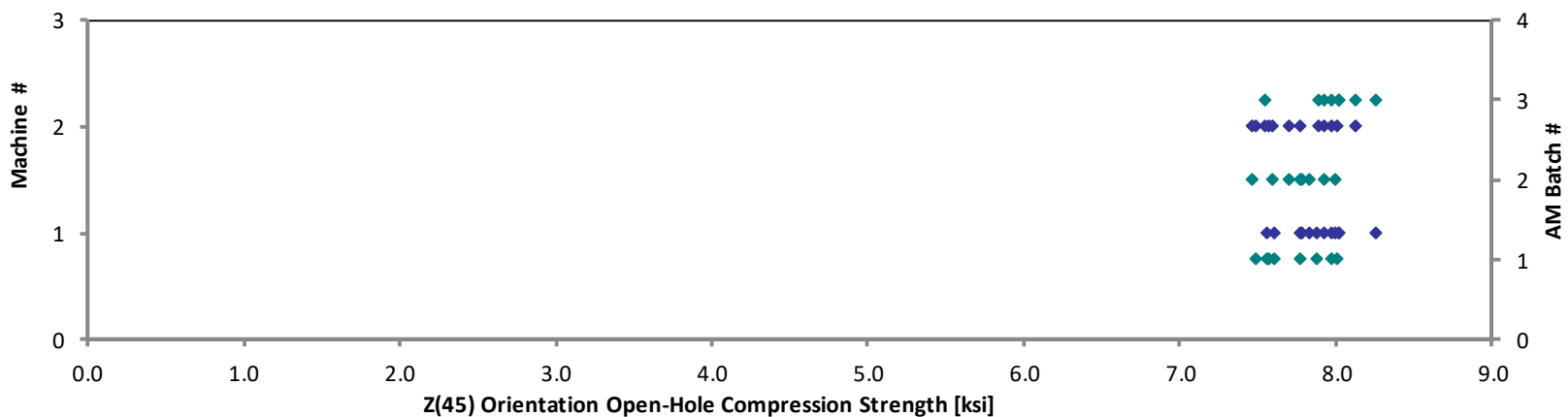
Z(45) Orientation Open-Hole Compression Properties (Z45OHC)--ETW1
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Z(45) Orientation Open-Hole Compression Properties (Z45OHC)--ETW1
Measured 1.0 % Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



4.26 X Filled-Hole Compression Properties (XFHC) – Reference Only

X Orientation Filled-Hole Compression Properties (XFHC)--RTD Strength
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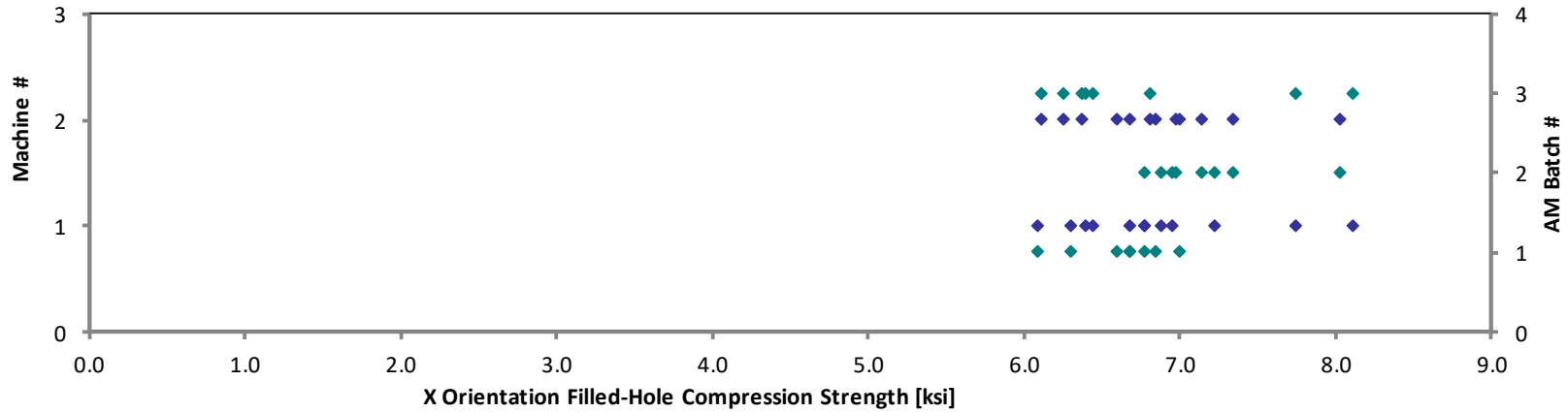
Stratasys Certified ULTEM™ 9085 / Fortus 900mc
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Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-XFHC-11-RTD-1 (R)	1	1	6.784	9.303	0.127
NTPAMP001-SY-UM9085-RPM-A-M1-XFHC-14-RTD-2 (R)	1	1	6.688	9.124	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-XFHC-13-RTD-3 (R)	1	1	6.088	8.483	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-XFHC-15-RTD-4 (R)	1	1	6.302	8.991	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-XFHC-11-RTD-1 (R)	1	2	7.008	9.522	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-XFHC-13-RTD-2 (R)	1	2	6.688	9.148	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-XFHC-14-RTD-3 (R)	1	2	6.857	9.660	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-XFHC-15-RTD-4 (R)	1	2	6.600	9.088	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-XFHC-13-RTD-1	2	1	6.957	9.638	0.127
NTPAMP001-SY-UM9085-RPM-B-M1-XFHC-15-RTD-2	2	1	7.226	10.250	0.126
NTPAMP001-SY-UM9085-RPM-B-M1-XFHC-14-RTD-3	2	1	6.785	9.562	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-XFHC-11-RTD-4	2	1	6.891	9.681	0.127
NTPAMP001-SY-UM9085-RPM-B-M2-XFHC-13-RTD-1	2	2	7.142	10.093	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-XFHC-15-RTD-2	2	2	8.033	10.764	0.128
NTPAMP001-SY-UM9085-RPM-B-M2-XFHC-12-RTD-3	2	2	6.979	9.844	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-XFHC-11-RTD-4	2	2	7.351	10.748	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-XFHC-13-RTD-1	3	1	6.396	8.994	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-XFHC-15-RTD-2	3	1	8.115	10.872	0.126
NTPAMP001-SY-UM9085-RPM-C-M1-XFHC-14-RTD-3	3	1	7.752	10.841	0.126
NTPAMP001-SY-UM9085-RPM-C-M1-XFHC-11-RTD-4	3	1	6.446	9.357	0.127
NTPAMP001-SY-UM9085-RPM-C-M2-XFHC-13-RTD-1	3	2	6.263	9.367	0.128
NTPAMP001-SY-UM9085-RPM-C-M2-XFHC-15-RTD-2	3	2	6.379	9.272	0.126
NTPAMP001-SY-UM9085-RPM-C-M2-XFHC-12-RTD-3	3	2	6.815	9.900	0.127
NTPAMP001-SY-UM9085-RPM-C-M2-XFHC-11-RTD-4	3	2	6.122	9.025	0.127

Average	6.861	9.647	0.128
Standard Dev.	0.544	0.657	
Coeff. of Var. [%]	7.931	6.812	
Min.	6.088	8.483	0.126
Max.	8.115	10.872	0.130
Number of Spec.	24	24	24

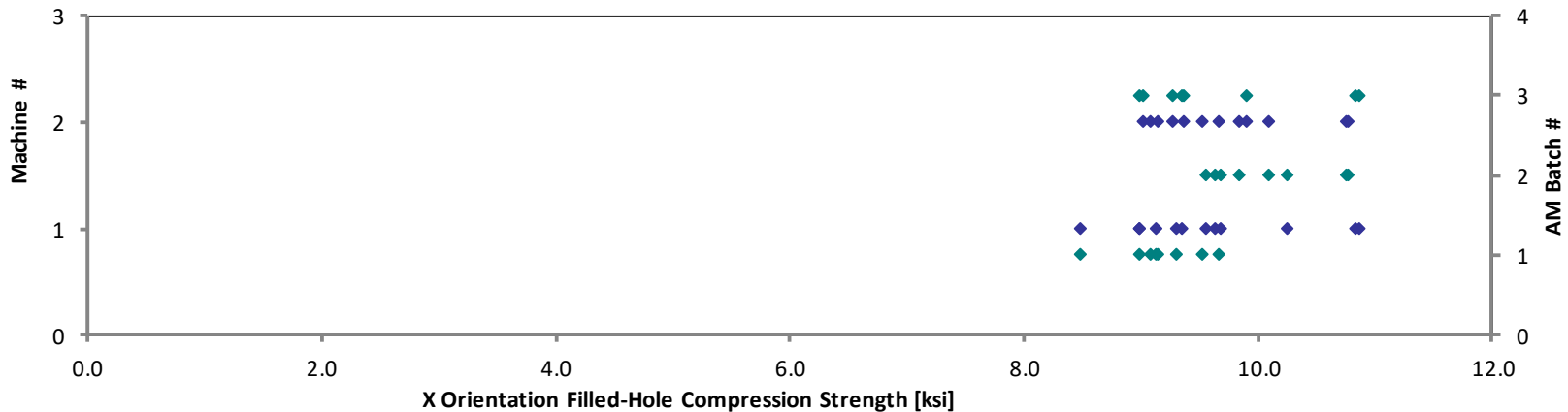
X Orientation Filled-Hole Compression Properties (XFHC)--RTD
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



X Orientation Filled-Hole Compression Properties (XFHC)--RTD
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



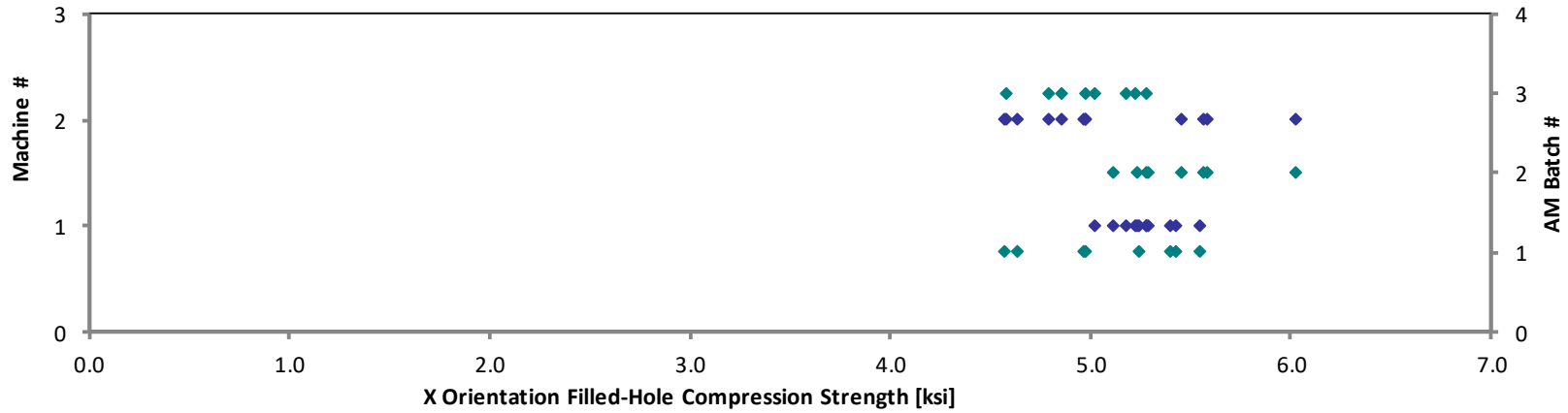
X Orientation Filled-Hole Compression Properties (XFHC)--ETW1 Strength Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-XFHC-13-ETW1-1	1	1	5.250	6.958	0.127
NTPAMP001-SY-UM9085-RPM-A-M1-XFHC-15-ETW1-2	1	1	5.553	7.123	0.127
NTPAMP001-SY-UM9085-RPM-A-M1-XFHC-14-ETW1-3	1	1	5.431	6.804	0.127
NTPAMP001-SY-UM9085-RPM-A-M1-XFHC-11-ETW1-4	1	1	5.401	7.021	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-XFHC-13-ETW1-1	1	2	4.980	6.326	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-XFHC-15-ETW1-2	1	2	4.569	6.414	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-XFHC-12-ETW1-3	1	2	4.969	6.443	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-XFHC-11-ETW1-4	1	2	4.634	6.607	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-XFHC-13-ETW1-1	2	1	5.289	6.968	0.127
NTPAMP001-SY-UM9085-RPM-B-M1-XFHC-15-ETW1-2	2	1	5.119	7.148	0.126
NTPAMP001-SY-UM9085-RPM-B-M1-XFHC-14-ETW1-3	2	1	5.240	6.915	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-XFHC-11-ETW1-4	2	1	5.283	6.904	0.128
NTPAMP001-SY-UM9085-RPM-B-M2-XFHC-13-ETW1-1	2	2	5.565	7.486	0.128
NTPAMP001-SY-UM9085-RPM-B-M2-XFHC-15-ETW1-2	2	2	5.590	7.163	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-XFHC-12-ETW1-3	2	2	5.453	6.918	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-XFHC-11-ETW1-4	2	2	6.027	7.674	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-XFHC-13-ETW1-1	3	1	5.226	6.788	0.127
NTPAMP001-SY-UM9085-RPM-C-M1-XFHC-15-ETW1-2	3	1	5.285	6.793	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-XFHC-14-ETW1-3	3	1	5.023	6.744	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-XFHC-11-ETW1-4	3	1	5.178	6.914	0.128
NTPAMP001-SY-UM9085-RPM-C-M2-XFHC-13-ETW1-1	3	2	4.857	6.410	0.128
NTPAMP001-SY-UM9085-RPM-C-M2-XFHC-15-ETW1-2	3	2	4.583	6.193	0.128
NTPAMP001-SY-UM9085-RPM-C-M2-XFHC-12-ETW1-3	3	2	4.793	6.231	0.128
NTPAMP001-SY-UM9085-RPM-C-M2-XFHC-11-ETW1-4	3	2	4.975	6.627	0.127

Average	5.178	6.815	0.128
Standard Dev.	0.351	0.371	
Coeff. of Var. [%]	6.786	5.436	
Min.	4.569	6.193	0.126
Max.	6.027	7.674	0.130
Number of Spec.	24	24	24

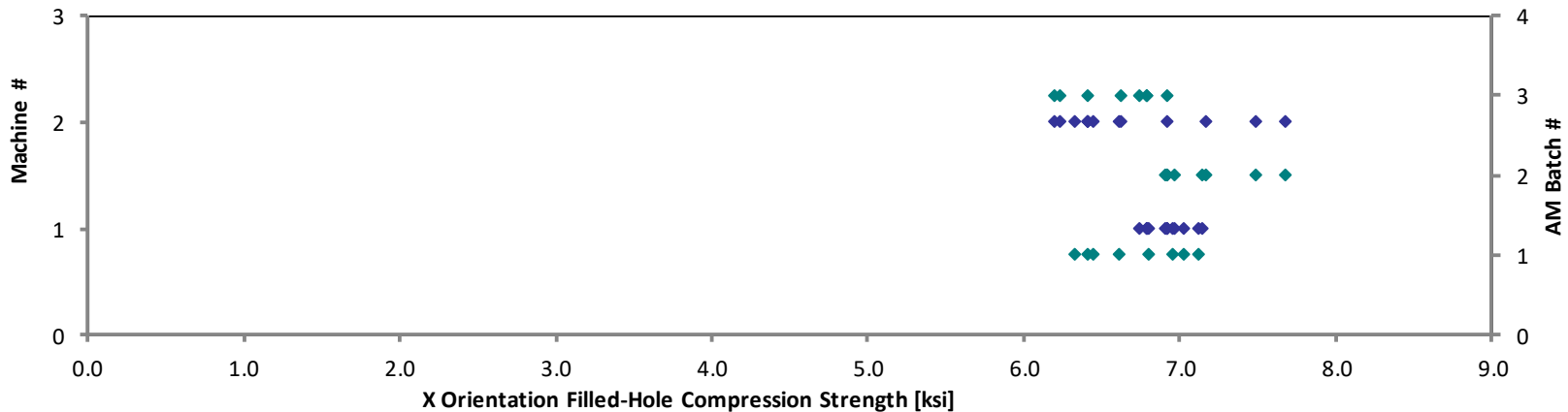
X Orientation Filled-Hole Compression Properties (XFHC)--ETW1
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



X Orientation Filled-Hole Compression Properties (XFHC)--ETW1
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



4.27 Y Filled-Hole Compression Properties (YFHC) – Reference Only

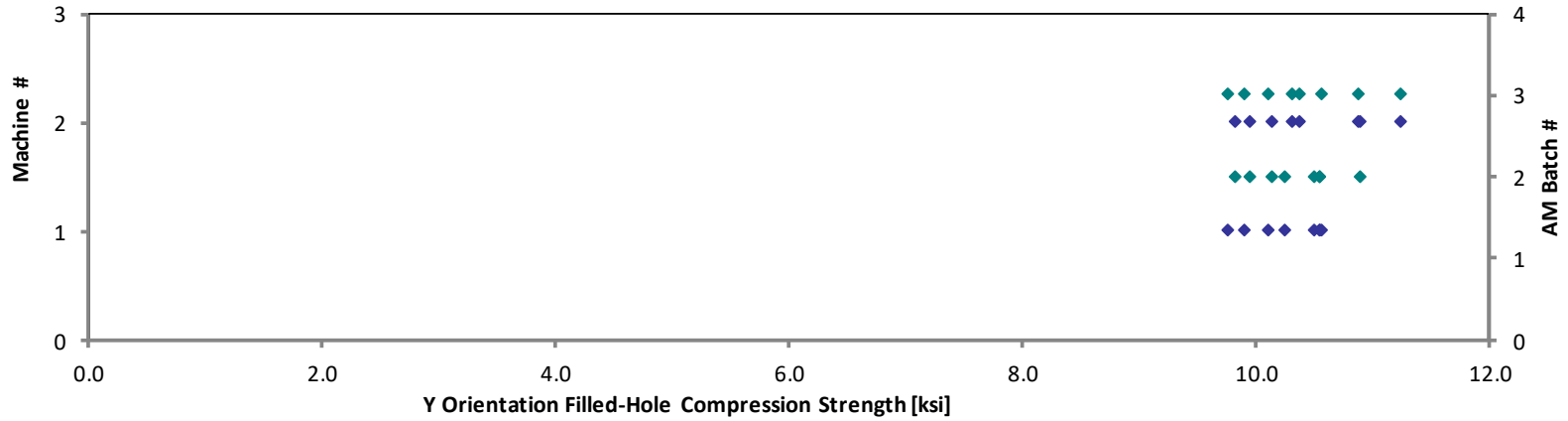
Y Orientation Filled-Hole Compression Properties (YFHC)--RTD Strength
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-YFHC-11-RTD-1 (R)	1	1	9.752	13.872	0.127
NTPAMP001-SY-UM9085-RPM-A-M1-YFHC-14-RTD-2 (R)	1	1	9.751	14.013	0.127
NTPAMP001-SY-UM9085-RPM-A-M1-YFHC-13-RTD-3 (R)	1	1	10.213	14.133	0.127
NTPAMP001-SY-UM9085-RPM-A-M1-YFHC-15-RTD-4 (R)	1	1	9.340	13.194	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-YFHC-11-RTD-1 (R)	1	2	10.396	14.197	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-YFHC-12-RTD-2 (R)	1	2	10.362	14.048	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-YFHC-11-RTD-3 (R)	1	2	10.514	14.239	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-YFHC-15-RTD-4 (R)	1	2	10.655	14.379	0.127
NTPAMP001-SY-UM9085-RPM-B-M1-YFHC-13-RTD-1	2	1	10.504	14.650	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-YFHC-15-RTD-2	2	1	10.550	14.434	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-YFHC-14-RTD-3	2	1	10.242	14.617	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-YFHC-11-RTD-4	2	1	10.538	14.269	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YFHC-13-RTD-1	2	2	10.890	14.267	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YFHC-15-RTD-2	2	2	9.818	14.182	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YFHC-12-RTD-3	2	2	10.134	14.253	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YFHC-11-RTD-4	2	2	9.939	13.905	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-YFHC-13-RTD-1	3	1	10.099	14.061	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-YFHC-15-RTD-2	3	1	9.898	13.938	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-YFHC-14-RTD-3	3	1	10.565	14.036	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-YFHC-11-RTD-4	3	1	9.750	13.753	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YFHC-13-RTD-1	3	2	10.312	14.370	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YFHC-15-RTD-2	3	2	10.870	14.949	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YFHC-12-RTD-3	3	2	11.235	15.124	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YFHC-11-RTD-4	3	2	10.364	14.603	0.128

Average	10.279	14.229	0.128
Standard Dev.	0.437	0.398	
Coeff. of Var. [%]	4.248	2.799	
Min.	9.340	13.194	0.127
Max.	11.235	15.124	0.129
Number of Spec.	24	24	24

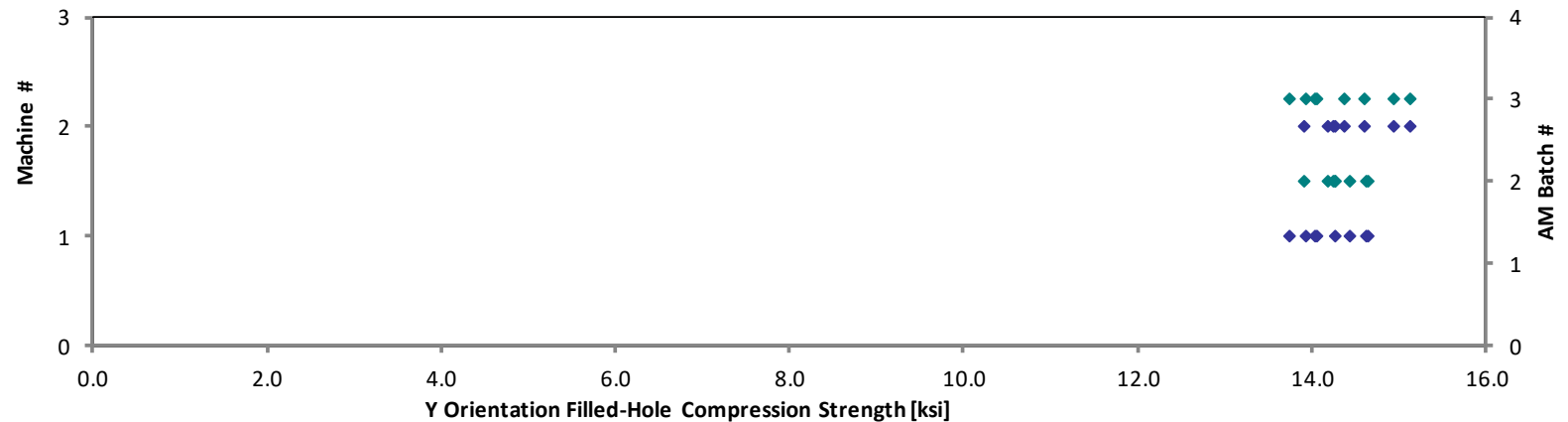
Y Orientation Filled-Hole Compression Properties (YFHC)--RTD
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Y Orientation Filled-Hole Compression Properties (YFHC)--RTD
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



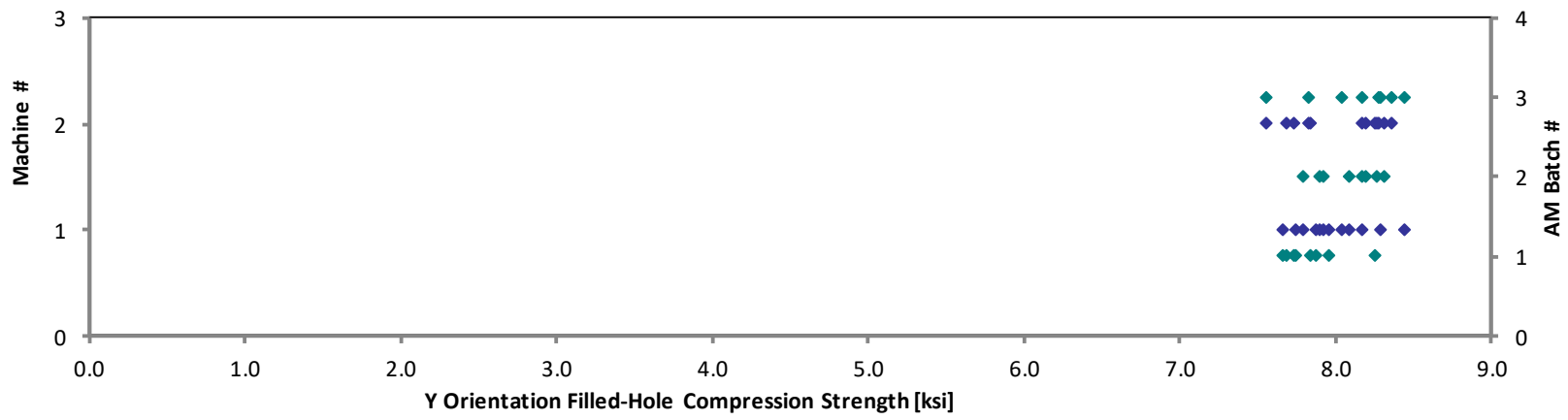
**Y Orientation Filled-Hole Compression Properties (YFHC)--ETW1
Strength**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

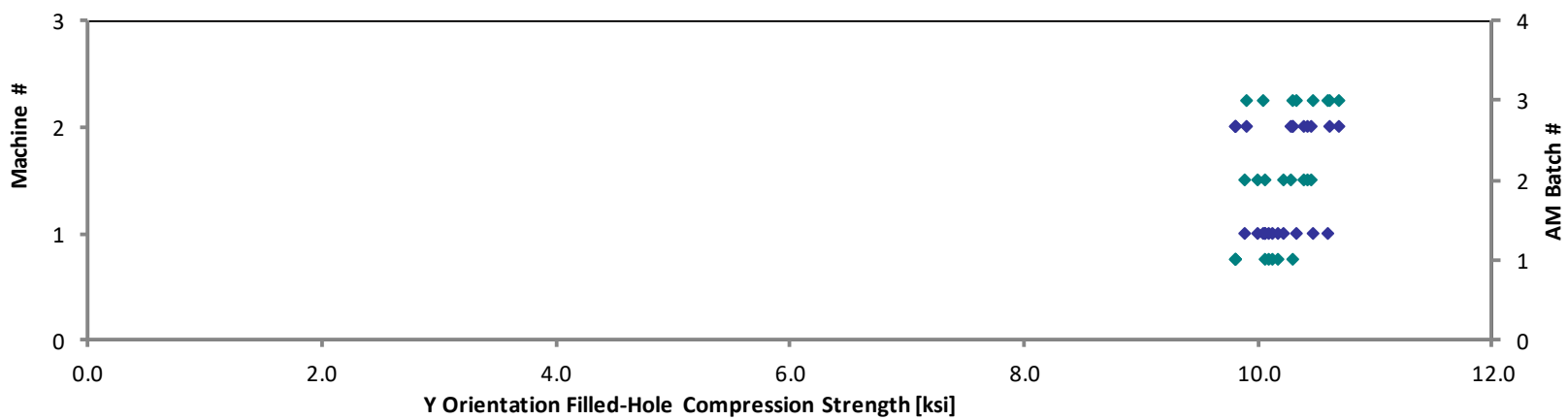
Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-YFHC-13-ETW1-1	1	1	7.671	10.065	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-YFHC-15-ETW1-2	1	1	7.961	10.175	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-YFHC-14-ETW1-3	1	1	7.746	10.100	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-YFHC-11-ETW1-4	1	1	7.878	10.126	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-YFHC-13-ETW1-1	1	2	7.734	9.811	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-YFHC-15-ETW1-2	1	2	7.847	9.811	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-YFHC-12-ETW1-3	1	2	8.258	10.302	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-YFHC-11-ETW1-4	1	2	7.688	9.813	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-YFHC-13-ETW1-1	2	1	8.094	10.223	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-YFHC-15-ETW1-2	2	1	7.927	10.067	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-YFHC-14-ETW1-3	2	1	7.799	9.882	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-YFHC-11-ETW1-4	2	1	7.907	10.001	0.127
NTPAMP001-SY-UM9085-RPM-B-M2-YFHC-13-ETW1-1	2	2	8.277	10.281	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YFHC-15-ETW1-2	2	2	8.315	10.386	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YFHC-12-ETW1-3	2	2	8.202	10.454	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-YFHC-11-ETW1-4	2	2	8.173	10.425	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-YFHC-13-ETW1-1	3	1	8.449	10.598	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-YFHC-15-ETW1-2	3	1	8.293	10.470	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-YFHC-14-ETW1-3	3	1	8.179	10.330	0.128
NTPAMP001-SY-UM9085-RPM-C-M1-YFHC-11-ETW1-4	3	1	8.052	10.042	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YFHC-13-ETW1-1	3	2	8.284	10.617	0.128
NTPAMP001-SY-UM9085-RPM-C-M2-YFHC-15-ETW1-2	3	2	7.833	10.290	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YFHC-12-ETW1-3	3	2	8.371	10.691	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-YFHC-11-ETW1-4 (R)	3	2	7.565	9.900	0.130

Average	8.021	10.202	0.129
Standard Dev.	0.256	0.264	
Coeff. of Var. [%]	3.189	2.584	
Min.	7.565	9.811	0.127
Max.	8.449	10.691	0.130
Number of Spec.	24	24	24

Y Orientation Filled-Hole Compression Properties (YFHC)--ETW1
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Y Orientation Filled-Hole Compression Properties (YFHC)--ETW1
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



4.28 Z Filled-Hole Compression Properties (ZFHC) – Reference Only

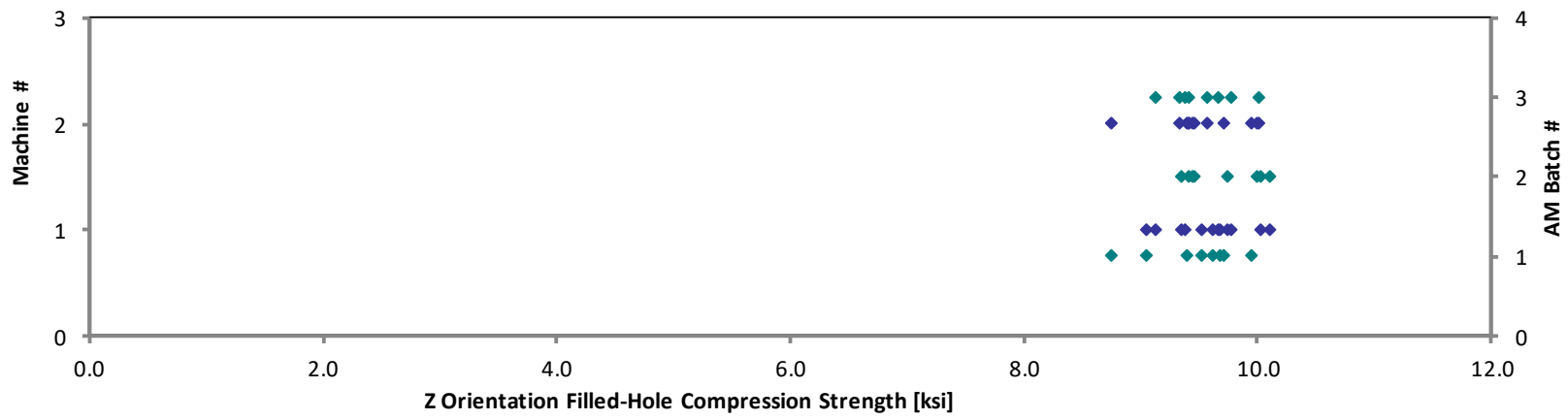
Z Orientation Filled-Hole Compression Properties (ZFHC)--RTD Strength
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHC-11-RTD-1 (R)	1	1	9.682	13.105	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHC-12-RTD-2 (R)	1	1	9.628	12.873	0.131
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHC-13-RTD-3 (R)	1	1	9.522	13.020	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHC-15-RTD-4 (R)	1	1	9.055	12.717	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHC-11-RTD-1 (R)	1	2	9.723	12.860	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHC-13-RTD-2 (R)	1	2	9.959	13.182	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHC-14-RTD-3 (R)	1	2	9.399	13.160	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHC-15-RTD-4 (R)	1	2	8.759	12.896	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHC-13-RTD-1	2	1	10.029	13.888	0.128
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHC-15-RTD-2	2	1	9.360	12.942	0.130
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHC-12-RTD-3	2	1	9.748	13.444	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHC-11-RTD-4	2	1	10.109	13.451	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHC-13-RTD-1	2	2	9.426	13.387	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHC-15-RTD-2	2	2	9.456	13.331	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHC-14-RTD-3	2	2	10.009	13.330	0.131
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHC-11-RTD-4	2	2	9.460	13.341	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHC-13-RTD-1	3	1	9.781	13.800	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHC-15-RTD-2	3	1	9.675	13.073	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHC-12-RTD-3	3	1	9.380	13.232	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHC-11-RTD-4	3	1	9.128	12.709	0.131
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHC-13-RTD-1	3	2	10.017	13.617	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHC-15-RTD-2	3	2	9.332	13.092	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHC-14-RTD-3	3	2	9.413	13.035	0.131
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHC-11-RTD-4	3	2	9.569	13.319	0.129

Average	9.568	13.200	0.129
Standard Dev.	0.332	0.308	
Coeff. of Var. [%]	3.465	2.337	
Min.	8.759	12.709	0.128
Max.	10.109	13.888	0.131
Number of Spec.	24	24	24

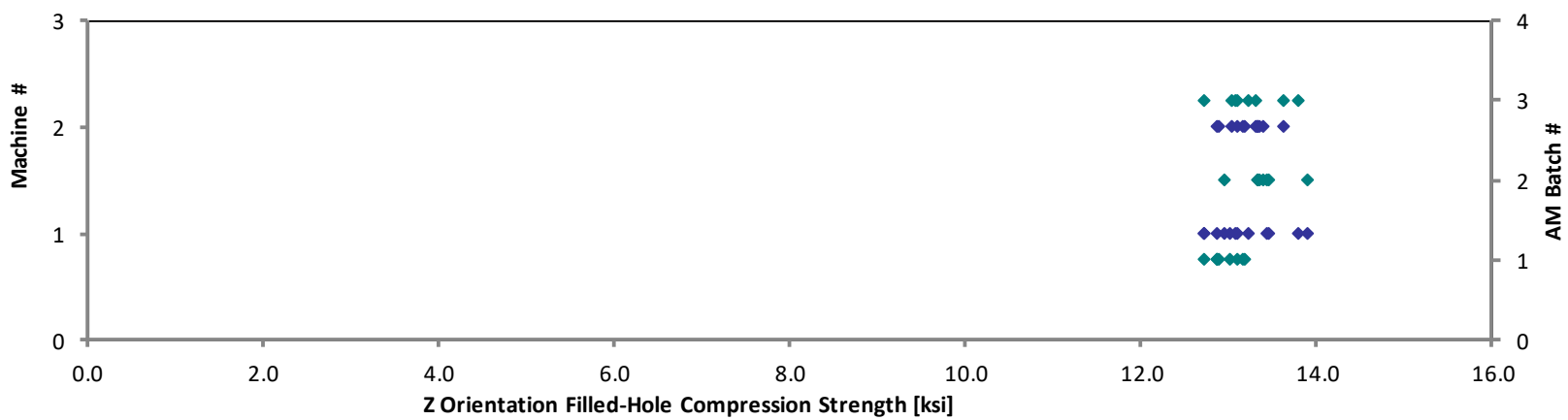
Z Orientation Filled-Hole Compression Properties (ZFHC)--RTD
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Z Orientation Filled-Hole Compression Properties (ZFHC)--RTD
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



**Z Orientation Filled-Hole Compression Properties (ZFHC)--ETW1
Strength**

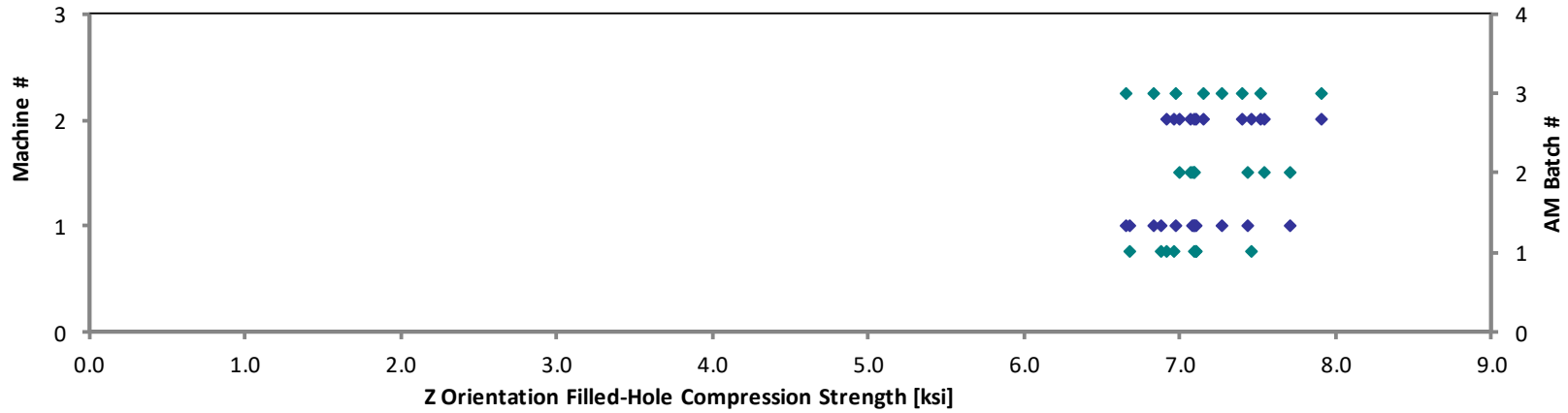
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHC-13-ETW1-1	1	1	7.105	9.248	0.128
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHC-15-ETW1-2	1	1	6.690	8.589	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHC-12-ETW1-3	1	1	6.886	9.077	0.129
NTPAMP001-SY-UM9085-RPM-A-M1-ZFHC-11-ETW1-4	1	1	7.117	9.068	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHC-13-ETW1-1	1	2	7.112	9.004	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHC-15-ETW1-2	1	2	7.469	9.283	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHC-14-ETW1-3	1	2	6.966	8.930	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-ZFHC-11-ETW1-4	1	2	6.922	8.862	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHC-13-ETW1-1	2	1	7.711	9.583	0.127
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHC-15-ETW1-2	2	1	7.100	9.309	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHC-12-ETW1-3	2	1	7.087	9.381	0.129
NTPAMP001-SY-UM9085-RPM-B-M1-ZFHC-11-ETW1-4	2	1	7.442	9.632	0.129
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHC-13-ETW1-1	2	2	7.551	9.327	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHC-15-ETW1-2	2	2	7.001	9.069	0.131
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHC-14-ETW1-3	2	2	7.095	9.167	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-ZFHC-11-ETW1-4	2	2	7.076	9.221	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHC-13-ETW1-1	3	1	7.273	9.554	0.129
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHC-15-ETW1-2	3	1	6.985	8.851	0.131
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHC-12-ETW1-3	3	1	6.841	9.146	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-ZFHC-11-ETW1-4	3	1	6.666	9.030	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHC-13-ETW1-1	3	2	7.916	9.601	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHC-15-ETW1-2	3	2	7.523	9.530	0.130
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHC-14-ETW1-3	3	2	7.408	9.638	0.129
NTPAMP001-SY-UM9085-RPM-C-M2-ZFHC-11-ETW1-4	3	2	7.159	9.445	0.129

Average	7.171	9.231	0.129
Standard Dev.	0.311	0.282	
Coeff. of Var. [%]	4.338	3.055	
Min.	6.666	8.589	0.127
Max.	7.916	9.638	0.131
Number of Spec.	24	24	24

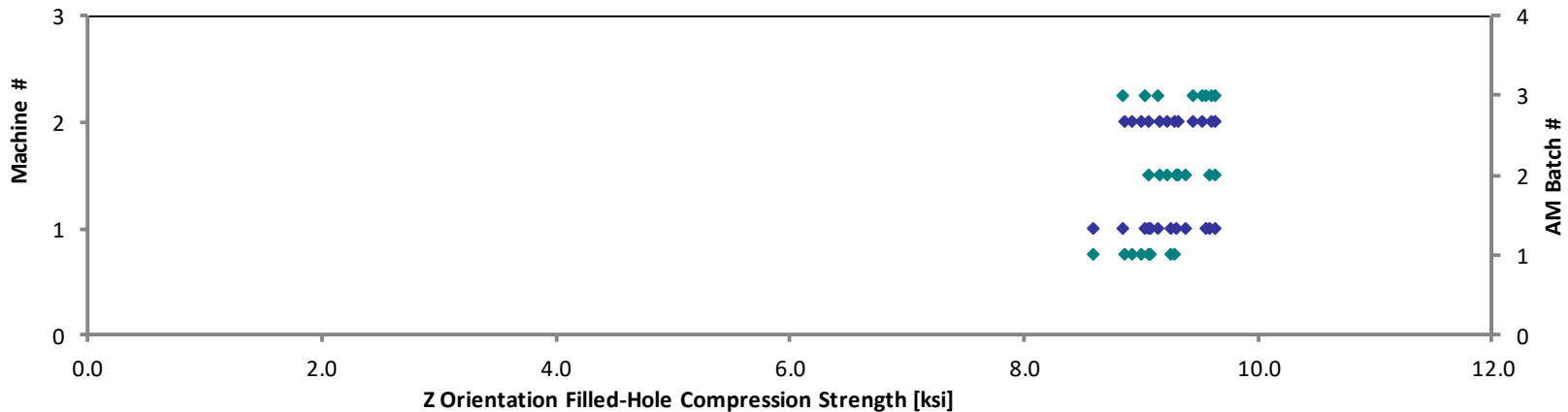
Z Orientation Filled-Hole Compression Properties (ZFHC)--ETW1
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Z Orientation Filled-Hole Compression Properties (ZFHC)--ETW1
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



4.29 Z45 Filled-Hole Compression Properties (Z45FHC) – Reference Only

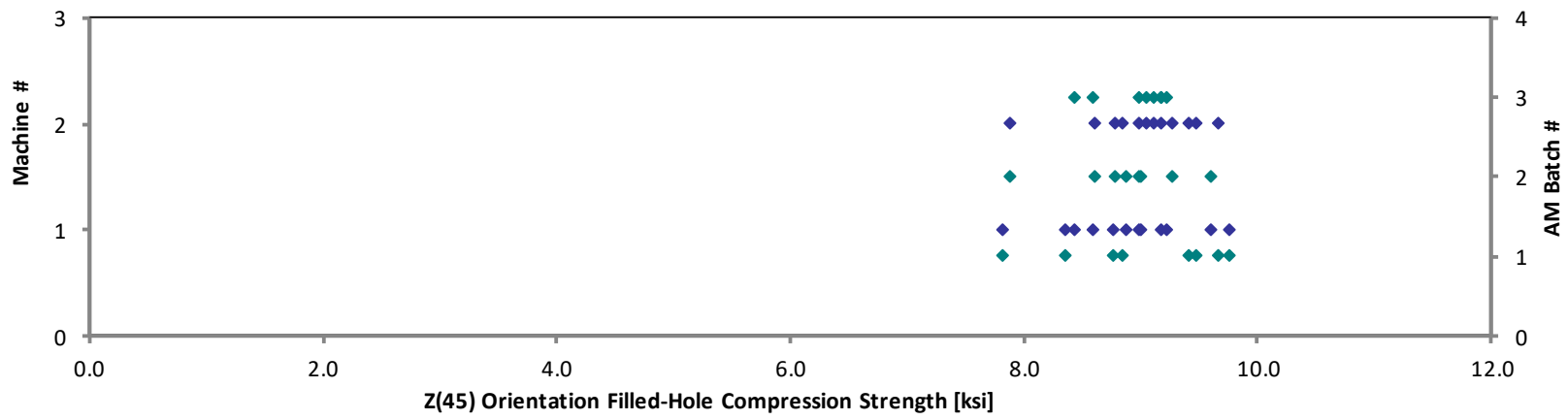
Z(45) Orientation Filled-Hole Compression Properties (Z45FHC)--RTD Strength
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHC-11-RTD-1 (R)	1	1	7.824	11.671	0.132
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHC-12-RTD-2 (R)	1	1	8.769	12.525	0.131
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHC-13-RTD-3 (R)	1	1	8.356	12.053	0.132
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHC-15-RTD-4 (R)	1	1	9.763	12.581	0.131
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHC-11-RTD-1 (R)	1	2	9.417	12.485	0.131
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHC-13-RTD-2 (R)	1	2	9.667	12.549	0.131
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHC-14-RTD-3 (R)	1	2	9.481	11.767	0.136
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHC-15-RTD-4 (R)	1	2	8.854	12.303	0.131
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHC-13-RTD-1	2	1	8.995	12.082	0.131
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHC-15-RTD-2	2	1	8.880	12.038	0.131
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHC-12-RTD-3	2	1	9.011	12.015	0.132
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHC-11-RTD-4	2	1	9.607	12.321	0.132
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHC-13-RTD-1	2	2	7.894	11.227	0.134
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHC-15-RTD-2	2	2	8.606	11.914	0.131
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHC-14-RTD-3	2	2	8.788	11.800	0.132
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHC-11-RTD-4	2	2	9.278	12.174	0.131
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHC-13-RTD-1	3	1	8.438	12.054	0.131
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHC-15-RTD-2	3	1	8.595	12.058	0.131
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHC-12-RTD-3	3	1	9.226	12.467	0.132
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHC-11-RTD-4	3	1	9.188	12.382	0.132
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHC-13-RTD-1	3	2	9.175	12.432	0.131
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHC-15-RTD-2	3	2	9.054	12.351	0.131
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHC-14-RTD-3	3	2	9.122	12.250	0.132
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHC-11-RTD-4	3	2	8.996	12.152	0.131

Average	8.958	12.152	0.132
Standard Dev.	0.501	0.323	
Coeff. of Var. [%]	5.587	2.659	
Min.	7.824	11.227	0.131
Max.	9.763	12.581	0.136
Number of Spec.	24	24	24

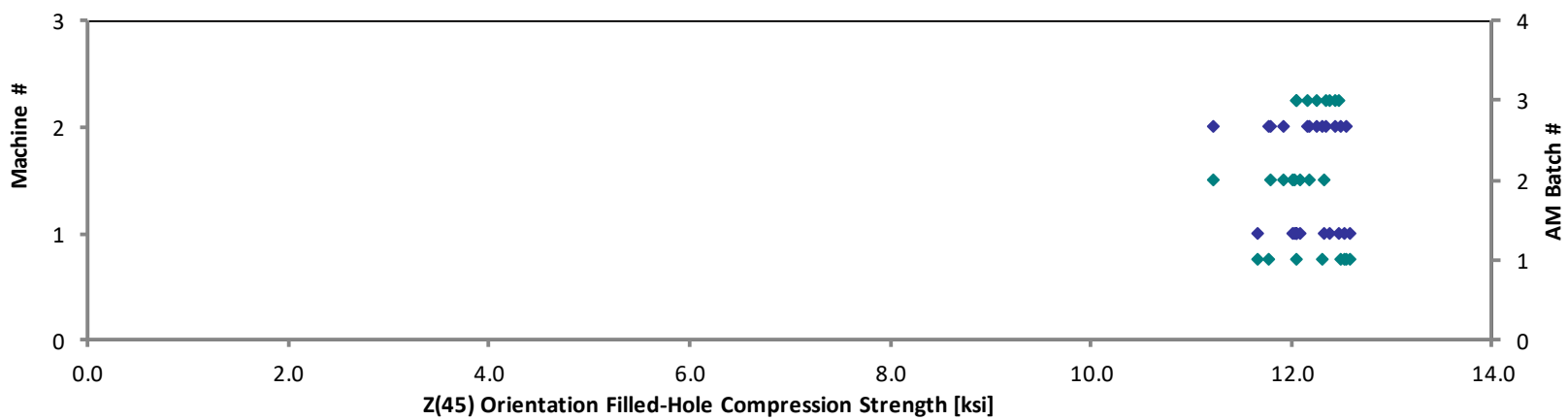
Z(45) Orientation Filled-Hole Compression Properties (Z45FHC)--RTD
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Z(45) Orientation Filled-Hole Compression Properties (Z45FHC)--RTD
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



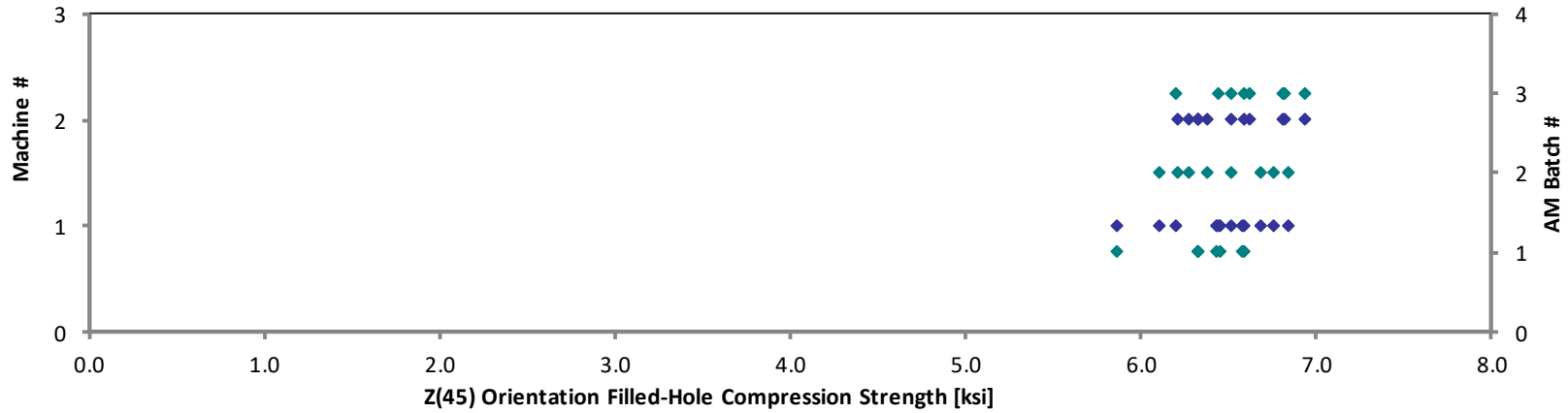
**Z(45) Orientation Filled-Hole Compression Properties (Z45FHC)--ETW1
Strength**
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	0.2% Offset Strength [ksi]	1.0% Offset Strength [ksi]	Avg. Specimen Thickness [in]
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHC-13-ETW1-1	1	1	5.873	8.140	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHC-15-ETW1-2	1	1	6.587	8.318	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHC-12-ETW1-3	1	1	6.435	8.304	0.130
NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHC-11-ETW1-4	1	1	6.461	8.380	0.130
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHC-13-ETW1-1	1	2	6.331	8.125	0.128
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHC-15-ETW1-2	1	2	6.593	8.474	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHC-14-ETW1-3	1	2	6.330	8.429	0.129
NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHC-11-ETW1-4	1	2	6.337	8.362	0.131
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHC-13-ETW1-1	2	1	6.691	8.311	0.130
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHC-15-ETW1-2	2	1	6.114	8.207	0.132
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHC-12-ETW1-3	2	1	6.843	8.674	0.131
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHC-11-ETW1-4	2	1	6.768	8.364	0.131
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHC-13-ETW1-1	2	2	6.221	8.238	0.131
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHC-15-ETW1-2	2	2	6.519	8.498	0.131
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHC-14-ETW1-3	2	2	6.381	8.339	0.130
NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHC-11-ETW1-4	2	2	6.281	8.235	0.131
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHC-13-ETW1-1	3	1	6.208	8.001	0.130
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHC-15-ETW1-2	3	1	6.600	8.348	0.131
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHC-12-ETW1-3	3	1	6.443	8.180	0.132
NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHC-11-ETW1-4	3	1	6.524	8.196	0.131
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHC-13-ETW1-1	3	2	6.832	8.783	0.132
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHC-15-ETW1-2	3	2	6.625	8.687	0.132
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHC-14-ETW1-3	3	2	6.820	8.670	0.131
NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHC-11-ETW1-4	3	2	6.947	8.555	0.132

Average	6.490	8.367	0.131
Standard Dev.	0.259	0.199	
Coeff. of Var. [%]	3.986	2.376	
Min.	5.873	8.001	0.128
Max.	6.947	8.783	0.132
Number of Spec.	24	24	24

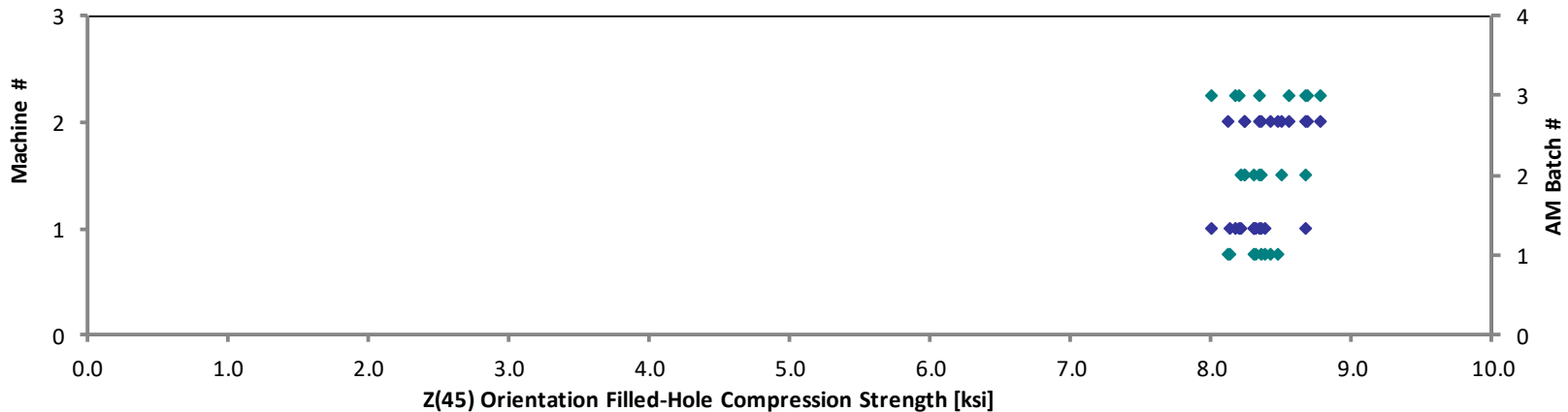
Z(45) Orientation Filled-Hole Compression Properties (Z45FHC)--ETW1
Measured 0.2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Z(45) Orientation Filled-Hole Compression Properties (Z45FHC)--ETW1
Measured 1.0% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



4.30 X Single-Shear Bearing Properties (XSSB)

**X Orientation Single-Shear Bearing Properties (XSSB)--RTD
Strength**

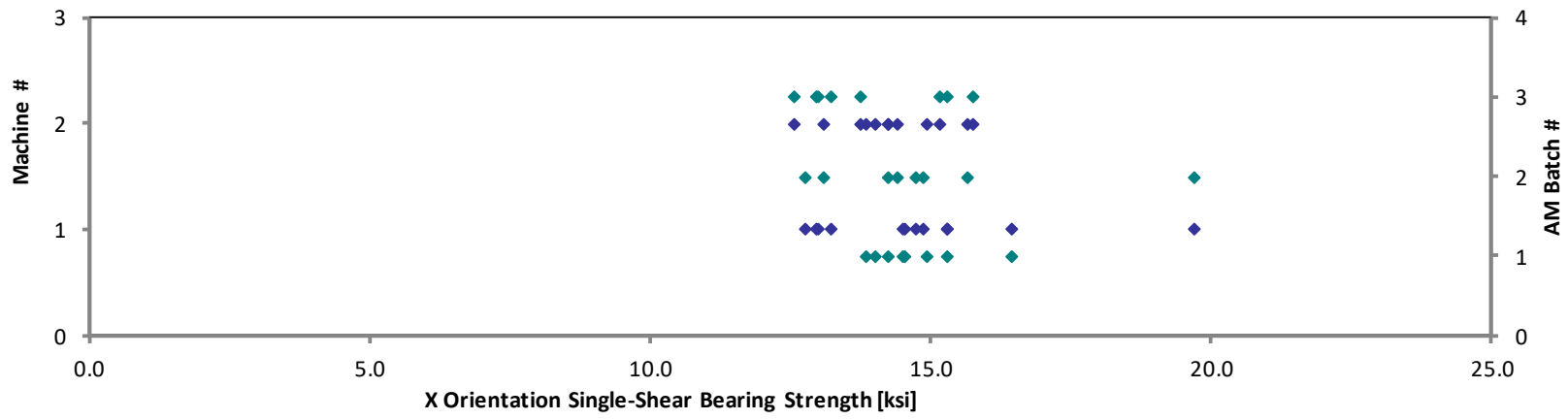
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-XSSB-13-RTD-1	1	1	15.328	30.001	0.127	T1I
NTPAMP001-SY-UM9085-RPM-A-M1-XSSB-15-RTD-2	1	1	16.461	30.719	0.127	T1I
NTPAMP001-SY-UM9085-RPM-A-M1-XSSB-14-RTD-3	1	1	14.556	29.908	0.127	T1I
NTPAMP001-SY-UM9085-RPM-A-M1-XSSB-11-RTD-4	1	1	14.532	30.205	0.127	T1I
NTPAMP001-SY-UM9085-RPM-A-M2-XSSB-13-RTD-1	1	2	14.031	29.076	0.128	T1I
NTPAMP001-SY-UM9085-RPM-A-M2-XSSB-15-RTD-2	1	2	14.938	28.742	0.127	T1I
NTPAMP001-SY-UM9085-RPM-A-M2-XSSB-12-RTD-3	1	2	14.271	28.354	0.128	T1I
NTPAMP001-SY-UM9085-RPM-A-M2-XSSB-11-RTD-4	1	2	13.852	29.434	0.127	T1I
NTPAMP001-SY-UM9085-RPM-B-M1-XSSB-13-RTD-1	2	1	12.793	29.027	0.128	T1I, L1I
NTPAMP001-SY-UM9085-RPM-B-M1-XSSB-15-RTD-2	2	1	14.766	30.688	0.128	T1I, L1I
NTPAMP001-SY-UM9085-RPM-B-M1-XSSB-14-RTD-3	2	1	14.900	30.842	0.126	B1I
NTPAMP001-SY-UM9085-RPM-B-M1-XSSB-11-RTD-4	2	1	19.731	29.859	0.127	T1I, L1I
NTPAMP001-SY-UM9085-RPM-B-M2-XSSB-13-RTD-1	2	2	14.254	29.977	0.129	B1I
NTPAMP001-SY-UM9085-RPM-B-M2-XSSB-15-RTD-2	2	2	15.684	29.686	0.128	T1I, L1I
NTPAMP001-SY-UM9085-RPM-B-M2-XSSB-12-RTD-3	2	2	14.441	28.453	0.128	T1I, L1I
NTPAMP001-SY-UM9085-RPM-B-M2-XSSB-11-RTD-4	2	2	13.105	29.072	0.128	T1I, L1I
NTPAMP001-SY-UM9085-RPM-C-M1-XSSB-13-RTD-1	3	1	15.309	28.453	0.128	L1I, B1I
NTPAMP001-SY-UM9085-RPM-C-M1-XSSB-15-RTD-2	3	1	12.972	27.396	0.128	L1I, B1I
NTPAMP001-SY-UM9085-RPM-C-M1-XSSB-14-RTD-3	3	1	13.227	28.714	0.127	L1I, B1I
NTPAMP001-SY-UM9085-RPM-C-M1-XSSB-11-RTD-4	3	1	13.020	28.405	0.127	L1I, B1I
NTPAMP001-SY-UM9085-RPM-C-M2-XSSB-13-RTD-1	3	2	12.584	30.758	0.128	B1I, L1I
NTPAMP001-SY-UM9085-RPM-C-M2-XSSB-15-RTD-2	3	2	15.187	30.347	0.128	B1I, L1I
NTPAMP001-SY-UM9085-RPM-C-M2-XSSB-12-RTD-3	3	2	13.782	29.739	0.129	B1I, L1I
NTPAMP001-SY-UM9085-RPM-C-M2-XSSB-11-RTD-4	3	2	15.763	29.935	0.128	B1I, L1I

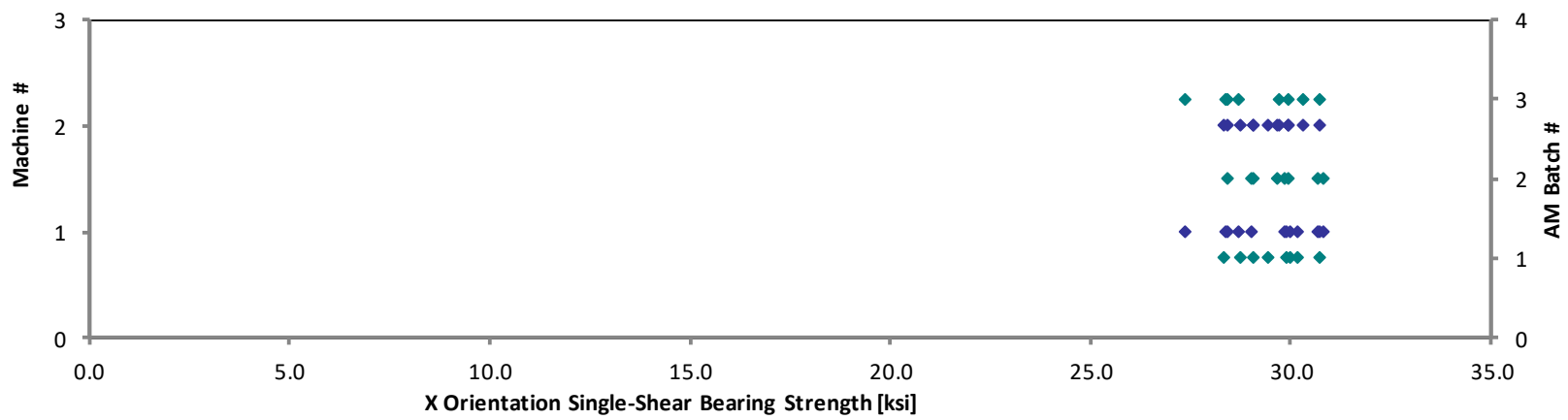
For clarification regarding C1I and L1I failure modes see Section 4, paragraph 2.

Average	14.562	29.491	0.128
Standard Dev.	1.508	0.920	
Coeff. of Var. [%]	10.356	3.119	
Min.	12.584	27.396	0.126
Max.	19.731	30.842	0.129
Number of Spec.	24	24	24

X Orientation Single-Shear Bearing Properties (XSSB)--RTD
Measured 2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



X Orientation Single-Shear Bearing Properties (XSSB)--RTD
Measured Ultimate Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



**X Orientation Single-Shear Bearing Properties (XSSB)--ETW1
Strength**

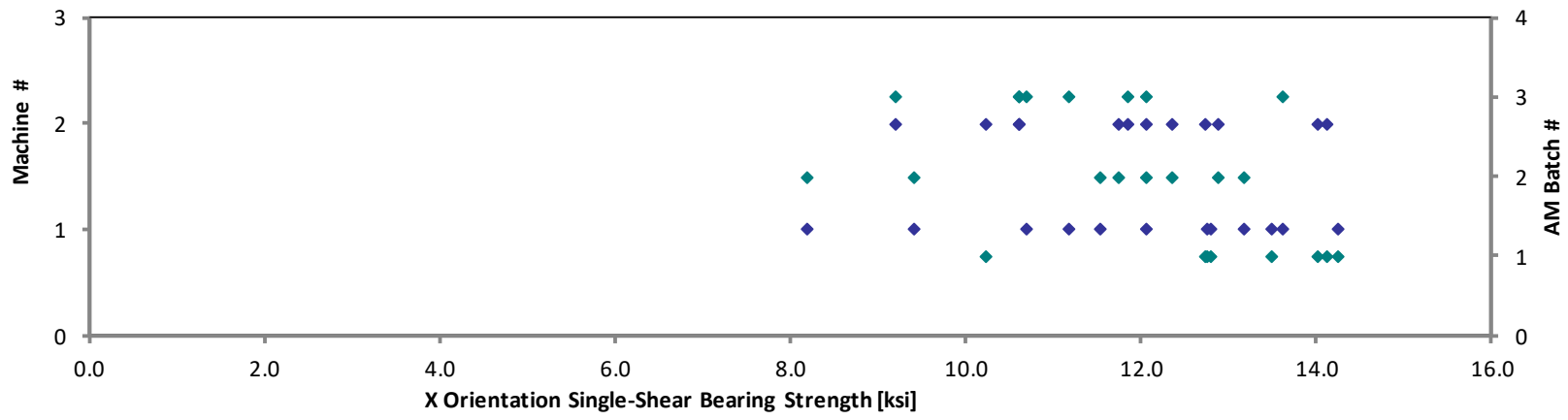
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-XSSB-13-ETW1-1	1	1	13.496	22.135	0.127	M(B,T,L)11
NTPAMP001-SY-UM9085-RPM-A-M1-XSSB-15-ETW1-2	1	1	14.272	22.785	0.127	M(B,T,L)11
NTPAMP001-SY-UM9085-RPM-A-M1-XSSB-14-ETW1-3	1	1	12.813	22.329	0.127	B11
NTPAMP001-SY-UM9085-RPM-A-M1-XSSB-11-ETW1-4	1	1	12.779	22.810	0.127	B11
NTPAMP001-SY-UM9085-RPM-A-M2-XSSB-13-ETW1-1	1	2	14.042	21.577	0.129	B11
NTPAMP001-SY-UM9085-RPM-A-M2-XSSB-15-ETW1-2	1	2	10.253	21.878	0.127	B11
NTPAMP001-SY-UM9085-RPM-A-M2-XSSB-12-ETW1-3	1	2	14.134	21.859	0.127	B11
NTPAMP001-SY-UM9085-RPM-A-M2-XSSB-11-ETW1-4	1	2	12.739	21.778	0.127	B11
NTPAMP001-SY-UM9085-RPM-B-M1-XSSB-13-ETW1-1	2	1	9.427	22.064	0.129	B11
NTPAMP001-SY-UM9085-RPM-B-M1-XSSB-15-ETW1-2	2	1	8.205	22.347	0.128	B11
NTPAMP001-SY-UM9085-RPM-B-M1-XSSB-14-ETW1-3	2	1	13.192	24.925	0.128	B11
NTPAMP001-SY-UM9085-RPM-B-M1-XSSB-11-ETW1-4	2	1	11.542	23.227	0.128	B11
NTPAMP001-SY-UM9085-RPM-B-M2-XSSB-13-ETW1-1	2	2	12.905	22.801	0.129	B11
NTPAMP001-SY-UM9085-RPM-B-M2-XSSB-15-ETW1-2	2	2	12.376	22.841	0.126	B11
NTPAMP001-SY-UM9085-RPM-B-M2-XSSB-12-ETW1-3	2	2	11.756	22.174	0.129	B11
NTPAMP001-SY-UM9085-RPM-B-M2-XSSB-11-ETW1-4	2	2	12.079	22.833	0.128	B11
NTPAMP001-SY-UM9085-RPM-C-M1-XSSB-13-ETW1-1	3	1	12.077	21.279	0.128	B11
NTPAMP001-SY-UM9085-RPM-C-M1-XSSB-15-ETW1-2	3	1	13.637	21.286	0.127	B11
NTPAMP001-SY-UM9085-RPM-C-M1-XSSB-14-ETW1-3	3	1	11.186	21.343	0.129	B11
NTPAMP001-SY-UM9085-RPM-C-M1-XSSB-11-ETW1-4	3	1	10.702	20.907	0.128	B11
NTPAMP001-SY-UM9085-RPM-C-M2-XSSB-13-ETW1-1	3	2	11.868	22.639	0.128	B11
NTPAMP001-SY-UM9085-RPM-C-M2-XSSB-15-ETW1-2	3	2	10.619	21.576	0.128	B11
NTPAMP001-SY-UM9085-RPM-C-M2-XSSB-12-ETW1-3	3	2	9.209	22.114	0.129	B11
NTPAMP001-SY-UM9085-RPM-C-M2-XSSB-11-ETW1-4	3	2	10.627	22.140	0.128	B11

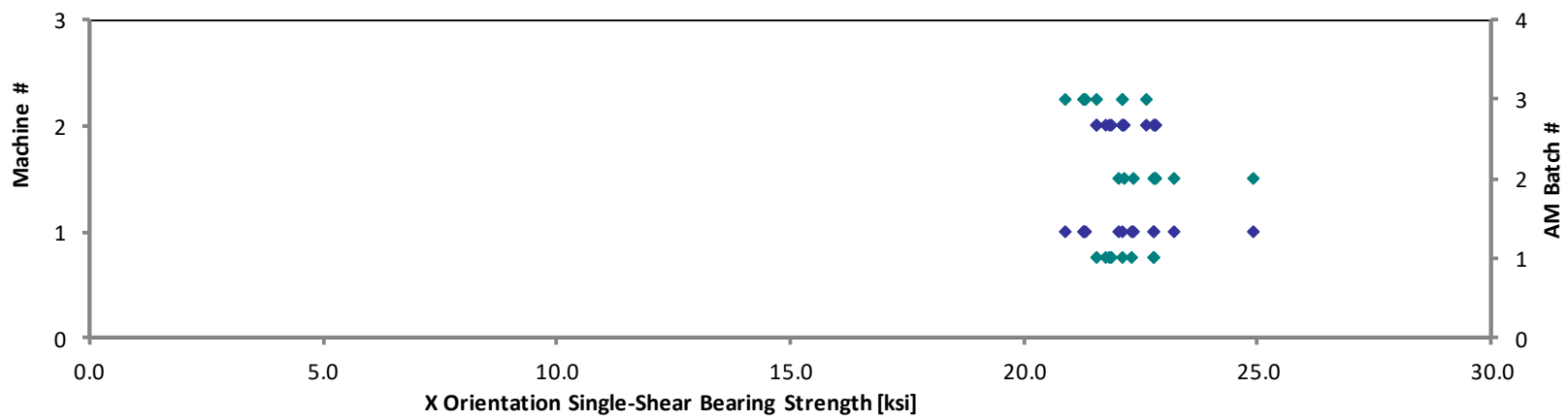
Reference only: Batch 1 and 3 were tested without a washer under the nut.

Average	11.914	22.235	0.128
Standard Dev.	1.630	0.831	
Coeff. of Var. [%]	13.683	3.736	
Min.	8.205	20.907	0.126
Max.	14.272	24.925	0.129
Number of Spec.	24	24	24

X Orientation Single-Shear Bearing Properties (XSSB)--ETW1
Measured 2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



X Orientation Single-Shear Bearing Properties (XSSB)--ETW1
Measured Ultimate Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



4.31 Y Single-Shear Bearing Properties (YSSB)

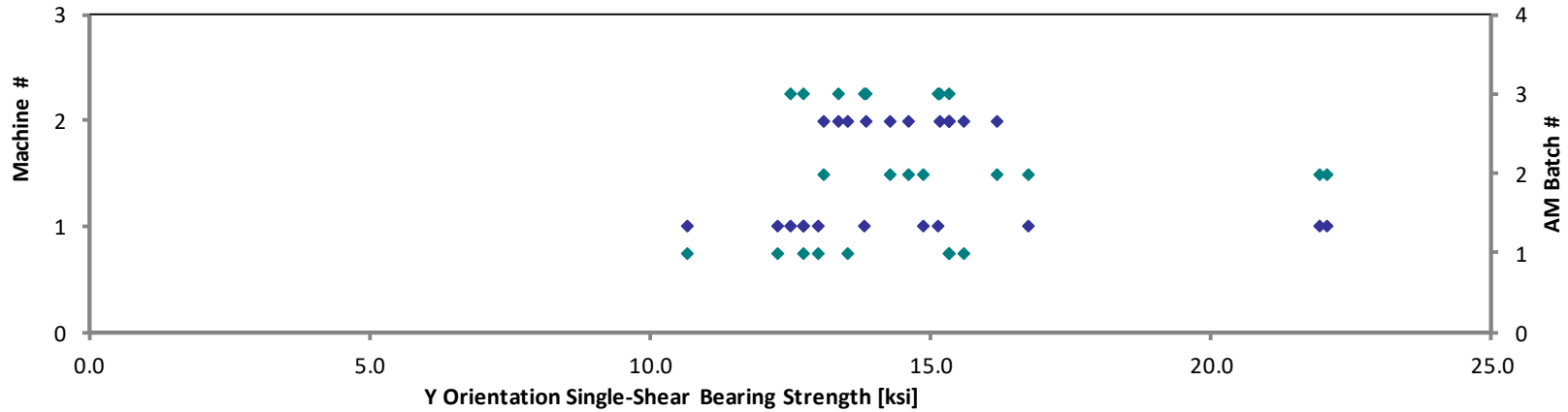
Y Orientation Single-Shear Bearing Properties (YSSB)--RTD Strength Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-YSSB-13-RTD-1	1	1	12.733	27.637	0.130	C1I
NTPAMP001-SY-UM9085-RPM-A-M1-YSSB-15-RTD-2	1	1	10.689	25.759	0.129	C1I
NTPAMP001-SY-UM9085-RPM-A-M1-YSSB-14-RTD-3	1	1	12.997	29.375	0.129	C1I
NTPAMP001-SY-UM9085-RPM-A-M1-YSSB-11-RTD-4	1	1	12.283	27.502	0.129	C1I
NTPAMP001-SY-UM9085-RPM-A-M2-YSSB-13-RTD-1	1	2	15.336	25.409	0.130	C1I
NTPAMP001-SY-UM9085-RPM-A-M2-YSSB-15-RTD-2	1	2	15.351	27.235	0.130	C1I
NTPAMP001-SY-UM9085-RPM-A-M2-YSSB-12-RTD-3	1	2	15.601	27.854	0.129	C1I
NTPAMP001-SY-UM9085-RPM-A-M2-YSSB-11-RTD-4	1	2	13.550	29.509	0.130	C1I
NTPAMP001-SY-UM9085-RPM-B-M1-YSSB-13-RTD-1	2	1	21.963	27.352	0.129	C1I
NTPAMP001-SY-UM9085-RPM-B-M1-YSSB-15-RTD-2	2	1	22.087	28.871	0.130	C1I
NTPAMP001-SY-UM9085-RPM-B-M1-YSSB-14-RTD-3	2	1	16.768	28.395	0.130	C1I
NTPAMP001-SY-UM9085-RPM-B-M1-YSSB-11-RTD-4	2	1	14.902	30.478	0.130	C1I
NTPAMP001-SY-UM9085-RPM-B-M2-YSSB-13-RTD-1	2	2	14.631	28.059	0.130	C1I
NTPAMP001-SY-UM9085-RPM-B-M2-YSSB-15-RTD-2	2	2	14.288	30.630	0.129	C1I
NTPAMP001-SY-UM9085-RPM-B-M2-YSSB-12-RTD-3	2	2	13.118	29.378	0.129	C1I
NTPAMP001-SY-UM9085-RPM-B-M2-YSSB-11-RTD-4	2	2	16.204	31.777	0.129	C1I
NTPAMP001-SY-UM9085-RPM-C-M1-YSSB-13-RTD-1	3	1	13.832	26.539	0.130	B1I, C1I
NTPAMP001-SY-UM9085-RPM-C-M1-YSSB-15-RTD-2	3	1	12.753	27.787	0.131	B1I, C1I
NTPAMP001-SY-UM9085-RPM-C-M1-YSSB-14-RTD-3	3	1	12.506	26.850	0.130	B1I, C1I
NTPAMP001-SY-UM9085-RPM-C-M1-YSSB-11-RTD-4	3	1	15.157	29.582	0.130	B1I, C1I
NTPAMP001-SY-UM9085-RPM-C-M2-YSSB-13-RTD-1	3	2	15.336	30.890	0.129	B1I, C1I
NTPAMP001-SY-UM9085-RPM-C-M2-YSSB-15-RTD-2	3	2	13.867	29.301	0.129	B1I, C1I
NTPAMP001-SY-UM9085-RPM-C-M2-YSSB-12-RTD-3	3	2	15.167	29.905	0.130	B1I, C1I
NTPAMP001-SY-UM9085-RPM-C-M2-YSSB-11-RTD-4	3	2	13.359	28.049	0.129	B1I, C1I

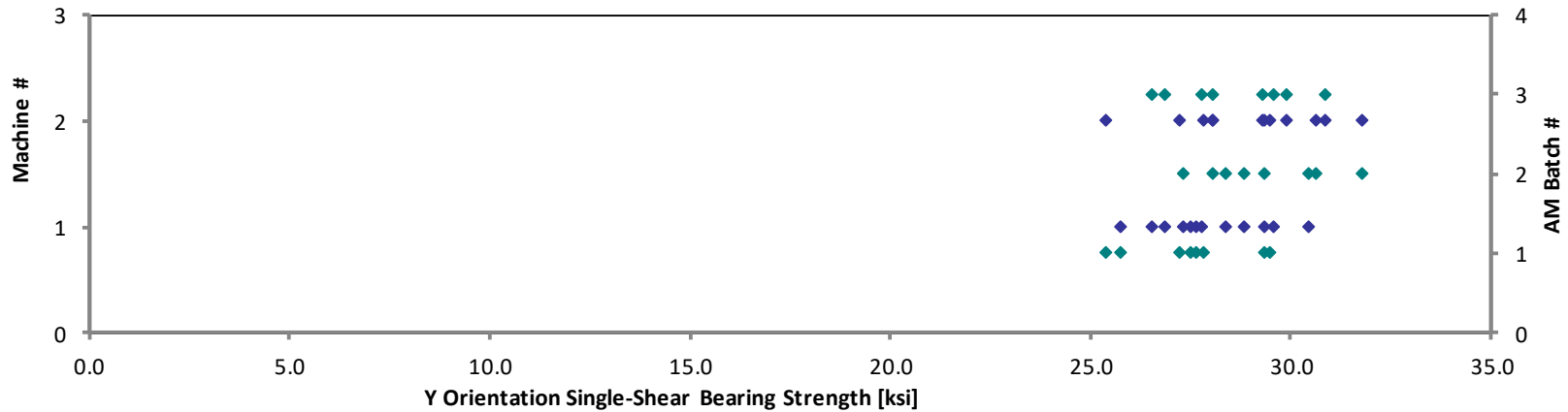
For clarification regarding C1I and L1I failure modes, see Section 4, paragraph 2.

Average	14.770	28.505	0.130
Standard Dev.	2.644	1.629	
Coeff. of Var. [%]	17.902	5.714	
Min.	10.689	25.409	0.129
Max.	22.087	31.777	0.131
Number of Spec.	24	24	24

Y Orientation Single-Shear Bearing Properties (YSSB)--RTD
Measured 2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Y Orientation Single-Shear Bearing Properties (YSSB)--RTD
Measured Ultimate Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



**Y Orientation Single-Shear Bearing Properties (YSSB)--ETW1
Strength**
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-YSSB-13-ETW1-1	1	1	13.076	21.329	0.130	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-A-M1-YSSB-15-ETW1-2	1	1	14.237	21.804	0.129	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-A-M1-YSSB-14-ETW1-3	1	1	12.787	21.309	0.129	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-A-M1-YSSB-11-ETW1-4	1	1	12.731	21.750	0.128	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-A-M2-YSSB-13-ETW1-1	1	2	12.035	21.605	0.128	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-A-M2-YSSB-15-ETW1-2	1	2	15.859	23.033	0.128	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-A-M2-YSSB-12-ETW1-3	1	2	12.633	21.426	0.127	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-A-M2-YSSB-11-ETW1-4	1	2	13.319	22.578	0.128	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-B-M1-YSSB-13-ETW1-1	2	1	13.469	23.563	0.131	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-B-M1-YSSB-15-ETW1-2	2	1	12.094	23.253	0.130	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-B-M1-YSSB-14-ETW1-3	2	1	11.005	22.283	0.131	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-B-M1-YSSB-11-ETW1-4	2	1	10.051	21.887	0.130	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-B-M2-YSSB-13-ETW1-1	2	2	11.831	22.714	0.130	C1I
NTPAMP001-SY-UM9085-RPM-B-M2-YSSB-15-ETW1-2	2	2	12.003	22.107	0.129	C1I
NTPAMP001-SY-UM9085-RPM-B-M2-YSSB-12-ETW1-3	2	2	9.725	21.252	0.128	C1I
NTPAMP001-SY-UM9085-RPM-B-M2-YSSB-11-ETW1-4	2	2	8.488	20.039	0.129	C1I
NTPAMP001-SY-UM9085-RPM-C-M1-YSSB-13-ETW1-1	3	1	11.548	21.300	0.130	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-C-M1-YSSB-15-ETW1-2	3	1	9.898	20.170	0.131	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-C-M1-YSSB-14-ETW1-3	3	1	11.343	20.127	0.131	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-C-M1-YSSB-11-ETW1-4	3	1	12.056	21.580	0.129	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-C-M2-YSSB-13-ETW1-1	3	2	15.122	23.879	0.129	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-C-M2-YSSB-15-ETW1-2	3	2	14.833	23.737	0.129	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-C-M2-YSSB-12-ETW1-3	3	2	13.315	21.272	0.129	M(B,C)1I
NTPAMP001-SY-UM9085-RPM-C-M2-YSSB-11-ETW1-4	3	2	14.076	23.784	0.129	M(B,C)1I

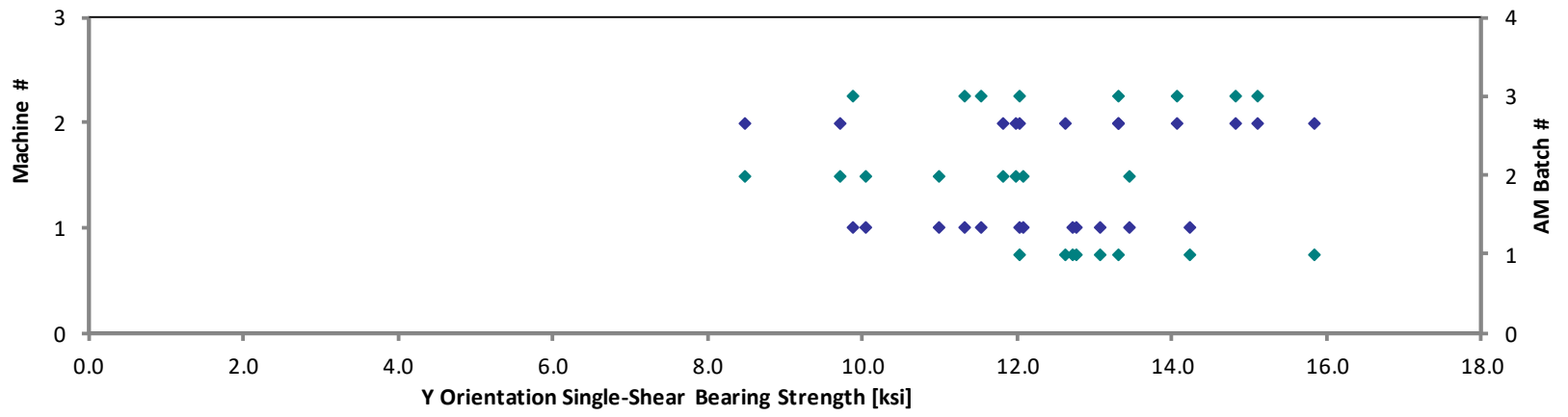
Reference only: Batch 1 and 3 were tested without a washer under the nut.

For clarification regarding C1I and L1I failure modes, see Section 4, paragraph 2.

Average	12.397	21.991	0.129
Standard Dev.	1.793	1.137	
Coeff. of Var. [%]	14.461	5.170	
Min.	8.488	20.039	0.127
Max.	15.859	23.879	0.131
Number of Spec.	24	24	24

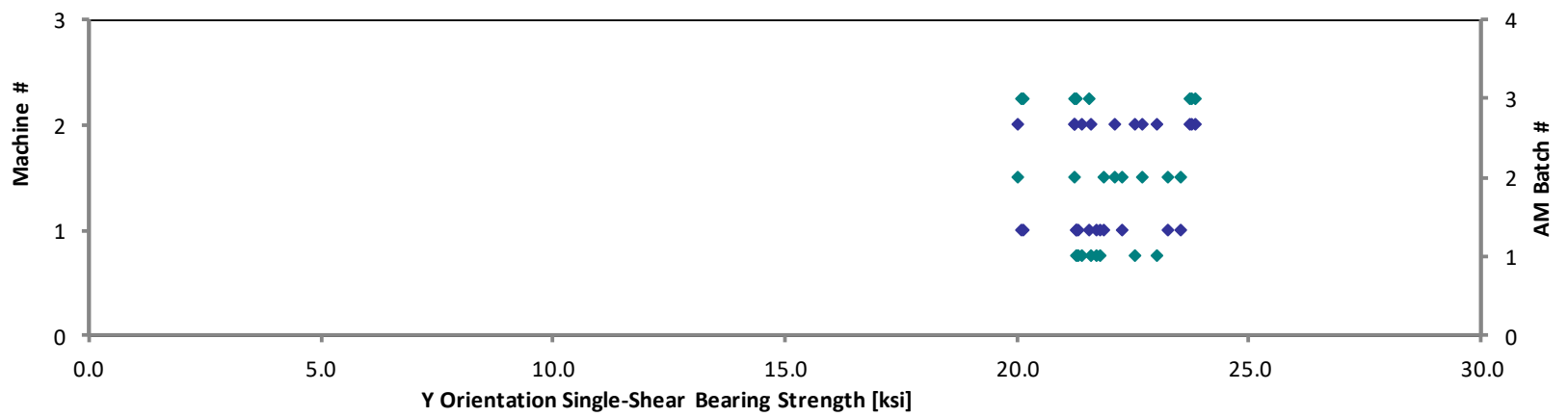
Y Orientation Single-Shear Bearing Properties (YSSB)--ETW1
Measured 2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Y Orientation Single-Shear Bearing Properties (YSSB)--ETW1
Measured Ultimate Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



4.32 Z Single-Shear Bearing Properties (ZSSB)

**Z Orientation Single-Shear Bearing Properties (ZSSB)--RTD
Strength**

Stratasys Certified ULTEM™ 9085 / Fortus 900mc

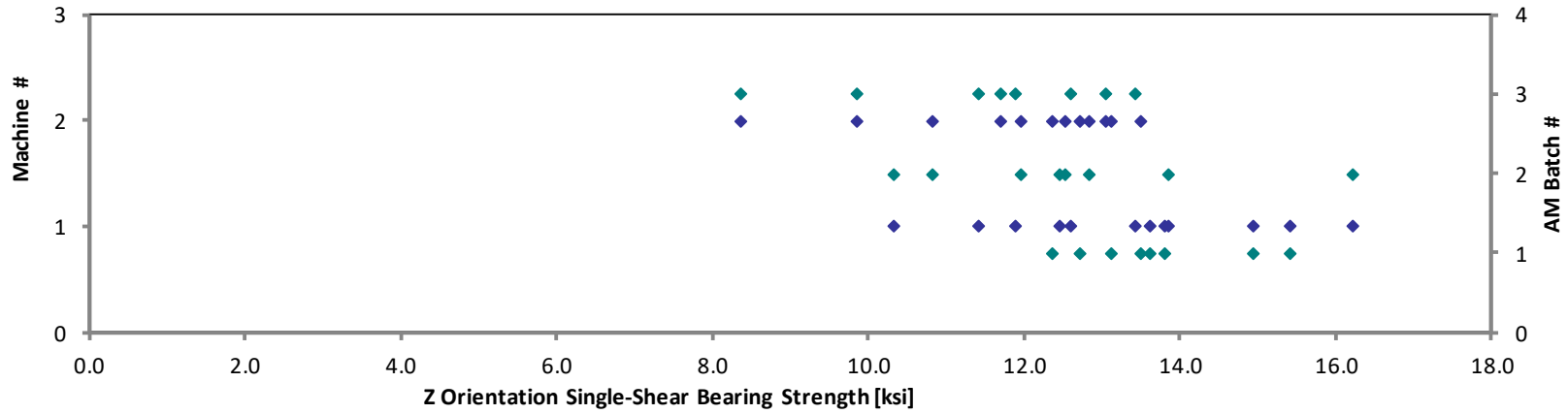
Specimen Number	AM Batch #	Machine #	2% Offset Strength [ksij]	Ultimate Strength [ksij]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-ZSSB-13-RTD-1 (R)	1	1	13.641	22.621	0.130	L1I
NTPAMP001-SY-UM9085-RPM-A-M1-ZSSB-15-RTD-2	1	1	13.815	20.528	0.128	L1I
NTPAMP001-SY-UM9085-RPM-A-M1-ZSSB-12-RTD-3	1	1	15.429	21.439	0.128	L1I
NTPAMP001-SY-UM9085-RPM-A-M1-ZSSB-11-RTD-4	1	1	14.965	23.180	0.128	L1I
NTPAMP001-SY-UM9085-RPM-A-M2-ZSSB-13-RTD-1	1	2	12.381	21.829	0.128	L1I
NTPAMP001-SY-UM9085-RPM-A-M2-ZSSB-15-RTD-2	1	2	13.127	20.364	0.128	L1I
NTPAMP001-SY-UM9085-RPM-A-M2-ZSSB-14-RTD-3	1	2	13.522	20.403	0.128	L1I
NTPAMP001-SY-UM9085-RPM-A-M2-ZSSB-11-RTD-4	1	2	12.734	22.673	0.128	L1I
NTPAMP001-SY-UM9085-RPM-B-M1-ZSSB-13-RTD-1	2	1	12.459	22.409	0.129	L1I
NTPAMP001-SY-UM9085-RPM-B-M1-ZSSB-15-RTD-2	2	1	13.872	26.651	0.129	L1I
NTPAMP001-SY-UM9085-RPM-B-M1-ZSSB-12-RTD-3	2	1	10.343	23.089	0.129	L1I
NTPAMP001-SY-UM9085-RPM-B-M1-ZSSB-11-RTD-4	2	1	16.247	24.756	0.129	L1I
NTPAMP001-SY-UM9085-RPM-B-M2-ZSSB-13-RTD-1	2	2	12.844	21.637	0.129	L1I
NTPAMP001-SY-UM9085-RPM-B-M2-ZSSB-15-RTD-2	2	2	12.542	24.518	0.129	L1I
NTPAMP001-SY-UM9085-RPM-B-M2-ZSSB-14-RTD-3	2	2	11.984	22.973	0.129	L1I
NTPAMP001-SY-UM9085-RPM-B-M2-ZSSB-11-RTD-4	2	2	10.830	22.330	0.130	L1I
NTPAMP001-SY-UM9085-RPM-C-M1-ZSSB-13-RTD-1	3	1	13.443	20.482	0.129	L1I
NTPAMP001-SY-UM9085-RPM-C-M1-ZSSB-15-RTD-2	3	1	11.420	23.546	0.129	L1I
NTPAMP001-SY-UM9085-RPM-C-M1-ZSSB-12-RTD-3	3	1	11.904	19.410	0.129	L1I
NTPAMP001-SY-UM9085-RPM-C-M1-ZSSB-11-RTD-4	3	1	12.616	21.825	0.130	L1I
NTPAMP001-SY-UM9085-RPM-C-M2-ZSSB-13-RTD-1	3	2	11.703	22.796	0.129	B1I, L1I
NTPAMP001-SY-UM9085-RPM-C-M2-ZSSB-15-RTD-2	3	2	13.054	25.407	0.129	B1I, L1I
NTPAMP001-SY-UM9085-RPM-C-M2-ZSSB-14-RTD-3	3	2	9.862	21.042	0.128	B1I, L1I
NTPAMP001-SY-UM9085-RPM-C-M2-ZSSB-11-RTD-4	3	2	8.363	22.909	0.130	B1I, L1I

For clarification regarding C1I and L1I failure modes, see Section 4, paragraph 2.

Average	12.629	22.451	0.129
Standard Dev.	1.744	1.727	
Coeff. of Var. [%]	13.812	7.693	
Min.	8.363	19.410	0.128
Max.	16.247	26.651	0.130
Number of Spec.	24	24	24

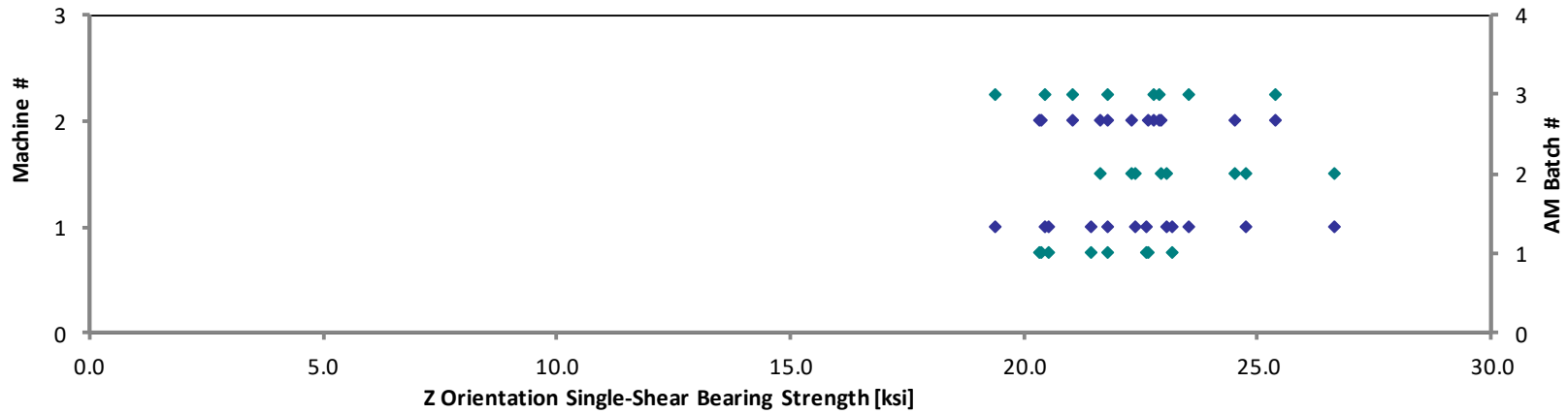
Z Orientation Single-Shear Bearing Properties (ZSSB)--RTD
Measured 2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Z Orientation Single-Shear Bearing Properties (ZSSB)--RTD
Measured Ultimate Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



**Z Orientation Single-Shear Bearing Properties (ZSSB)--ETW1
Strength**
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	2% Offset Strength [ksij]	Initial Peak Strength [ksij]	Ultimate Strength [ksij]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-ZSSB-13-ETW1-1	1	1	15.117		18.063	0.128	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-A-M1-ZSSB-15-ETW1-2*	1	1		16.515	19.417	0.128	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-A-M1-ZSSB-12-ETW1-3	1	1	15.468		19.212	0.129	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-A-M1-ZSSB-11-ETW1-4	1	1	12.809		17.100	0.129	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-A-M2-ZSSB-13-ETW1-1	1	2	10.592	16.398	17.741	0.128	L1I
NTPAMP001-SY-UM9085-RPM-A-M2-ZSSB-15-ETW1-2	1	2	14.777		18.156	0.127	L1I
NTPAMP001-SY-UM9085-RPM-A-M2-ZSSB-14-ETW1-3	1	2	11.600		16.604	0.127	L1I
NTPAMP001-SY-UM9085-RPM-A-M2-ZSSB-11-ETW1-4	1	2	13.458		15.529	0.129	L1I
NTPAMP001-SY-UM9085-RPM-B-M1-ZSSB-13-ETW1-1	2	1	11.719		20.816	0.129	C1I
NTPAMP001-SY-UM9085-RPM-B-M1-ZSSB-15-ETW1-2	2	1	11.074		18.910	0.130	C1I
NTPAMP001-SY-UM9085-RPM-B-M1-ZSSB-12-ETW1-3	2	1	11.923		20.886	0.129	C1I
NTPAMP001-SY-UM9085-RPM-B-M1-ZSSB-11-ETW1-4	2	1	12.070		21.413	0.129	C1I
NTPAMP001-SY-UM9085-RPM-B-M2-ZSSB-13-ETW1-1	2	2	12.512		20.103	0.130	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-B-M2-ZSSB-15-ETW1-2	2	2	11.911		21.048	0.130	L1I
NTPAMP001-SY-UM9085-RPM-B-M2-ZSSB-14-ETW1-3	2	2	11.679		19.506	0.129	L1I
NTPAMP001-SY-UM9085-RPM-B-M2-ZSSB-11-ETW1-4	2	2	11.916		19.105	0.130	L1I
NTPAMP001-SY-UM9085-RPM-C-M1-ZSSB-13-ETW1-1	3	1	11.288		17.896	0.129	L1I
NTPAMP001-SY-UM9085-RPM-C-M1-ZSSB-15-ETW1-2	3	1	11.673		18.593	0.131	L1I
NTPAMP001-SY-UM9085-RPM-C-M1-ZSSB-12-ETW1-3	3	1	11.738		17.923	0.129	L1I
NTPAMP001-SY-UM9085-RPM-C-M1-ZSSB-11-ETW1-4	3	1	13.038		17.305	0.129	L1I
NTPAMP001-SY-UM9085-RPM-C-M2-ZSSB-13-ETW1-1	3	2	12.348		20.207	0.129	L1I
NTPAMP001-SY-UM9085-RPM-C-M2-ZSSB-15-ETW1-2	3	2	11.655		19.630	0.129	L1I
NTPAMP001-SY-UM9085-RPM-C-M2-ZSSB-14-ETW1-3	3	2	11.896		18.926	0.129	L1I
NTPAMP001-SY-UM9085-RPM-C-M2-ZSSB-11-ETW1-4	3	2	12.902		18.880	0.129	L1I

*2% Offset is not reported because of proximity of intersect to Initial Peak load drop.

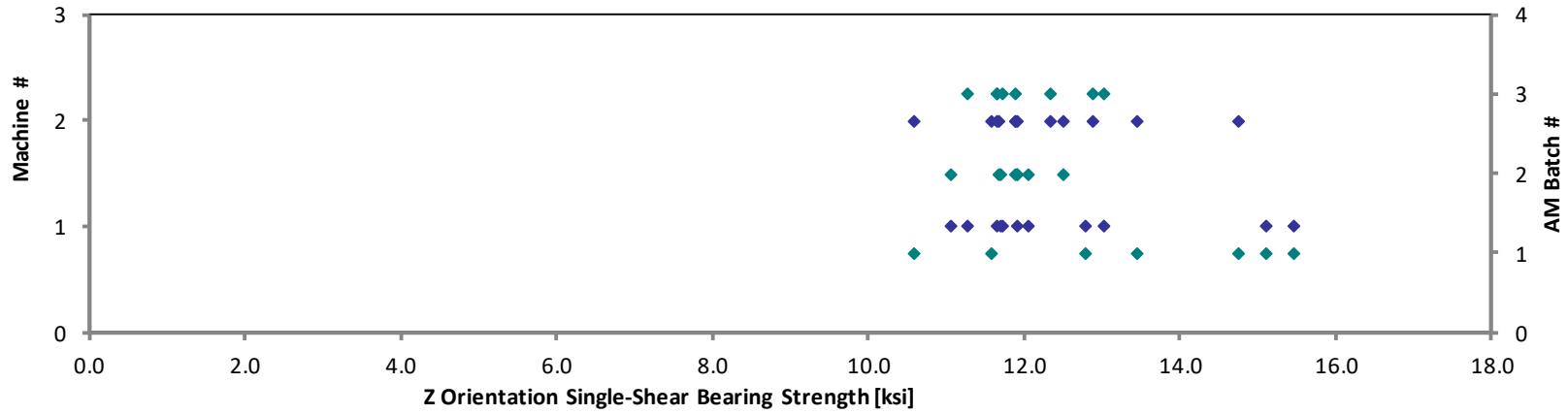
For clarification regarding C1I and L1I failure modes, see Section 4, paragraph 2.

Reference only: Batch 1 and 3 were tested without a washer under the nut.

Average	12.398	16.456	18.874	0.129
Standard Dev.	1.259	0.083	1.475	
Coeff. of Var. [%]	10.156	0.502	7.817	
Min.	10.592	16.398	15.529	0.127
Max.	15.468	16.515	21.413	0.131
Number of Spec.	23	2	24	24

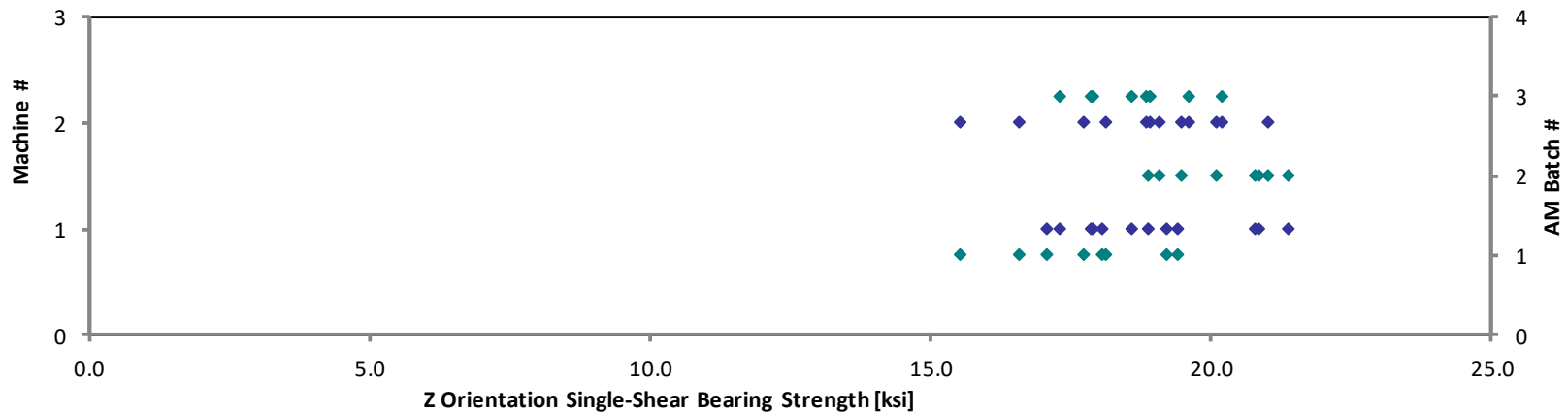
Z Orientation Single-Shear Bearing Properties (ZSSB)--ETW1
Measured 2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Z Orientation Single-Shear Bearing Properties (ZSSB)--ETW1
Measured Ultimate Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



4.33 Z45 Single-Shear Bearing Properties (Z45SSB)

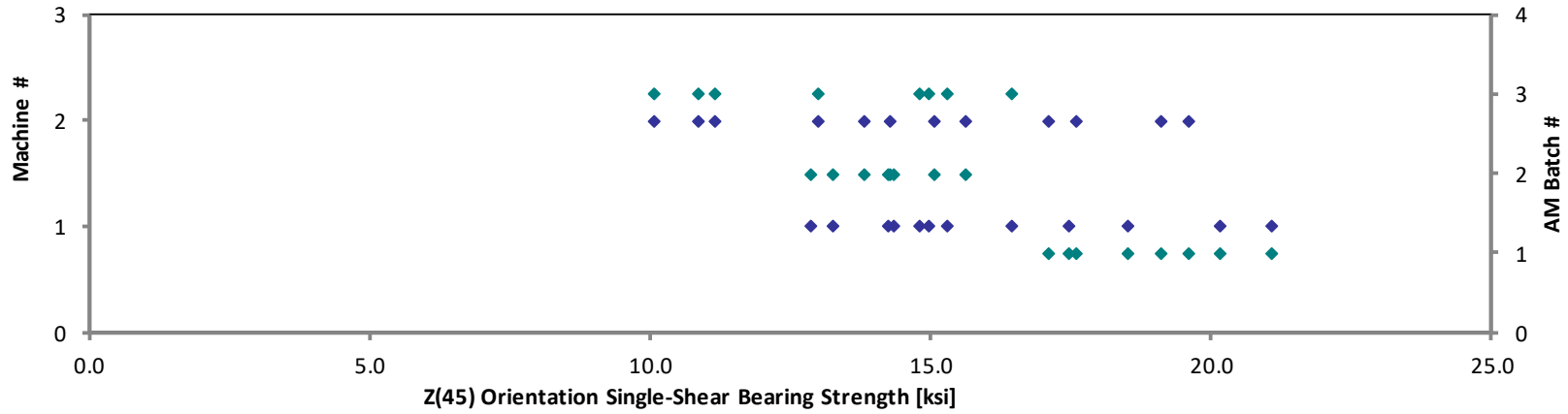
Z(45) Orientation Single-Shear Bearing Properties (Z45SSB)--RTD Strength
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-Z45SSB-13-RTD-1	1	1	20.169	29.515	0.128	L1I
NTPAMP001-SY-UM9085-RPM-A-M1-Z45SSB-15-RTD-2	1	1	21.100	25.140	0.129	L1I
NTPAMP001-SY-UM9085-RPM-A-M1-Z45SSB-12-RTD-3	1	1	17.482	27.598	0.129	L1I
NTPAMP001-SY-UM9085-RPM-A-M1-Z45SSB-11-RTD-4	1	1	18.539	25.870	0.131	L1I
NTPAMP001-SY-UM9085-RPM-A-M2-Z45SSB-13-RTD-1	1	2	19.124	24.636	0.130	L1I
NTPAMP001-SY-UM9085-RPM-A-M2-Z45SSB-15-RTD-2	1	2	19.638	25.885	0.130	L1I
NTPAMP001-SY-UM9085-RPM-A-M2-Z45SSB-14-RTD-3	1	2	17.614	29.612	0.128	L1I
NTPAMP001-SY-UM9085-RPM-A-M2-Z45SSB-11-RTD-4	1	2	17.126	27.262	0.128	L1I
NTPAMP001-SY-UM9085-RPM-B-M1-Z45SSB-13-RTD-1	2	1	14.356	28.317	0.130	L1I
NTPAMP001-SY-UM9085-RPM-B-M1-Z45SSB-15-RTD-2	2	1	13.274	27.802	0.129	L1I
NTPAMP001-SY-UM9085-RPM-B-M1-Z45SSB-12-RTD-3	2	1	14.252	27.966	0.129	L1I
NTPAMP001-SY-UM9085-RPM-B-M1-Z45SSB-11-RTD-4	2	1	12.896	27.059	0.130	L1I
NTPAMP001-SY-UM9085-RPM-B-M2-Z45SSB-13-RTD-1	2	2	14.309	26.286	0.131	L1I
NTPAMP001-SY-UM9085-RPM-B-M2-Z45SSB-15-RTD-2	2	2	15.641	27.158	0.129	L1I
NTPAMP001-SY-UM9085-RPM-B-M2-Z45SSB-14-RTD-3	2	2	13.840	26.969	0.130	L1I
NTPAMP001-SY-UM9085-RPM-B-M2-Z45SSB-11-RTD-4	2	2	15.094	30.511	0.129	L1I
NTPAMP001-SY-UM9085-RPM-C-M1-Z45SSB-13-RTD-1	3	1	15.001	27.722	0.129	L1I
NTPAMP001-SY-UM9085-RPM-C-M1-Z45SSB-15-RTD-2	3	1	14.814	24.002	0.129	L1I
NTPAMP001-SY-UM9085-RPM-C-M1-Z45SSB-12-RTD-3	3	1	16.459	24.943	0.130	L1I
NTPAMP001-SY-UM9085-RPM-C-M1-Z45SSB-11-RTD-4	3	1	15.313	25.993	0.131	L1I
NTPAMP001-SY-UM9085-RPM-C-M2-Z45SSB-13-RTD-1	3	2	10.095	26.238	0.129	B1I, L1I
NTPAMP001-SY-UM9085-RPM-C-M2-Z45SSB-15-RTD-2	3	2	13.022	29.167	0.129	B1I, L1I
NTPAMP001-SY-UM9085-RPM-C-M2-Z45SSB-14-RTD-3	3	2	11.183	26.409	0.130	B1I, L1I
NTPAMP001-SY-UM9085-RPM-C-M2-Z45SSB-11-RTD-4	3	2	10.859	27.833	0.130	B1I, L1I

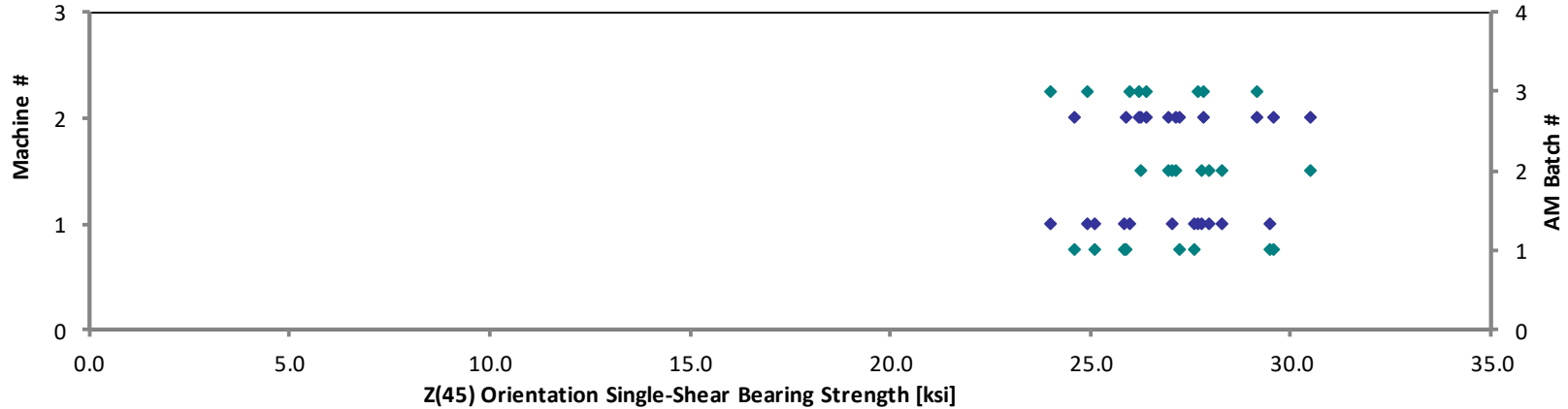
For clarification regarding C1I and L1I failure modes, see Section 4, paragraph 2

Average	15.467	27.079	0.129
Standard Dev.	2.948	1.645	
Coeff. of Var. [%]	19.057	6.075	
Min.	10.095	24.002	0.128
Max.	21.100	30.511	0.131
Number of Spec.	24	24	24

Z(45) Orientation Single-Shear Bearing Properties (Z45SSB)--RTD
Measured 2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z(45) Orientation Single-Shear Bearing Properties (Z45SSB)--RTD
Measured Ultimate Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z(45) Orientation Single-Shear Bearing Properties (Z45SSB)--ETW1
Strength
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

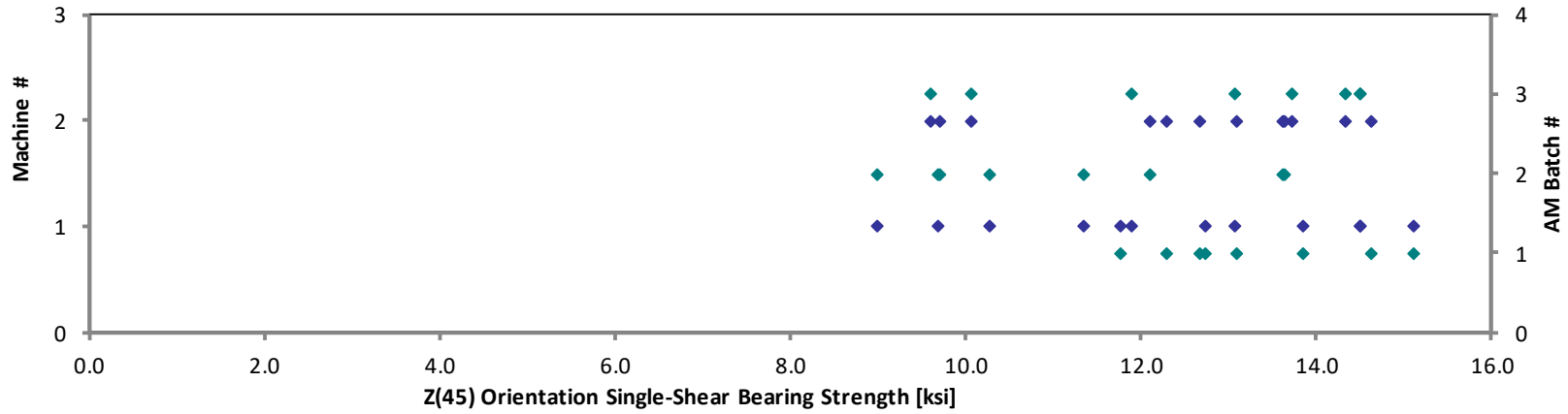
Specimen Number	AM Batch #	Machine #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-Z45SSB-13-ETW1-1	1	1	11.780	20.263	0.129	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-A-M1-Z45SSB-15-ETW1-2	1	1	15.125	22.610	0.128	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-A-M1-Z45SSB-12-ETW1-3	1	1	13.854	22.748	0.129	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-A-M1-Z45SSB-11-ETW1-4	1	1	12.745	20.838	0.130	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-A-M2-Z45SSB-13-ETW1-1	1	2	12.312	20.353	0.130	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-A-M2-Z45SSB-15-ETW1-2	1	2	12.678	20.556	0.129	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-A-M2-Z45SSB-14-ETW1-3	1	2	13.113	20.161	0.129	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-A-M2-Z45SSB-11-ETW1-4	1	2	14.652	20.543	0.130	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-B-M1-Z45SSB-13-ETW1-1	2	1	11.369	21.515	0.129	L1I
NTPAMP001-SY-UM9085-RPM-B-M1-Z45SSB-15-ETW1-2	2	1	9.695	21.168	0.130	L1I
NTPAMP001-SY-UM9085-RPM-B-M1-Z45SSB-12-ETW1-3	2	1	10.275	20.774	0.129	L1I
NTPAMP001-SY-UM9085-RPM-B-M1-Z45SSB-11-ETW1-4	2	1	8.994	21.386	0.130	L1I
NTPAMP001-SY-UM9085-RPM-B-M2-Z45SSB-13-ETW1-1	2	2	13.649	23.445	0.130	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-B-M2-Z45SSB-15-ETW1-2	2	2	13.634	22.936	0.129	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-B-M2-Z45SSB-14-ETW1-3	2	2	12.109	23.155	0.129	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-B-M2-Z45SSB-11-ETW1-4	2	2	9.707	21.003	0.130	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-C-M1-Z45SSB-13-ETW1-1	3	1	13.086	20.703	0.130	L1I
NTPAMP001-SY-UM9085-RPM-C-M1-Z45SSB-15-ETW1-2	3	1	11.903	20.615	0.129	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-C-M1-Z45SSB-12-ETW1-3	3	1	14.524	21.183	0.129	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-C-M1-Z45SSB-11-ETW1-4	3	1	14.519	22.127	0.130	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-C-M2-Z45SSB-13-ETW1-1	3	2	14.342	22.989	0.130	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-C-M2-Z45SSB-15-ETW1-2	3	2	9.610	20.379	0.130	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-C-M2-Z45SSB-14-ETW1-3	3	2	13.728	22.189	0.128	M(B,L)1I
NTPAMP001-SY-UM9085-RPM-C-M2-Z45SSB-11-ETW1-4	3	2	10.073	20.467	0.130	M(B,L)1I

Reference only: Batch 1 and 3 were tested without a washer under the nut.

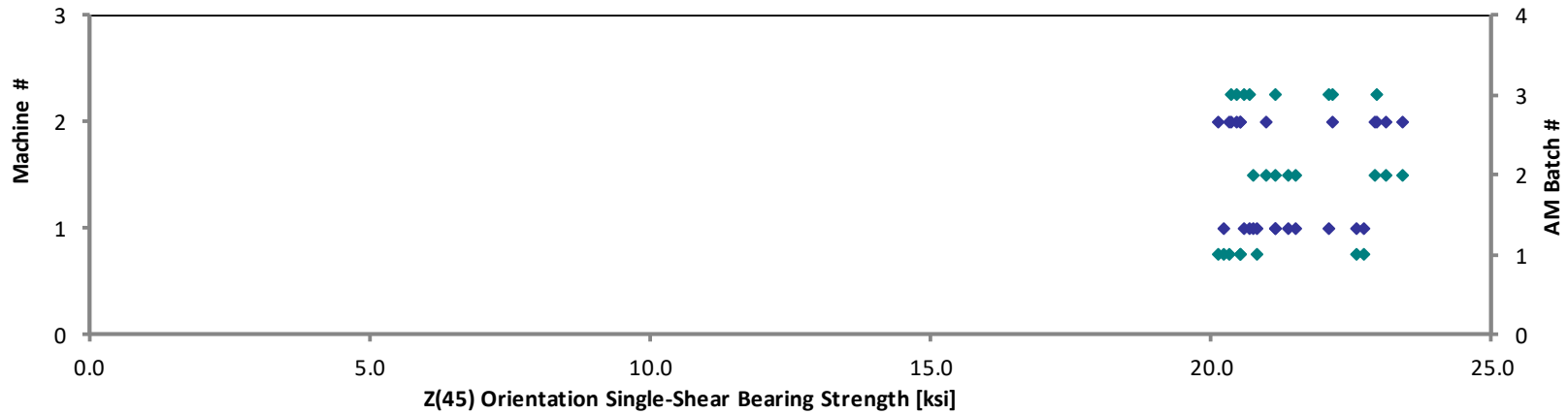
For clarification regarding C1I and L1I failure modes, see Section 4, paragraph 2

Average	12.395	21.421	0.129
Standard Dev.	1.854	1.062	
Coeff. of Var. [%]	14.960	4.957	
Min.	8.994	20.161	0.128
Max.	15.125	23.445	0.130
Number of Spec.	24	24	24

Z(45) Orientation Single-Shear Bearing Properties (Z45SSB)--ETW1
Measured 2% Offset Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



Z(45) Orientation Single-Shear Bearing Properties (Z45SSB)--ETW1
Measured Ultimate Strength
Stratasys Certified ULTEM™ 9085 / Fortus 900mc



4.34 X Izod Impact Resistance Properties (XIzod) – Reference Only

X Orientation Izod Pendulum Impact Properties (XIzod)--RTD
Impact Resistance
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Energy [Joules]	Impact Resistance [Joules/meter]	Avg. Specimen Thickness [in]	Avg. Specimen Width at Notch [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-XIzod-13-RTD-1	1	1	0.506	158.125	0.126	0.398	C
NTPAMP001-SY-UM9085-RPM-A-M1-XIzod-15-RTD-2	1	1	0.396	124.528	0.125	0.399	C
NTPAMP001-SY-UM9085-RPM-A-M1-XIzod-14-RTD-3	1	1	0.532	163.692	0.128	0.397	C
NTPAMP001-SY-UM9085-RPM-A-M1-XIzod-11-RTD-4	1	1	0.387	120.938	0.126	0.399	C
NTPAMP001-SY-UM9085-RPM-A-M2-XIzod-13-RTD-1	1	2	0.395	121.538	0.128	0.401	C
NTPAMP001-SY-UM9085-RPM-A-M2-XIzod-15-RTD-2	1	2	0.330	102.167	0.127	0.400	C
NTPAMP001-SY-UM9085-RPM-A-M2-XIzod-12-RTD-3	1	2	0.366	136.800	0.127	0.400	C
NTPAMP001-SY-UM9085-RPM-A-M2-XIzod-11-RTD-4	1	2	0.336	104.025	0.127	0.400	C
NTPAMP001-SY-UM9085-RPM-B-M1-XIzod-13-RTD-1	2	1	0.280	87.867	0.127	0.399	C
NTPAMP001-SY-UM9085-RPM-B-M1-XIzod-15-RTD-2	2	1	0.231	71.957	0.126	0.398	C
NTPAMP001-SY-UM9085-RPM-B-M1-XIzod-14-RTD-3	2	1	0.276	85.476	0.127	0.398	C
NTPAMP001-SY-UM9085-RPM-B-M1-XIzod-11-RTD-4	2	1	0.315	98.454	0.127	0.398	C
NTPAMP001-SY-UM9085-RPM-B-M2-XIzod-13-RTD-1	2	2	0.160	49.538	0.127	0.399	C
NTPAMP001-SY-UM9085-RPM-B-M2-XIzod-15-RTD-2	2	2	0.242	74.923	0.127	0.397	C
NTPAMP001-SY-UM9085-RPM-B-M2-XIzod-12-RTD-3	2	2	0.274	84.308	0.128	0.400	C
NTPAMP001-SY-UM9085-RPM-B-M2-XIzod-11-RTD-4	2	2	0.285	88.235	0.127	0.399	C
NTPAMP001-SY-UM9085-RPM-C-M1-XIzod-13-RTD-1	3	1	0.277	85.759	0.127	0.402	C
NTPAMP001-SY-UM9085-RPM-C-M1-XIzod-15-RTD-2	3	1	0.223	69.688	0.126	0.401	C
NTPAMP001-SY-UM9085-RPM-C-M1-XIzod-14-RTD-3	3	1	0.241	75.313	0.126	0.402	C
NTPAMP001-SY-UM9085-RPM-C-M1-XIzod-11-RTD-4	3	1	0.275	85.938	0.126	0.402	C
NTPAMP001-SY-UM9085-RPM-C-M2-XIzod-13-RTD-1	3	2	0.227	70.279	0.127	0.401	C
NTPAMP001-SY-UM9085-RPM-C-M2-XIzod-15-RTD-2	3	2	0.226	70.625	0.126	0.402	C
NTPAMP001-SY-UM9085-RPM-C-M2-XIzod-12-RTD-3	3	2	0.221	69.063	0.126	0.401	C
NTPAMP001-SY-UM9085-RPM-C-M2-XIzod-11-RTD-4	3	2	0.255	78.497	0.127	0.400	C

Average	0.302	94.906	0.127
Standard Dev.	0.090	29.112	
Coeff. of Var. [%]	29.900	30.675	
Min.	0.160	49.538	0.125
Max.	0.532	163.692	0.128
Number of Spec.	24	24	24

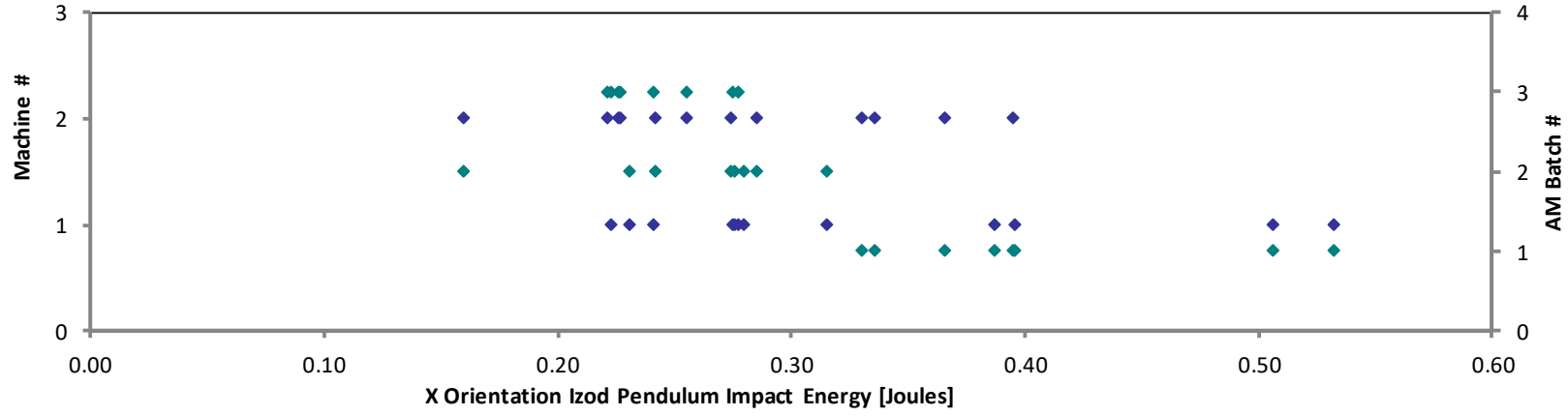
X Orientation Izod Pendulum Impact Properties (XIzod)--RTD
Impact Resistance
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



X Orientation Izod Pendulum Impact Properties (XIzod)--RTD
Energy
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



4.35 Y Izod Impact Resistance Properties (YIzod) – Reference Only

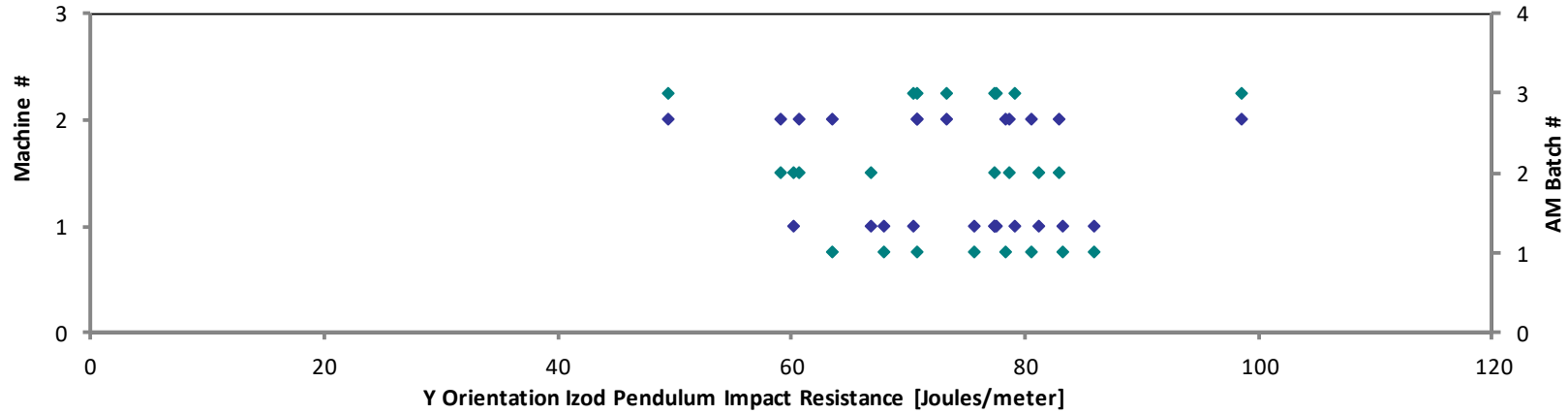
Y Orientation Izod Pendulum Impact Properties (YIzod)--RTD
Impact Resistance
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Energy [Joules]	Impact Resistance [Joules/meter]	Avg. Specimen Thickness [in]	Avg. Specimen Width at Notch [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-YIzod-13-RTD-1	1	1	0.246	75.692	0.128	0.401	C
NTPAMP001-SY-UM9085-RPM-A-M1-YIzod-15-RTD-2	1	1	0.221	68.000	0.128	0.401	C
NTPAMP001-SY-UM9085-RPM-A-M1-YIzod-14-RTD-3	1	1	0.269	83.282	0.127	0.401	C
NTPAMP001-SY-UM9085-RPM-A-M1-YIzod-11-RTD-4	1	1	0.282	85.976	0.129	0.400	C
NTPAMP001-SY-UM9085-RPM-A-M2-YIzod-13-RTD-1	1	2	0.231	70.832	0.129	0.400	C
NTPAMP001-SY-UM9085-RPM-A-M2-YIzod-15-RTD-2	1	2	0.264	80.488	0.129	0.400	C
NTPAMP001-SY-UM9085-RPM-A-M2-YIzod-12-RTD-3	1	2	0.257	78.354	0.129	0.400	C
NTPAMP001-SY-UM9085-RPM-A-M2-YIzod-11-RTD-4	1	2	0.208	63.586	0.129	0.390	C
NTPAMP001-SY-UM9085-RPM-B-M1-YIzod-13-RTD-1	2	1	0.215	66.823	0.128	0.397	C
NTPAMP001-SY-UM9085-RPM-B-M1-YIzod-15-RTD-2	2	1	0.194	60.187	0.128	0.397	C
NTPAMP001-SY-UM9085-RPM-B-M1-YIzod-14-RTD-3	2	1	0.264	81.231	0.128	0.399	C
NTPAMP001-SY-UM9085-RPM-B-M1-YIzod-11-RTD-4	2	1	0.248	77.352	0.129	0.401	C
NTPAMP001-SY-UM9085-RPM-B-M2-YIzod-13-RTD-1	2	2	0.258	78.659	0.129	0.399	C
NTPAMP001-SY-UM9085-RPM-B-M2-YIzod-15-RTD-2	2	2	0.272	82.927	0.129	0.398	C
NTPAMP001-SY-UM9085-RPM-B-M2-YIzod-12-RTD-3	2	2	0.194	59.146	0.129	0.399	C
NTPAMP001-SY-UM9085-RPM-B-M2-YIzod-11-RTD-4	2	2	0.199	60.671	0.129	0.398	C
NTPAMP001-SY-UM9085-RPM-C-M1-YIzod-13-RTD-1	3	1	0.252	77.538	0.128	0.401	C
NTPAMP001-SY-UM9085-RPM-C-M1-YIzod-15-RTD-2	3	1	0.250	77.399	0.127	0.399	C
NTPAMP001-SY-UM9085-RPM-C-M1-YIzod-14-RTD-3	3	1	0.257	79.077	0.128	0.400	C
NTPAMP001-SY-UM9085-RPM-C-M1-YIzod-11-RTD-4	3	1	0.229	70.462	0.128	0.401	C
NTPAMP001-SY-UM9085-RPM-C-M2-YIzod-13-RTD-1	3	2	0.162	49.390	0.129	0.400	C
NTPAMP001-SY-UM9085-RPM-C-M2-YIzod-15-RTD-2	3	2	0.242	73.333	0.130	0.401	C
NTPAMP001-SY-UM9085-RPM-C-M2-YIzod-12-RTD-3	3	2	0.323	98.476	0.129	0.399	C
NTPAMP001-SY-UM9085-RPM-C-M2-YIzod-11-RTD-4	3	2	0.232	70.732	0.129	0.400	C

Average	0.240	73.734	0.129
Standard Dev.	0.034	10.488	
Coeff. of Var. [%]	14.304	14.224	
Min.	0.162	49.390	0.127
Max.	0.323	98.476	0.130
Number of Spec.	24	24	24

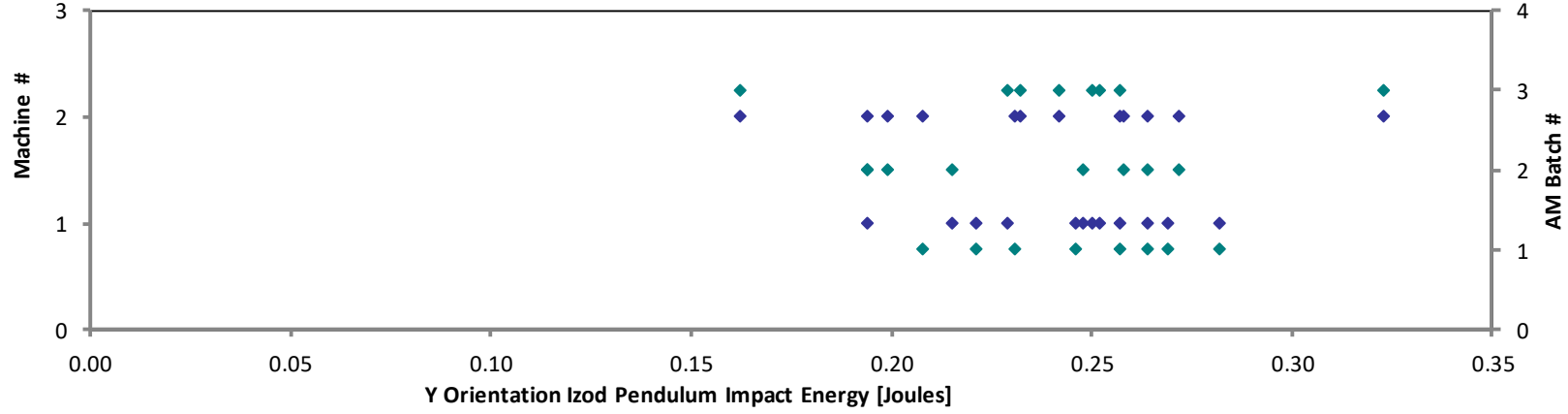
Y Orientation Izod Pendulum Impact Properties (YIzod)--RTD
Impact Resistance
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Y Orientation Izod Pendulum Impact Properties (YIzod)--RTD
Energy
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



4.36 Z Izod Impact Resistance Properties (ZIzod) – Reference Only

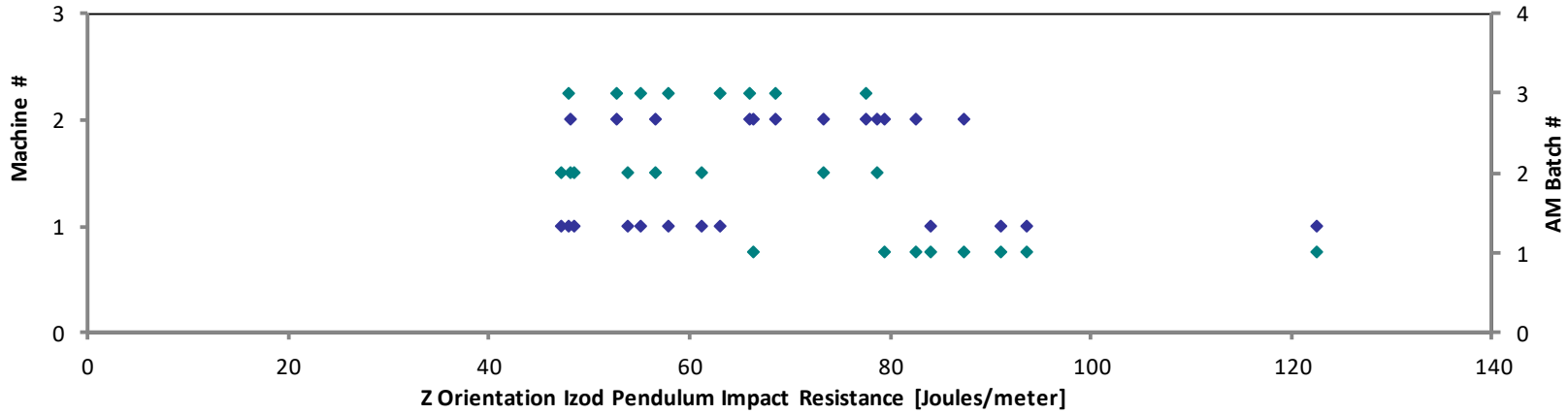
**Z Orientation Izod Pendulum Impact Properties (ZIzod)--RTD
Impact**
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Energy [Joules]	Impact Resistance [Joules/meter]	Avg. Specimen Thickness [in]	Avg. Specimen Width at Notch [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-ZIzod-13-RTD-1	1	1	0.312	93.694	0.131	0.400	C
NTPAMP001-SY-UM9085-RPM-A-M1-ZIzod-15-RTD-2	1	1	0.280	84.084	0.131	0.400	P
NTPAMP001-SY-UM9085-RPM-A-M1-ZIzod-12-RTD-3	1	1	0.303	90.991	0.131	0.400	P
NTPAMP001-SY-UM9085-RPM-A-M1-ZIzod-11-RTD-4	1	1	0.408	122.523	0.131	0.399	P
NTPAMP001-SY-UM9085-RPM-A-M2-ZIzod-13-RTD-1	1	2	0.262	79.394	0.130	0.400	C
NTPAMP001-SY-UM9085-RPM-A-M2-ZIzod-15-RTD-2	1	2	0.288	87.273	0.130	0.400	C
NTPAMP001-SY-UM9085-RPM-A-M2-ZIzod-14-RTD-3	1	2	0.219	66.364	0.130	0.401	C
NTPAMP001-SY-UM9085-RPM-A-M2-ZIzod-11-RTD-4	1	2	0.217	82.622	0.129	0.401	C
NTPAMP001-SY-UM9085-RPM-B-M1-ZIzod-13-RTD-1	2	1	0.157	47.147	0.131	0.400	C
NTPAMP001-SY-UM9085-RPM-B-M1-ZIzod-15-RTD-2	2	1	0.173	53.765	0.130	0.400	C
NTPAMP001-SY-UM9085-RPM-B-M1-ZIzod-12-RTD-3	2	1	0.160	48.485	0.130	0.400	C
NTPAMP001-SY-UM9085-RPM-B-M1-ZIzod-11-RTD-4	2	1	0.204	61.261	0.131	0.399	C
NTPAMP001-SY-UM9085-RPM-B-M2-ZIzod-13-RTD-1	2	2	0.159	48.182	0.130	0.398	C
NTPAMP001-SY-UM9085-RPM-B-M2-ZIzod-15-RTD-2	2	2	0.242	73.333	0.130	0.399	C
NTPAMP001-SY-UM9085-RPM-B-M2-ZIzod-14-RTD-3	2	2	0.260	78.788	0.130	0.400	C
NTPAMP001-SY-UM9085-RPM-B-M2-ZIzod-11-RTD-4	2	2	0.187	56.667	0.130	0.401	C
NTPAMP001-SY-UM9085-RPM-C-M1-ZIzod-13-RTD-1	3	1	0.208	63.030	0.130	0.403	C
NTPAMP001-SY-UM9085-RPM-C-M1-ZIzod-15-RTD-2	3	1	0.188	57.846	0.128	0.402	C
NTPAMP001-SY-UM9085-RPM-C-M1-ZIzod-12-RTD-3	3	1	0.181	55.183	0.129	0.402	C
NTPAMP001-SY-UM9085-RPM-C-M1-ZIzod-11-RTD-4	3	1	0.158	47.879	0.130	0.403	C
NTPAMP001-SY-UM9085-RPM-C-M2-ZIzod-13-RTD-1	3	2	0.256	77.576	0.130	0.399	C
NTPAMP001-SY-UM9085-RPM-C-M2-ZIzod-15-RTD-2	3	2	0.218	66.061	0.130	0.399	C
NTPAMP001-SY-UM9085-RPM-C-M2-ZIzod-14-RTD-3	3	2	0.174	52.727	0.130	0.401	C
NTPAMP001-SY-UM9085-RPM-C-M2-ZIzod-11-RTD-4	3	2	0.226	68.485	0.130	0.402	C

Average	0.227	69.307	0.130
Standard Dev.	0.061	18.478	
Coeff. of Var. [%]	27.062	26.661	
Min.	0.157	47.147	0.128
Max.	0.408	122.523	0.131
Number of Spec.	24	24	24

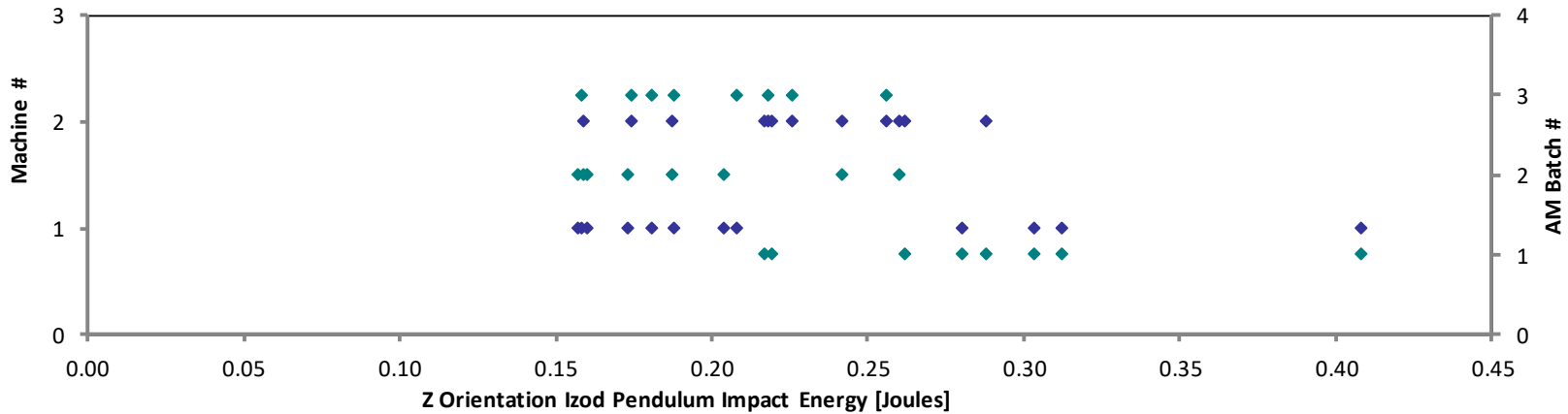
Z Orientation Izod Pendulum Impact Properties (ZIzod)--RTD
Impact Resistance
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



Z Orientation Izod Pendulum Impact Properties (ZIzod)--RTD
Energy
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



4.37 Z45 Izod Impact Resistance Properties (Z45Izod) – Reference Only

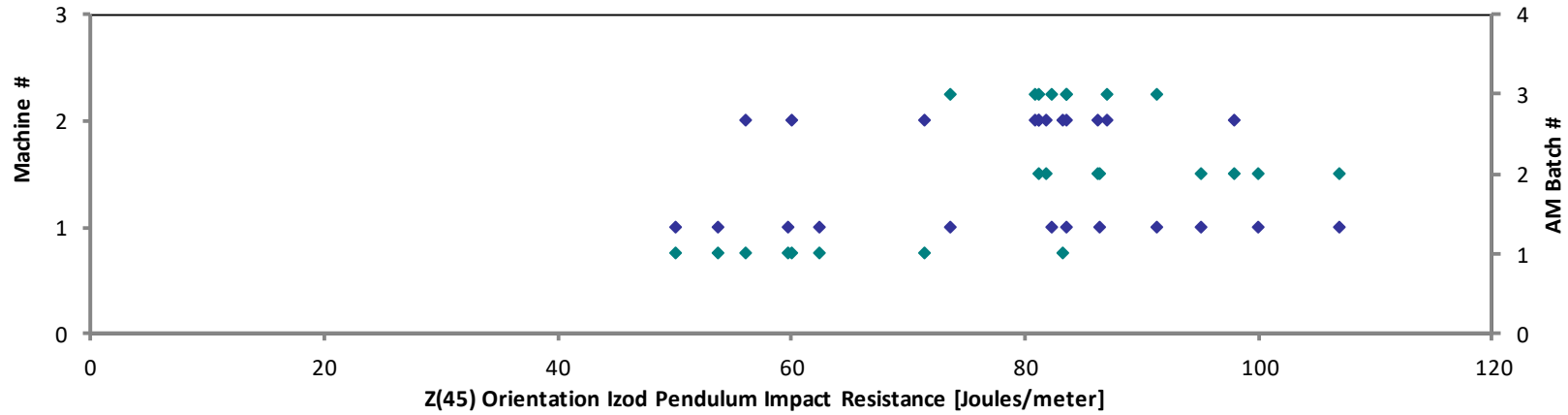
Z(45) Orientation Izod Pendulum Impact Properties (Z45Izod)--RTD Impact
 Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen Number	AM Batch #	Machine #	Energy [Joules]	Impact Resistance [Joules/meter]	Avg. Specimen Thickness [in]	Avg. Specimen Width at Notch [in]	Failure Mode
NTPAMP001-SY-UM9085-RPM-A-M1-Z45Izod-13-RTD-1	1	1	0.208	62.462	0.131	0.400	C
NTPAMP001-SY-UM9085-RPM-A-M1-Z45Izod-15-RTD-2	1	1	0.197	59.697	0.130	0.400	C
NTPAMP001-SY-UM9085-RPM-A-M1-Z45Izod-12-RTD-3	1	1	0.179	53.754	0.131	0.400	C
NTPAMP001-SY-UM9085-RPM-A-M1-Z45Izod-11-RTD-4	1	1	0.167	50.150	0.131	0.399	C
NTPAMP001-SY-UM9085-RPM-A-M2-Z45Izod-13-RTD-1	1	2	0.277	83.183	0.131	0.400	P
NTPAMP001-SY-UM9085-RPM-A-M2-Z45Izod-15-RTD-2	1	2	0.185	56.138	0.131	0.400	P
NTPAMP001-SY-UM9085-RPM-A-M2-Z45Izod-14-RTD-3	1	2	0.236	71.365	0.131	0.399	P
NTPAMP001-SY-UM9085-RPM-A-M2-Z45Izod-11-RTD-4	1	2	0.198	59.983	0.131	0.399	P
NTPAMP001-SY-UM9085-RPM-B-M1-Z45Izod-13-RTD-1	2	1	0.356	106.968	0.131	0.399	P
NTPAMP001-SY-UM9085-RPM-B-M1-Z45Izod-15-RTD-2	2	1	0.315	95.149	0.132	0.400	P
NTPAMP001-SY-UM9085-RPM-B-M1-Z45Izod-12-RTD-3	2	1	0.284	86.354	0.131	0.399	P
NTPAMP001-SY-UM9085-RPM-B-M1-Z45Izod-11-RTD-4	2	1	0.332	99.957	0.132	0.400	P
NTPAMP001-SY-UM9085-RPM-B-M2-Z45Izod-13-RTD-1	2	2	0.289	86.269	0.132	0.400	C
NTPAMP001-SY-UM9085-RPM-B-M2-Z45Izod-15-RTD-2	2	2	0.328	97.910	0.132	0.400	P
NTPAMP001-SY-UM9085-RPM-B-M2-Z45Izod-14-RTD-3	2	2	0.274	81.791	0.132	0.399	P
NTPAMP001-SY-UM9085-RPM-B-M2-Z45Izod-11-RTD-4	2	2	0.272	81.194	0.133	0.400	C
NTPAMP001-SY-UM9085-RPM-C-M1-Z45Izod-13-RTD-1	3	1	0.245	73.574	0.131	0.400	P
NTPAMP001-SY-UM9085-RPM-C-M1-Z45Izod-15-RTD-2	3	1	0.274	82.282	0.131	0.399	P
NTPAMP001-SY-UM9085-RPM-C-M1-Z45Izod-12-RTD-3	3	1	0.278	83.483	0.131	0.399	P
NTPAMP001-SY-UM9085-RPM-C-M1-Z45Izod-11-RTD-4	3	1	0.306	91.343	0.132	0.399	P
NTPAMP001-SY-UM9085-RPM-C-M2-Z45Izod-13-RTD-1	3	2	0.272	81.194	0.132	0.401	P
NTPAMP001-SY-UM9085-RPM-C-M2-Z45Izod-15-RTD-2	3	2	0.278	83.483	0.131	0.401	P
NTPAMP001-SY-UM9085-RPM-C-M2-Z45Izod-14-RTD-3	3	2	0.290	87.087	0.131	0.400	P
NTPAMP001-SY-UM9085-RPM-C-M2-Z45Izod-11-RTD-4	3	2	0.271	80.896	0.132	0.401	P

Average	0.263	78.986	0.131
Standard Dev.	0.051	15.240	
Coeff. of Var. [%]	19.450	19.294	
Min.	0.167	50.150	0.130
Max.	0.356	106.968	0.133
Number of Spec.	24	24	24

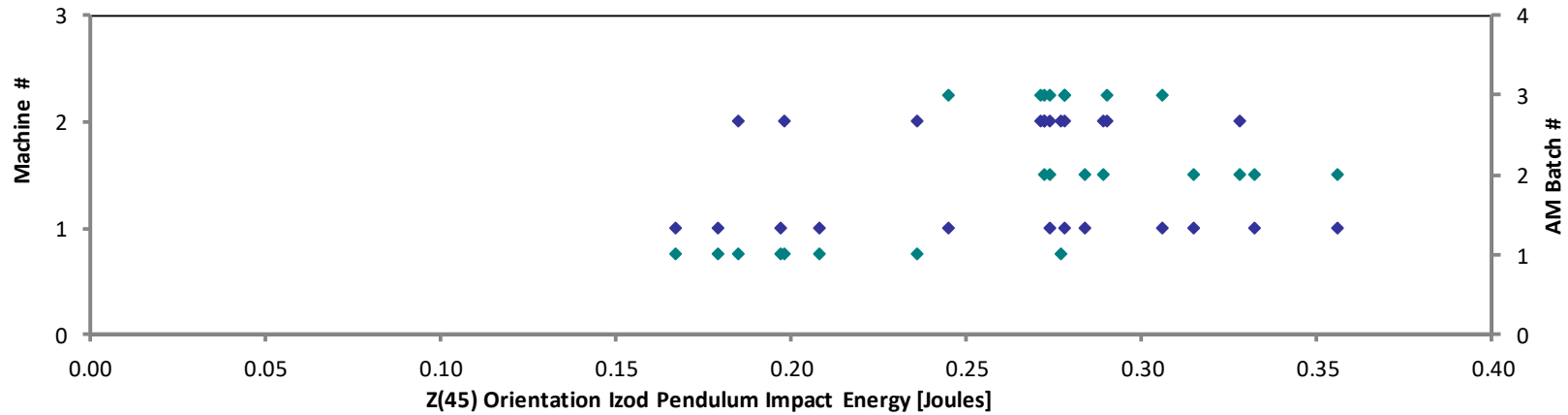
Z(45) Orientation Izod Pendulum Impact Properties (Z45Izod)--RTD
Impact Resistance
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

◆ Machine #
◆ AM Batch #



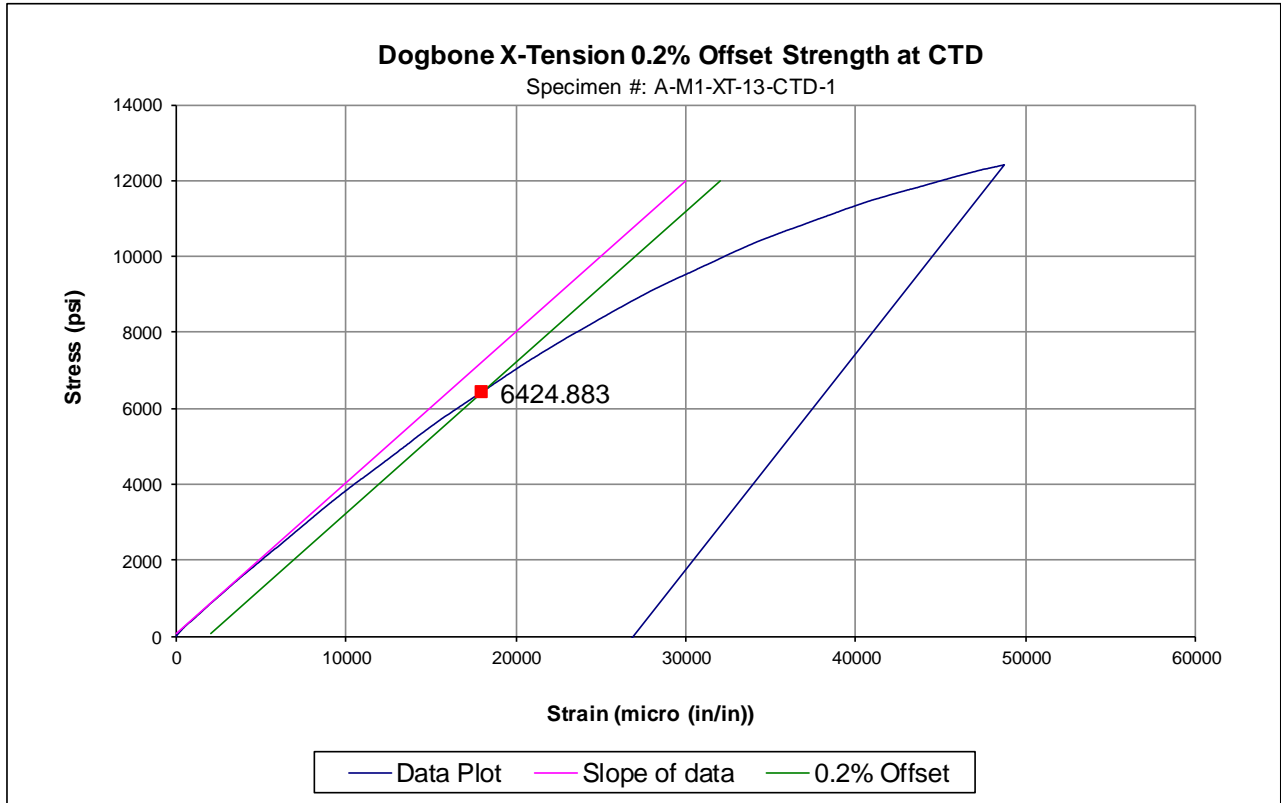
Z(45) Orientation Izod Pendulum Impact Properties (Z45Izod)--RTD
Energy
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

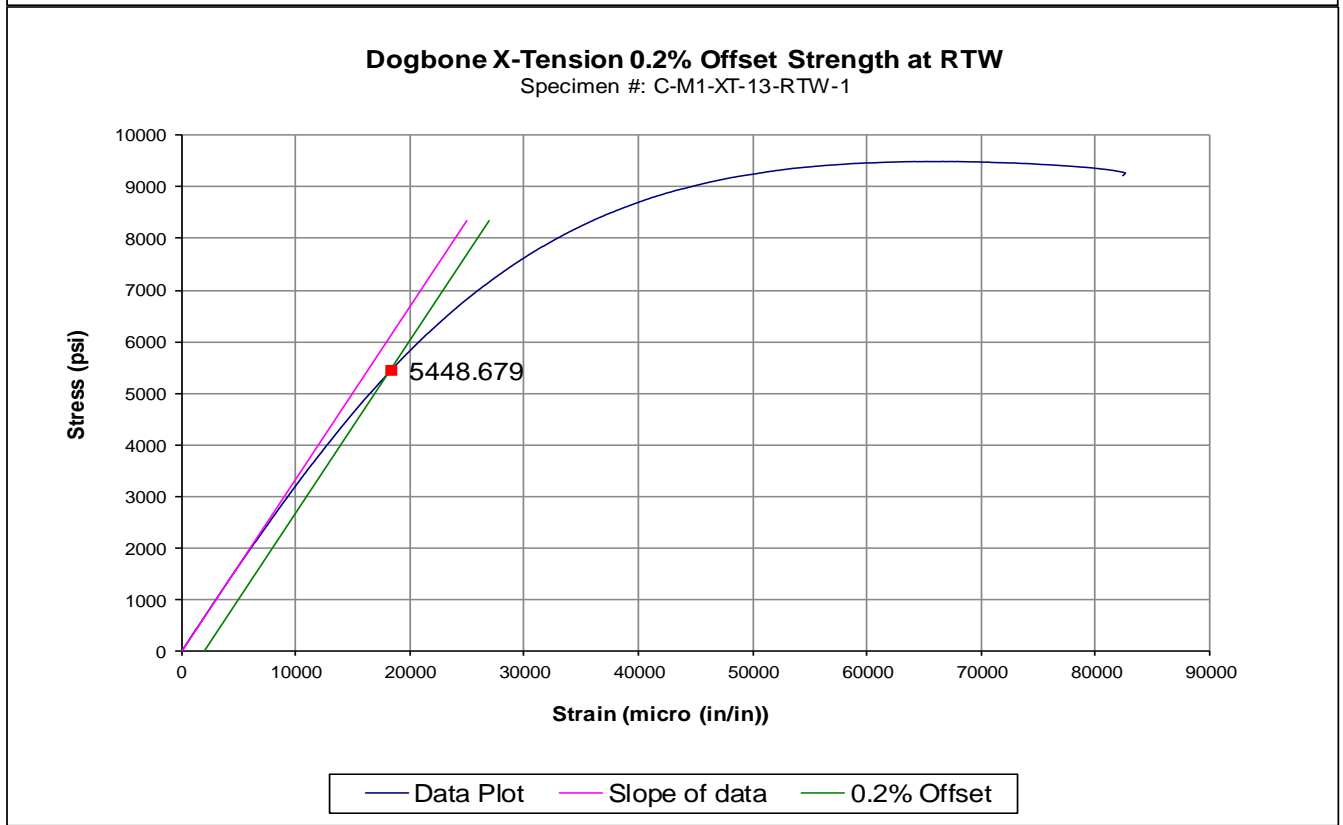
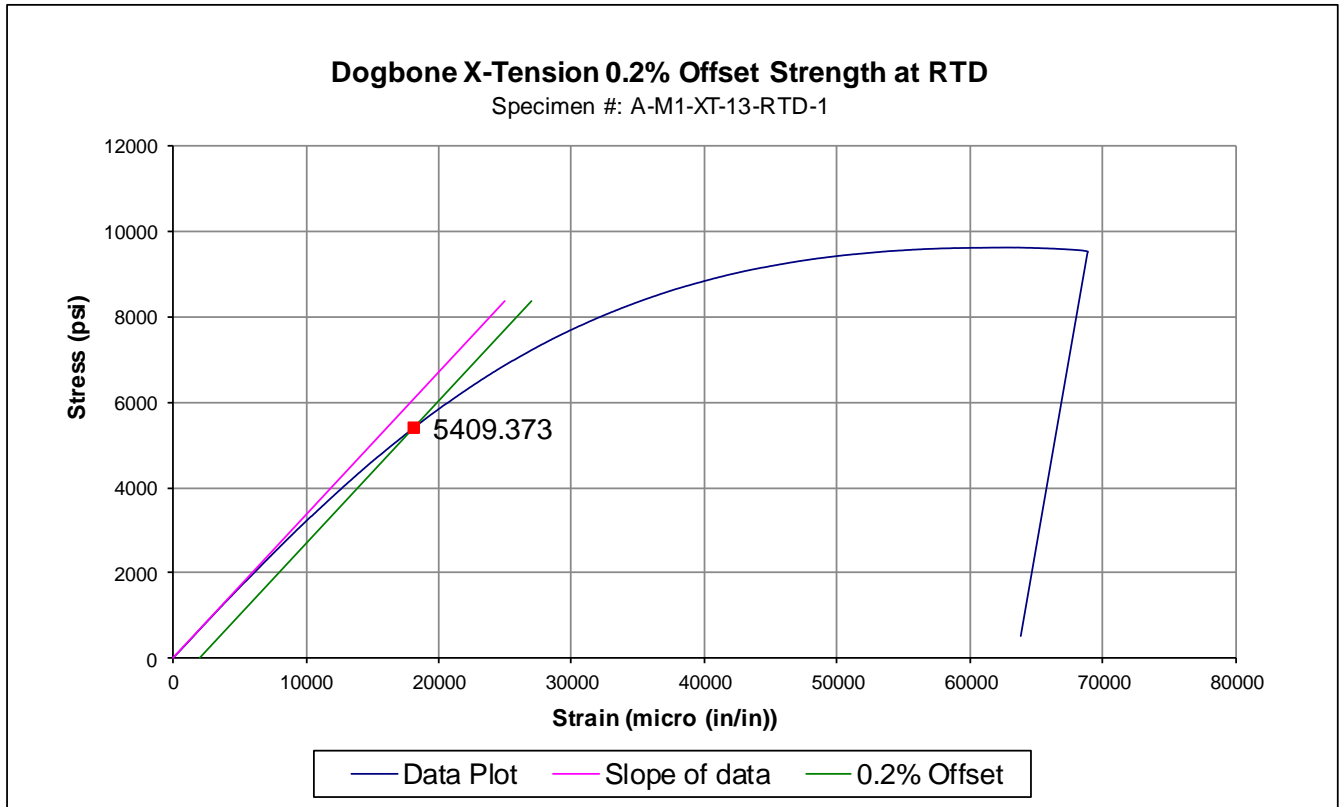
◆ Machine #
◆ AM Batch #

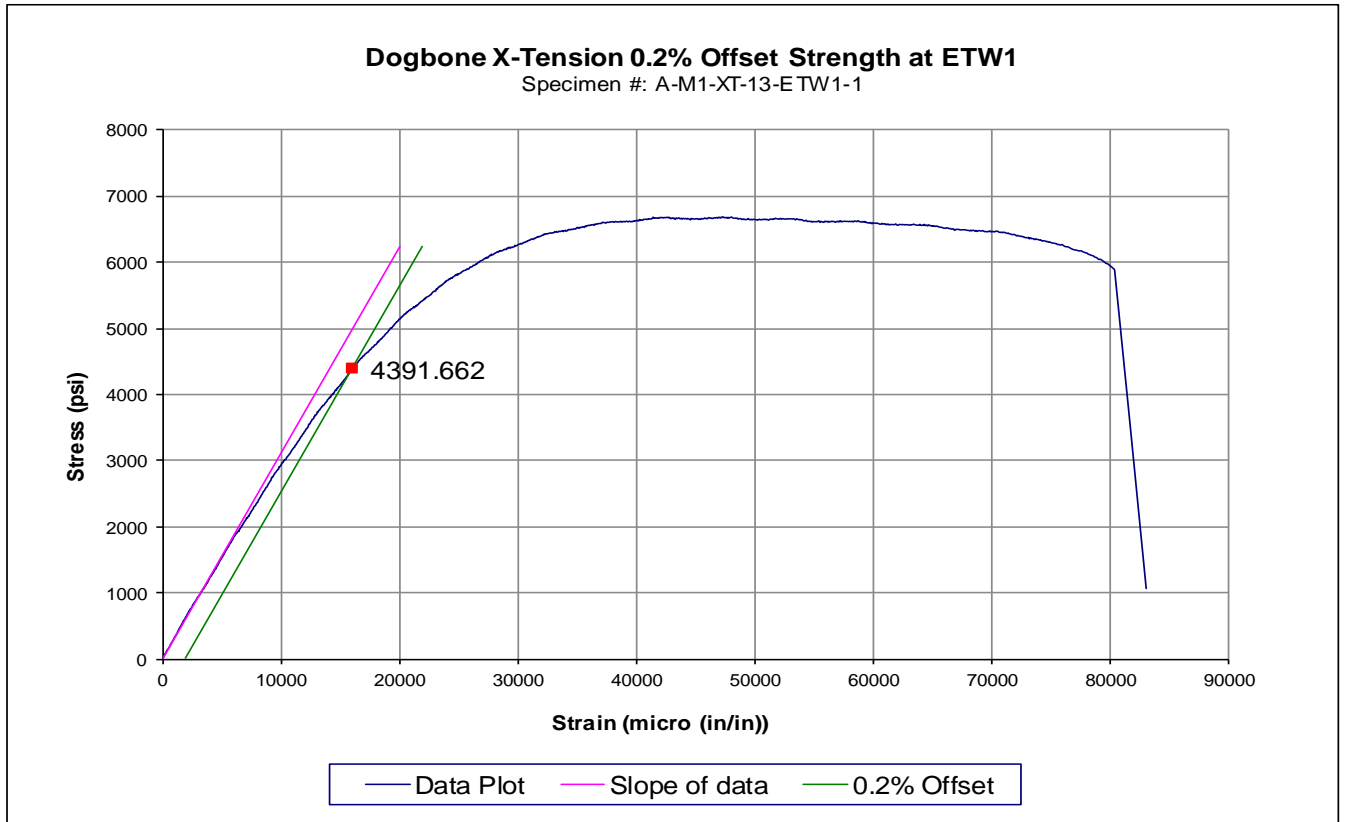


5. Full Stress vs. Strain Curve

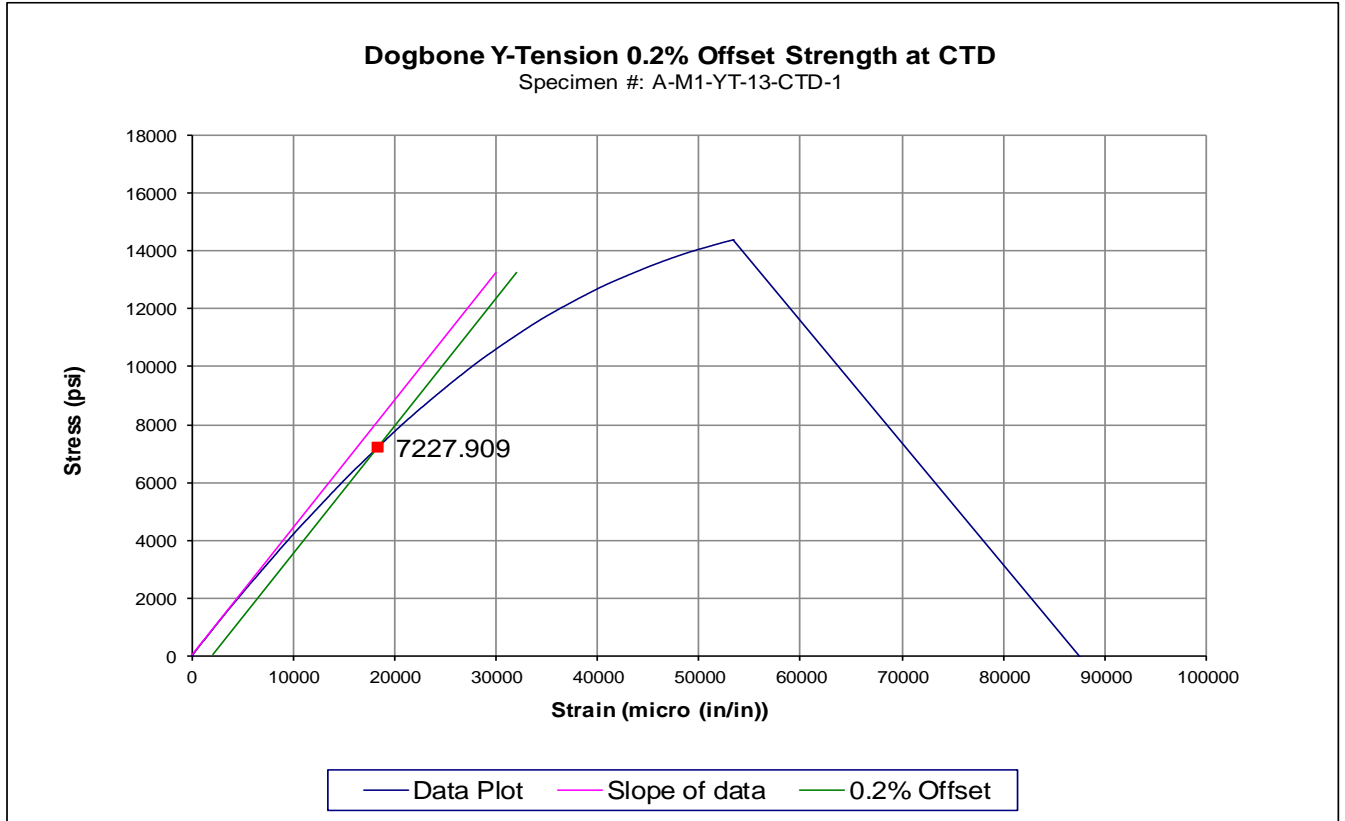
5.1 Dogbone X-Tension Properties (XT)

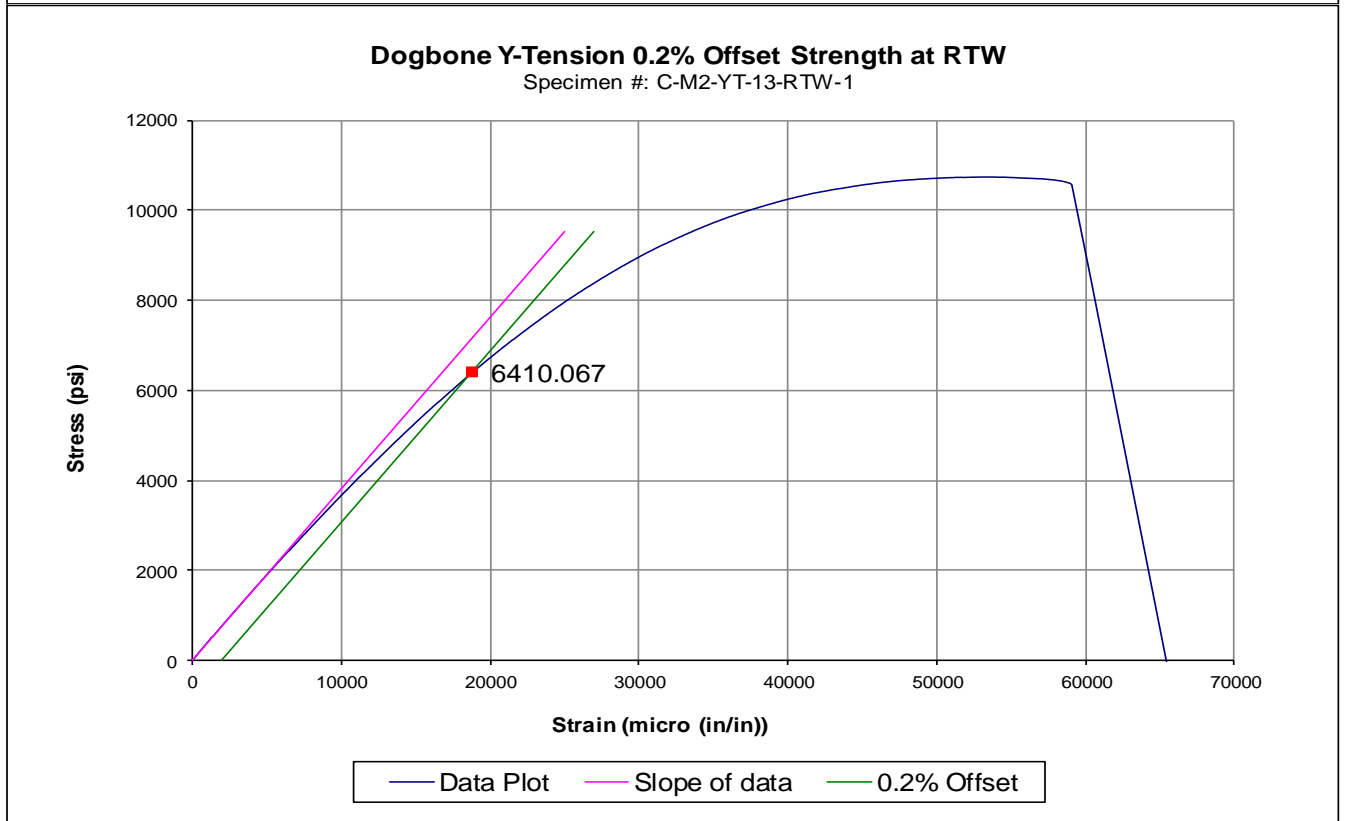
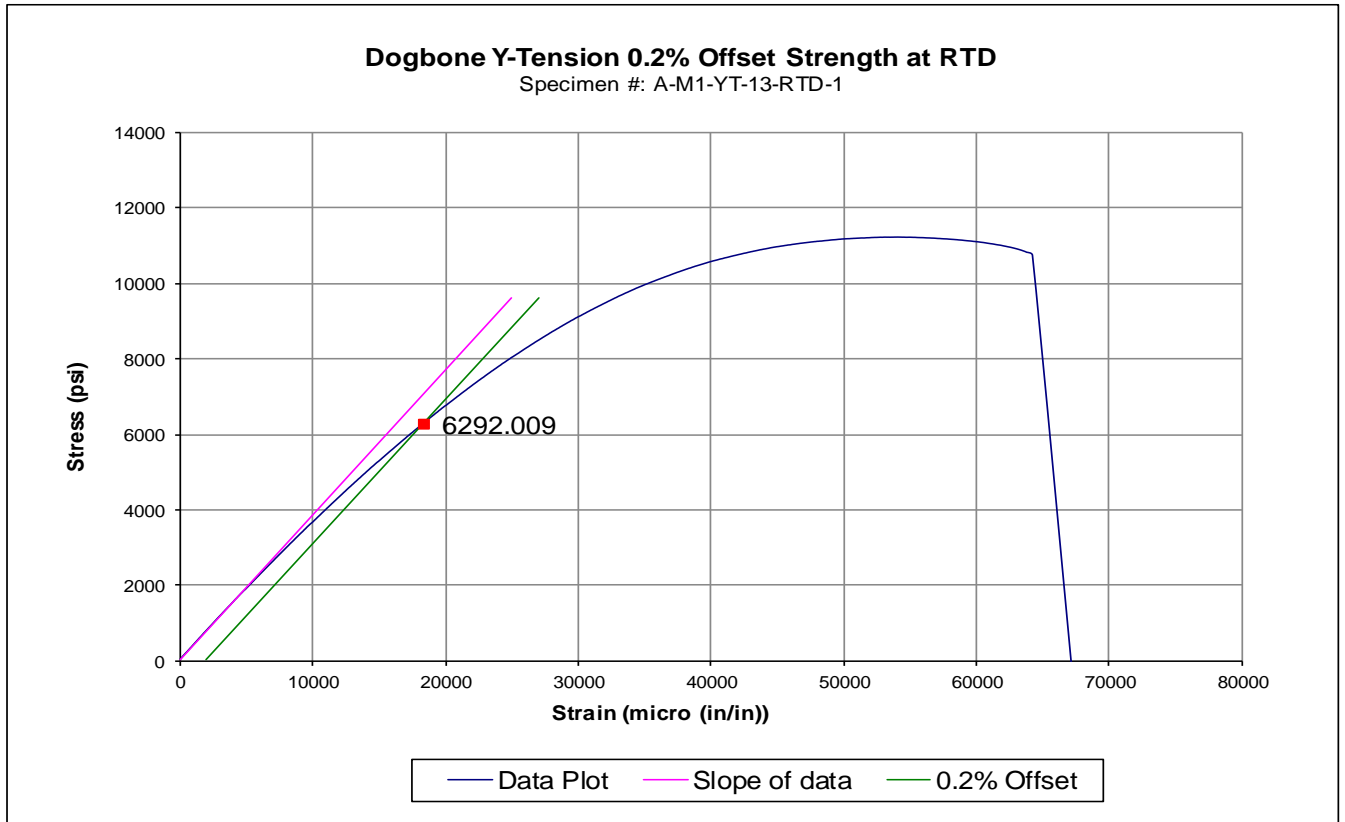


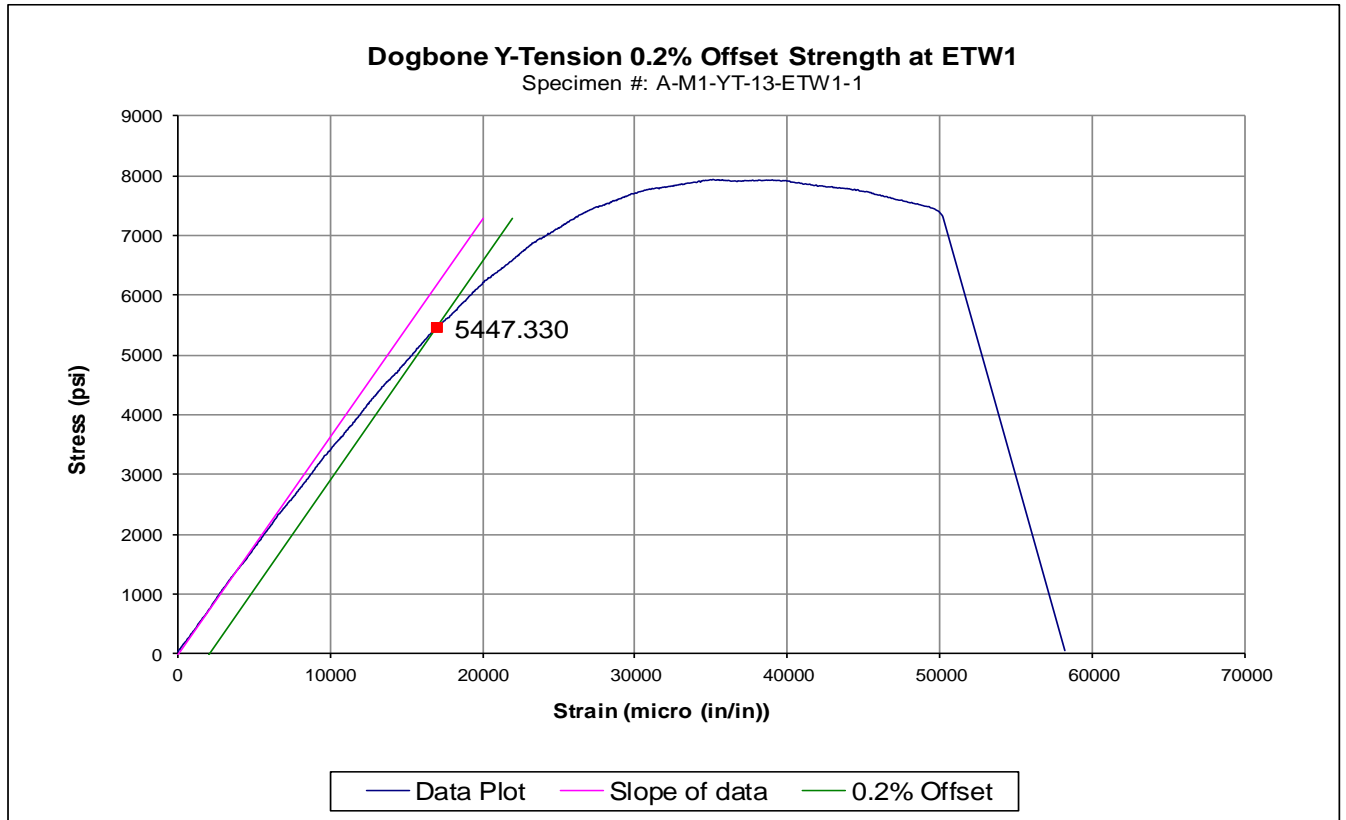




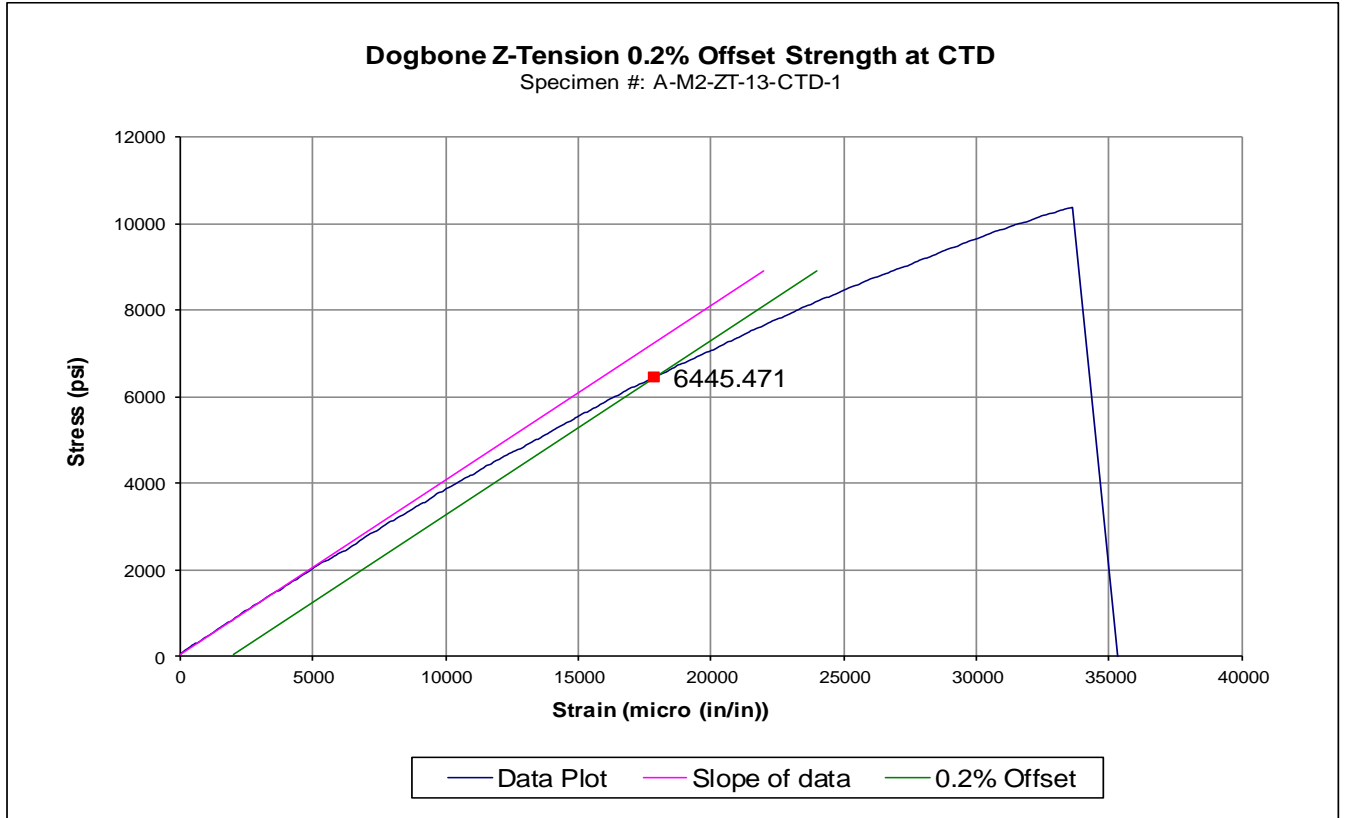
5.2 Dogbone Y-Tension Properties (YT)

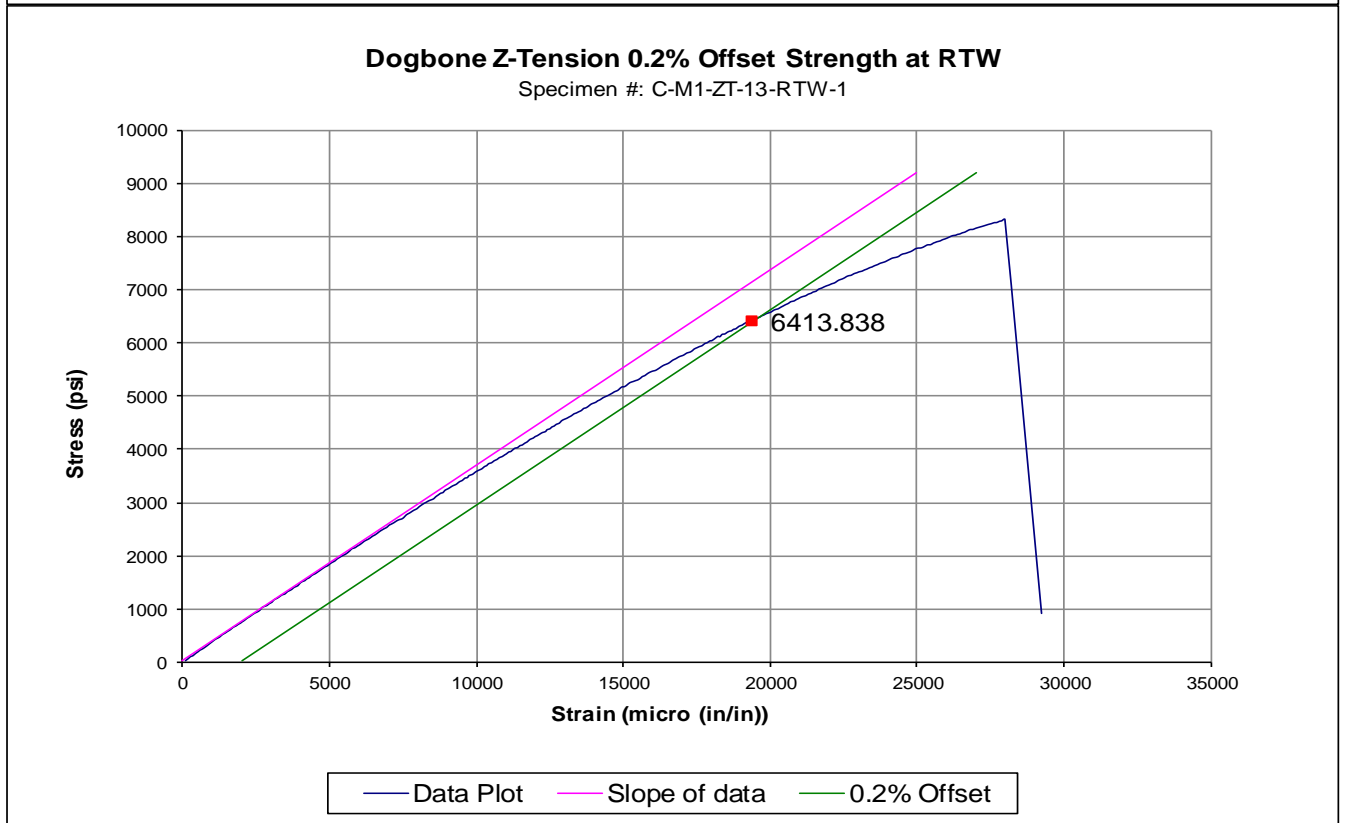
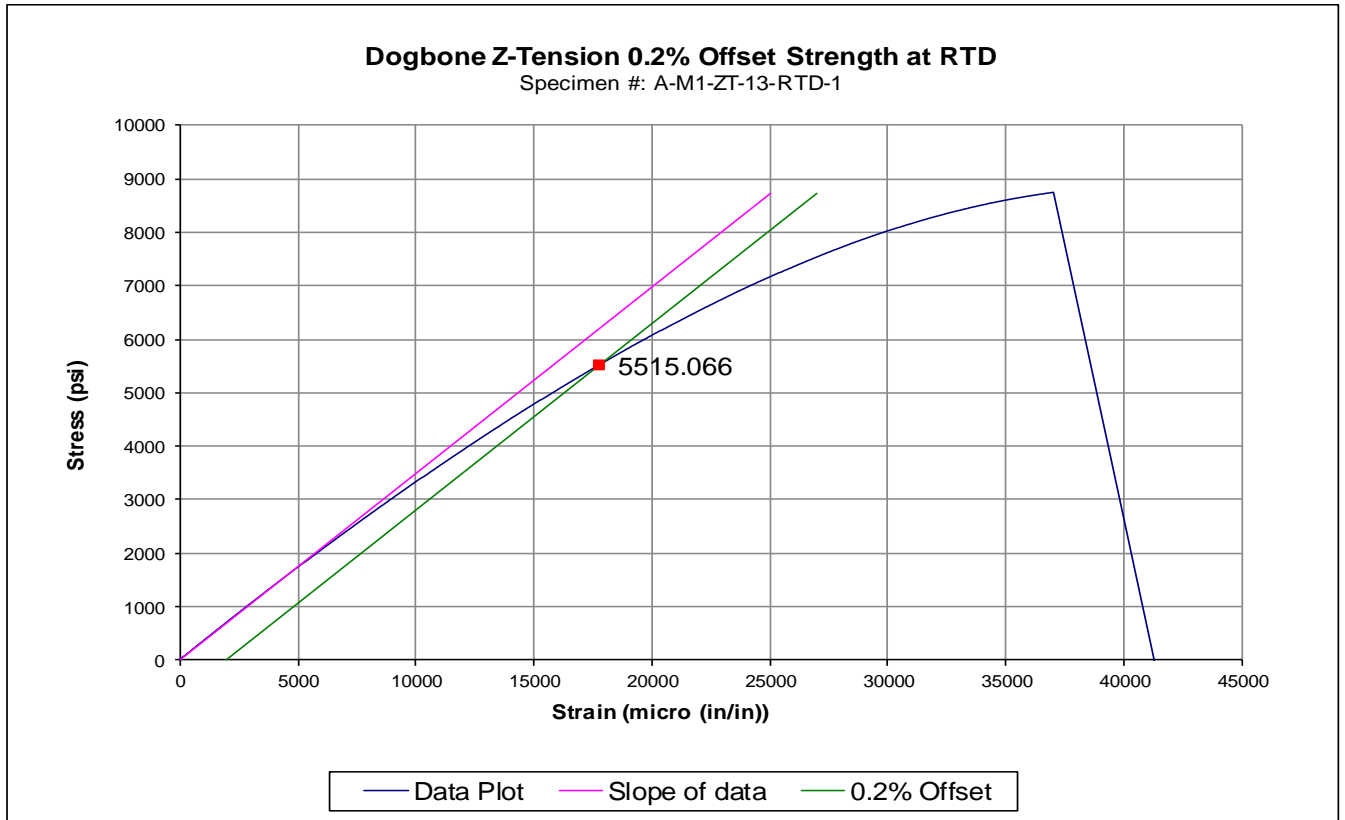


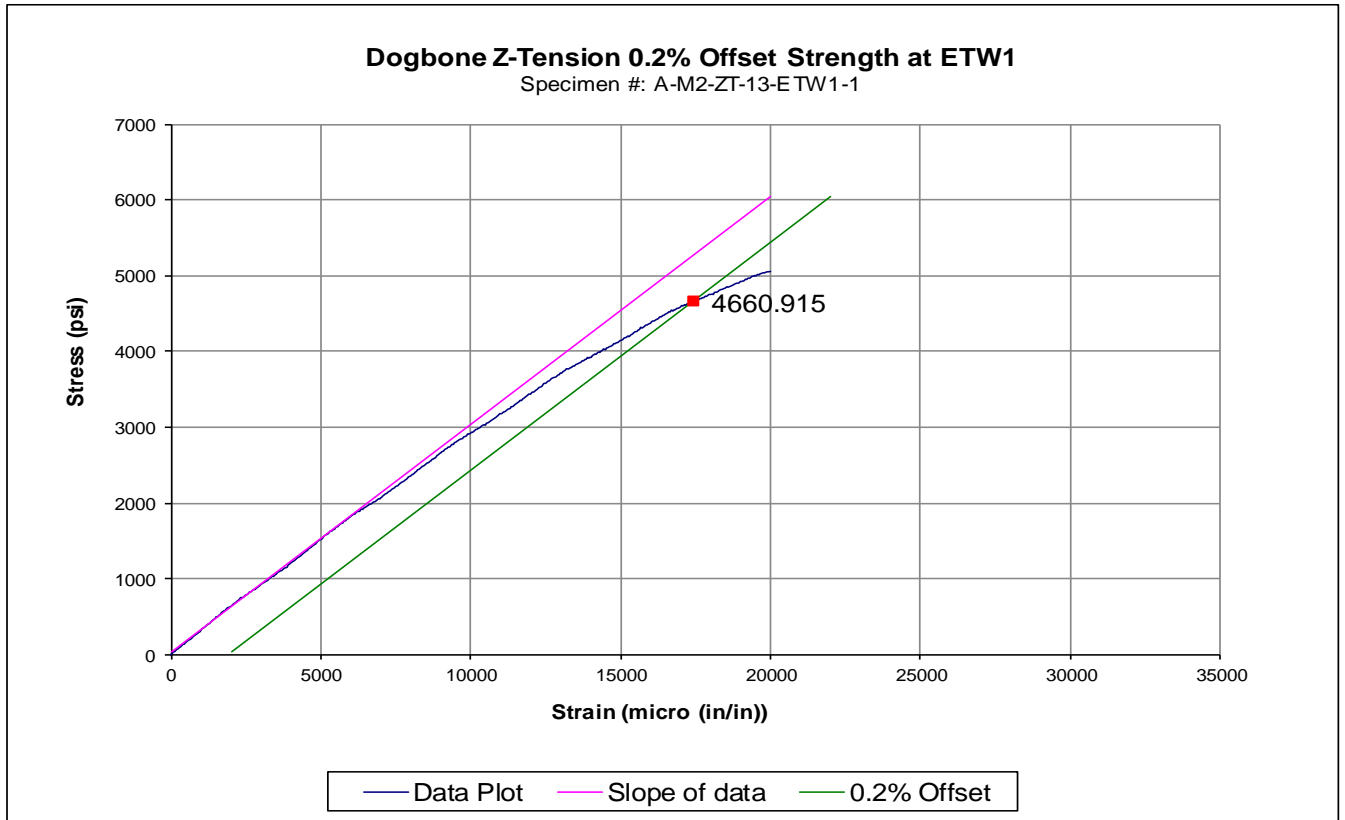




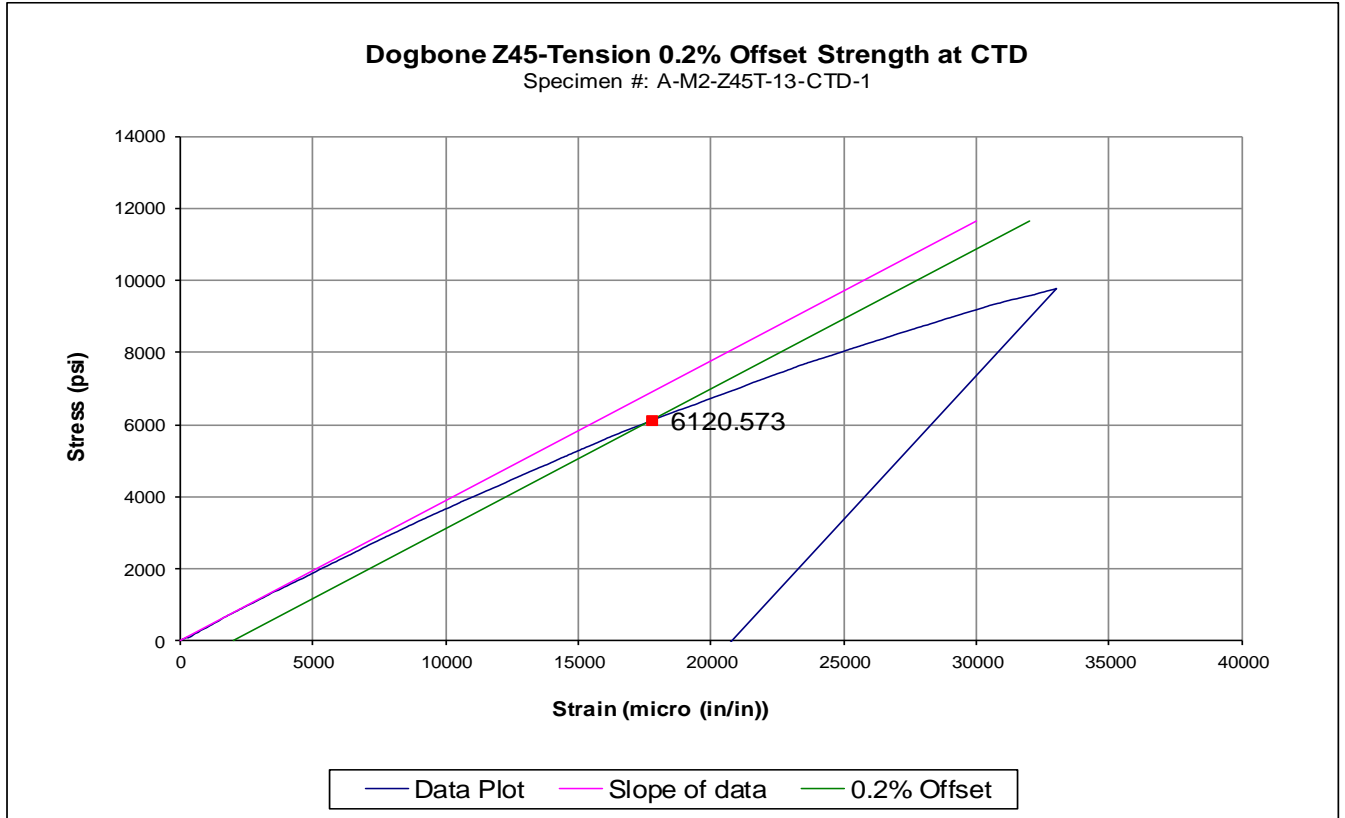
5.3 Dogbone Z-Tension Properties (ZT)

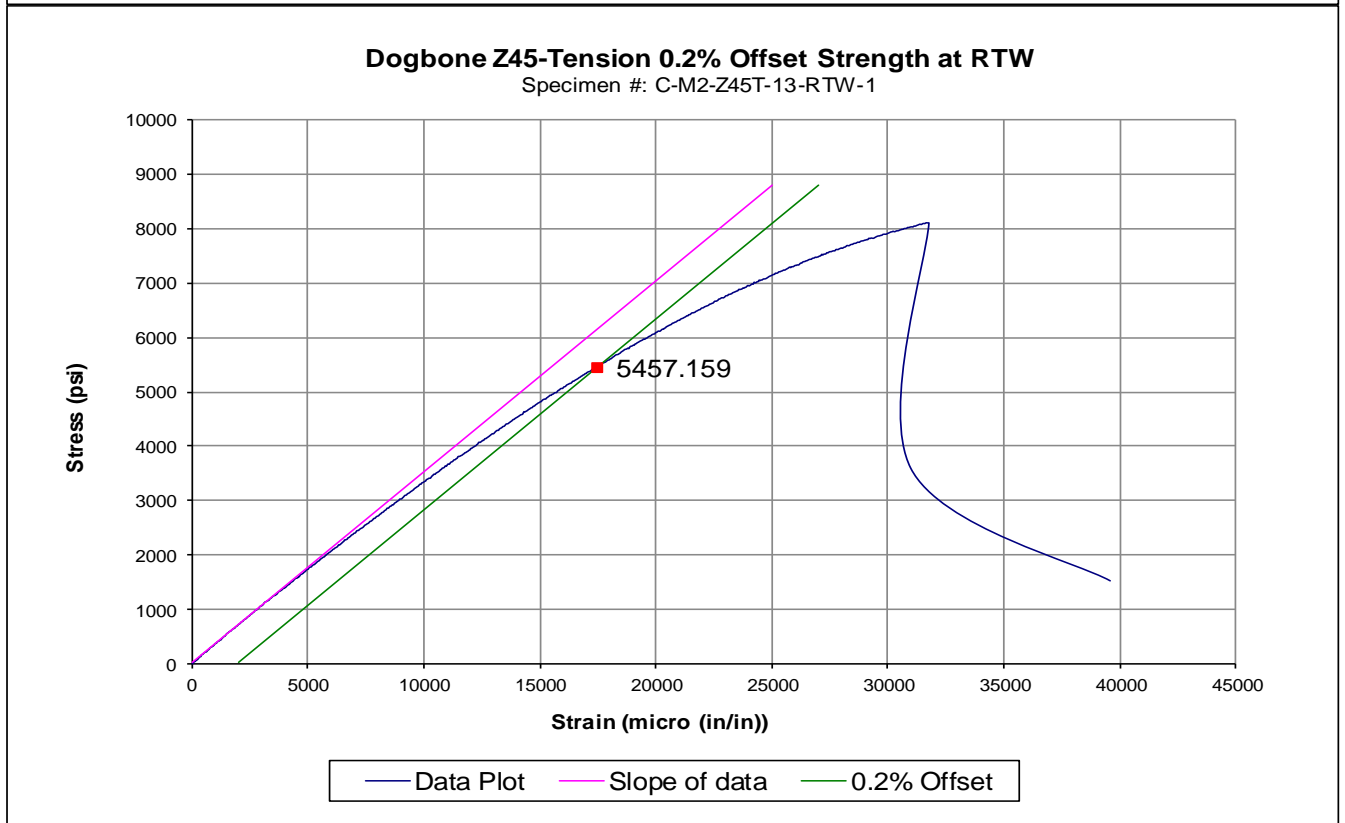
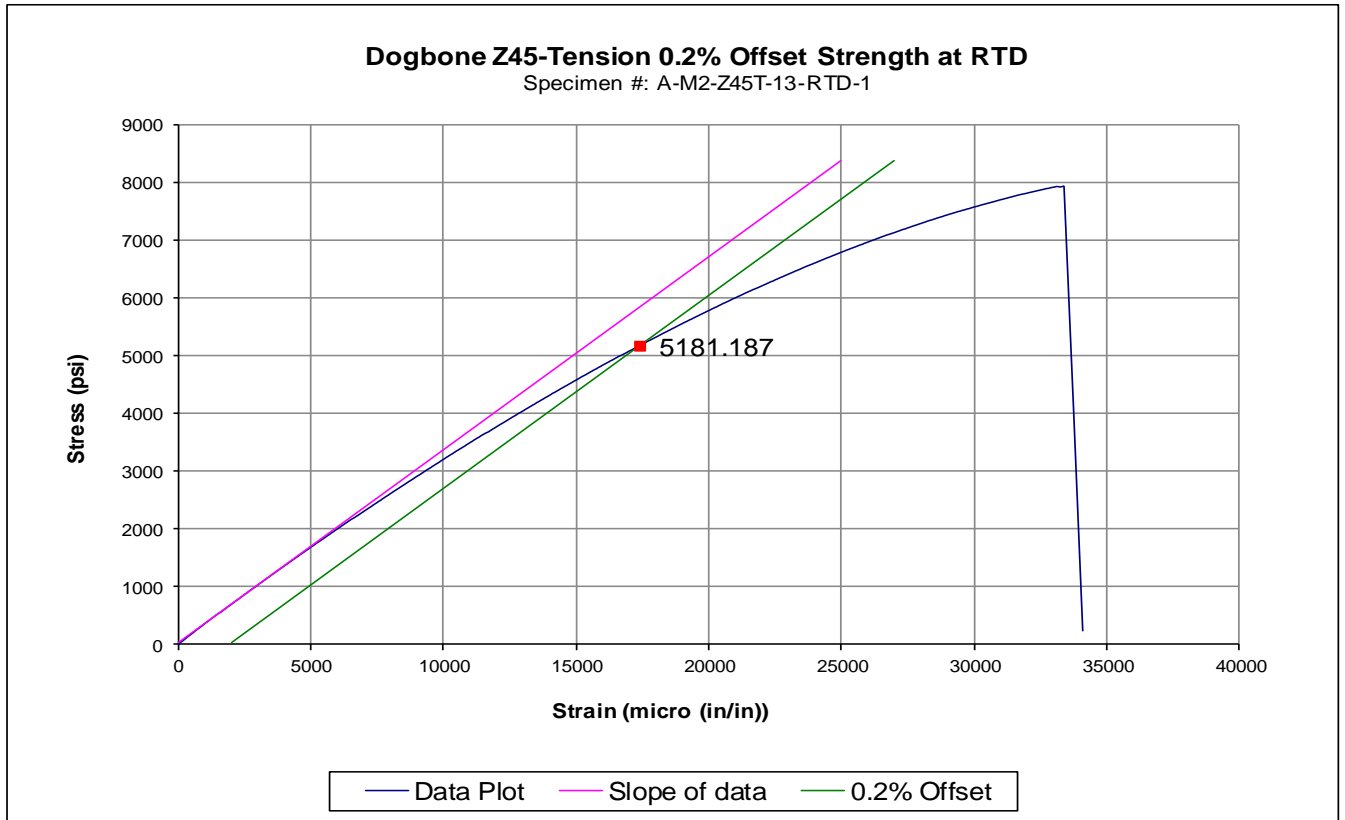


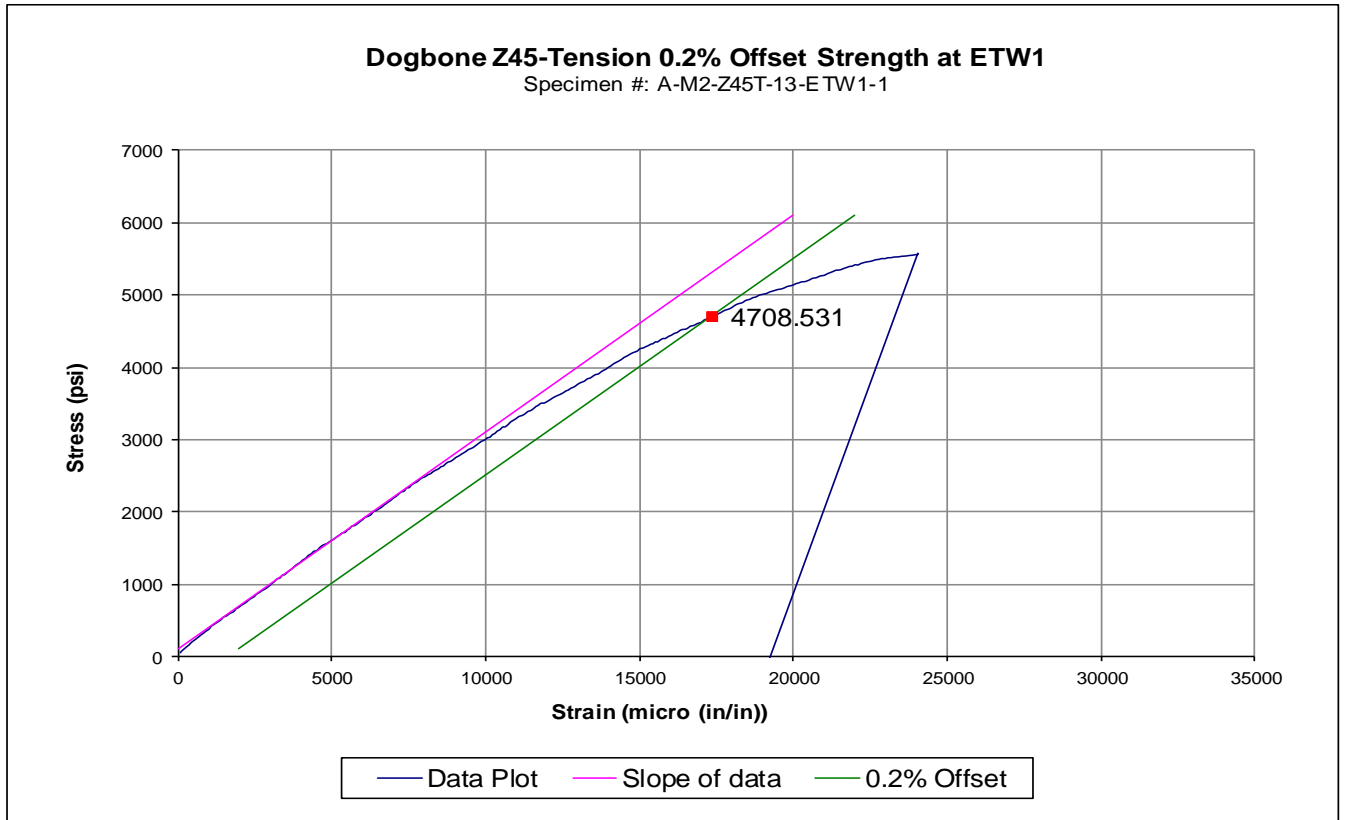




5.4 Dogbone Z45-Tension Properties (Z45T)



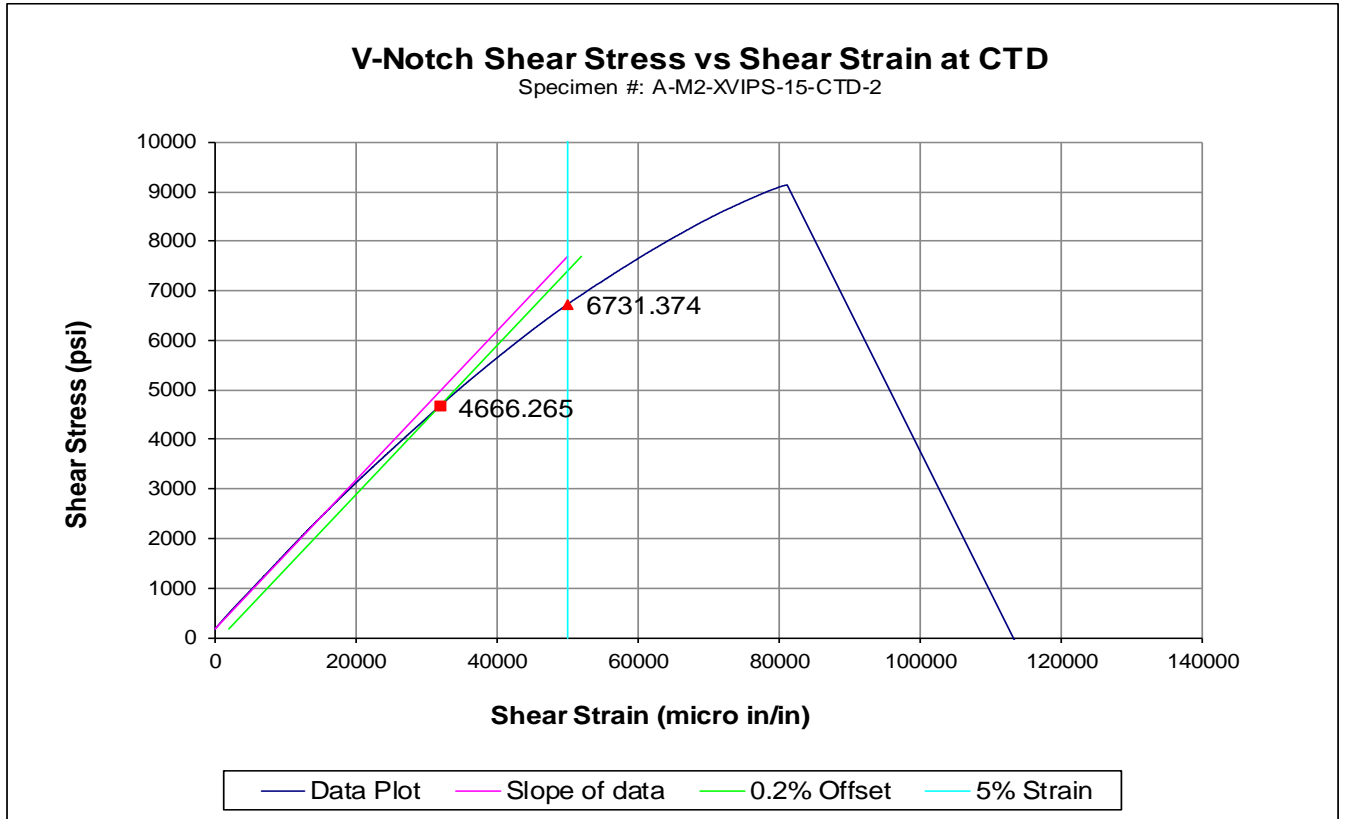


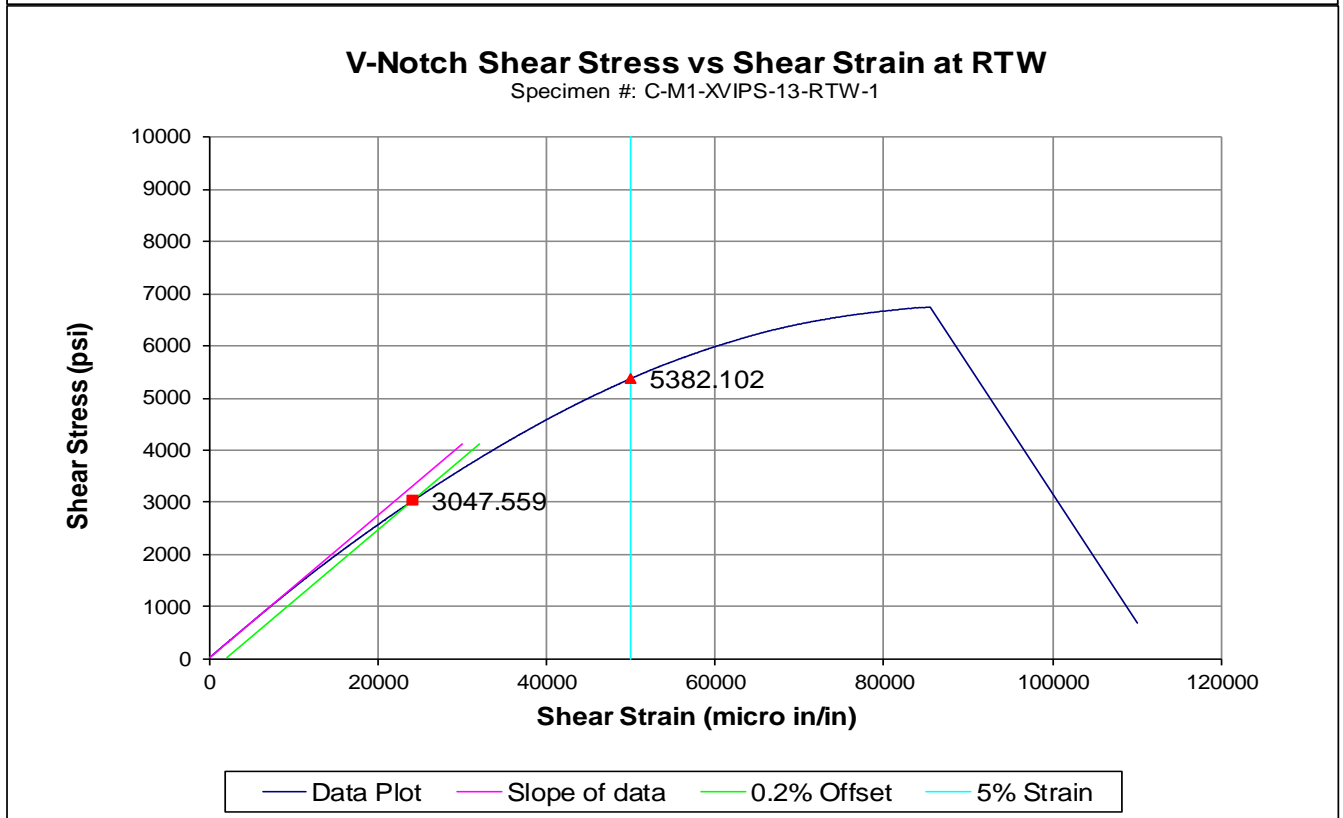
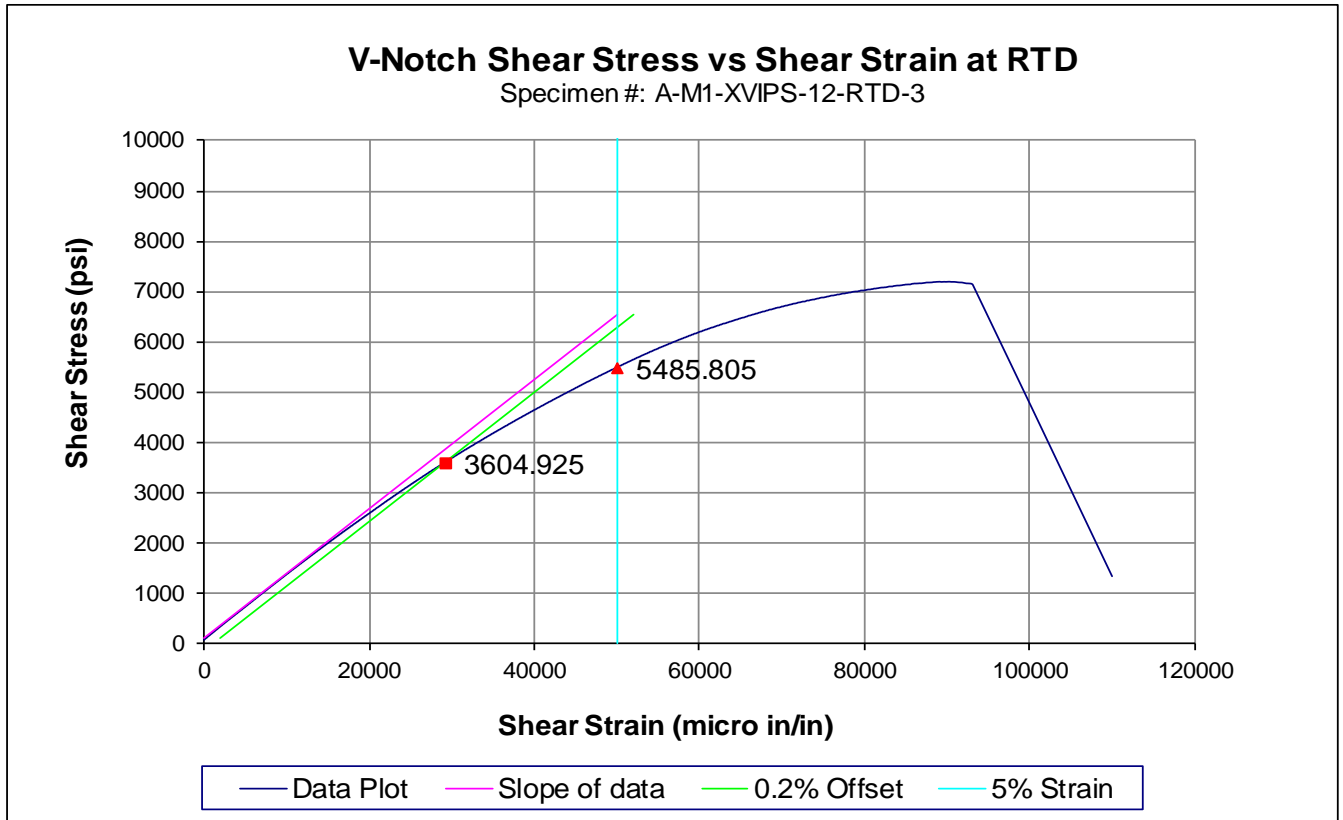


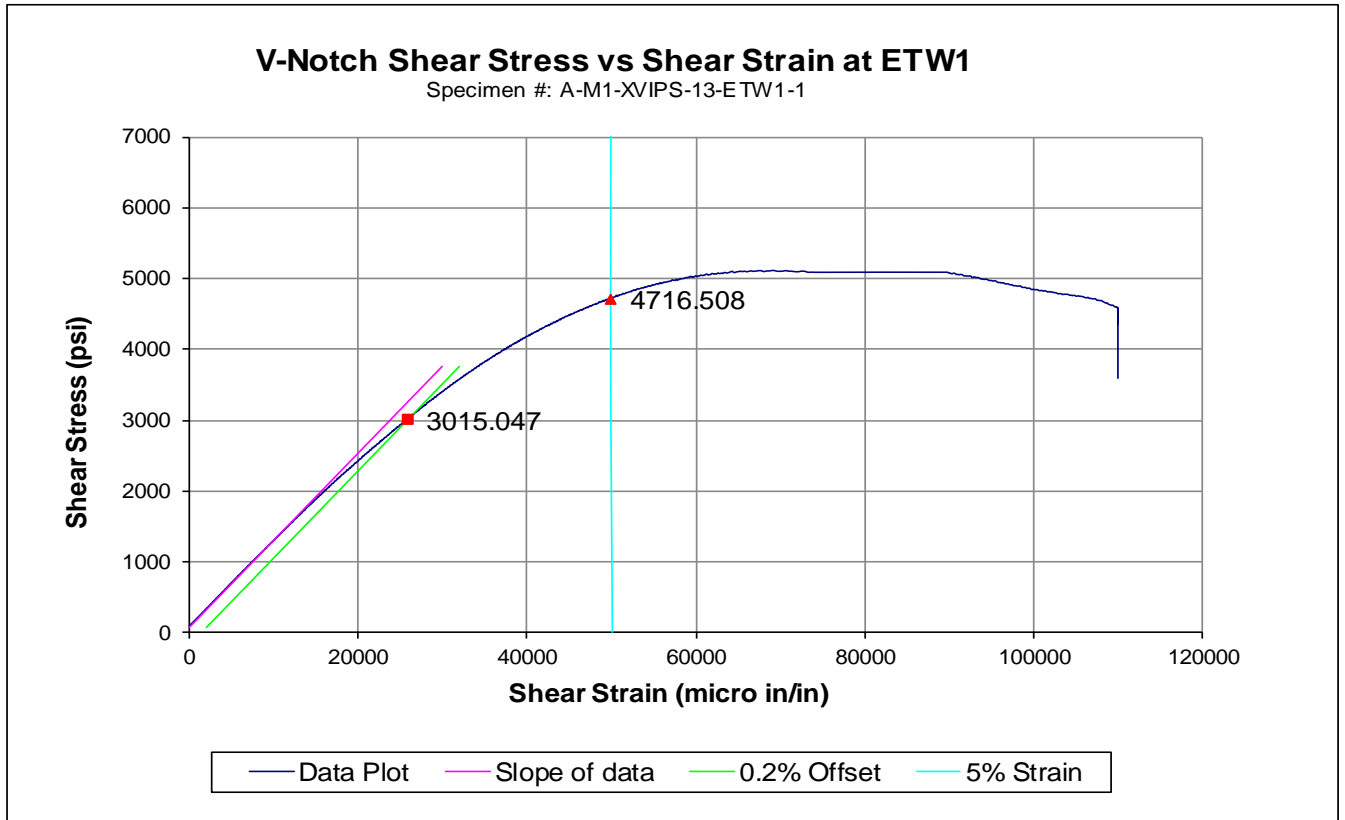
5.5 Dogbone Compression

Full stress strain curves for Compression D695 is not available because testing was stopped due to excessive deformation.

5.6 X V-Notch In-Plane Shear Properties (XVIPS)



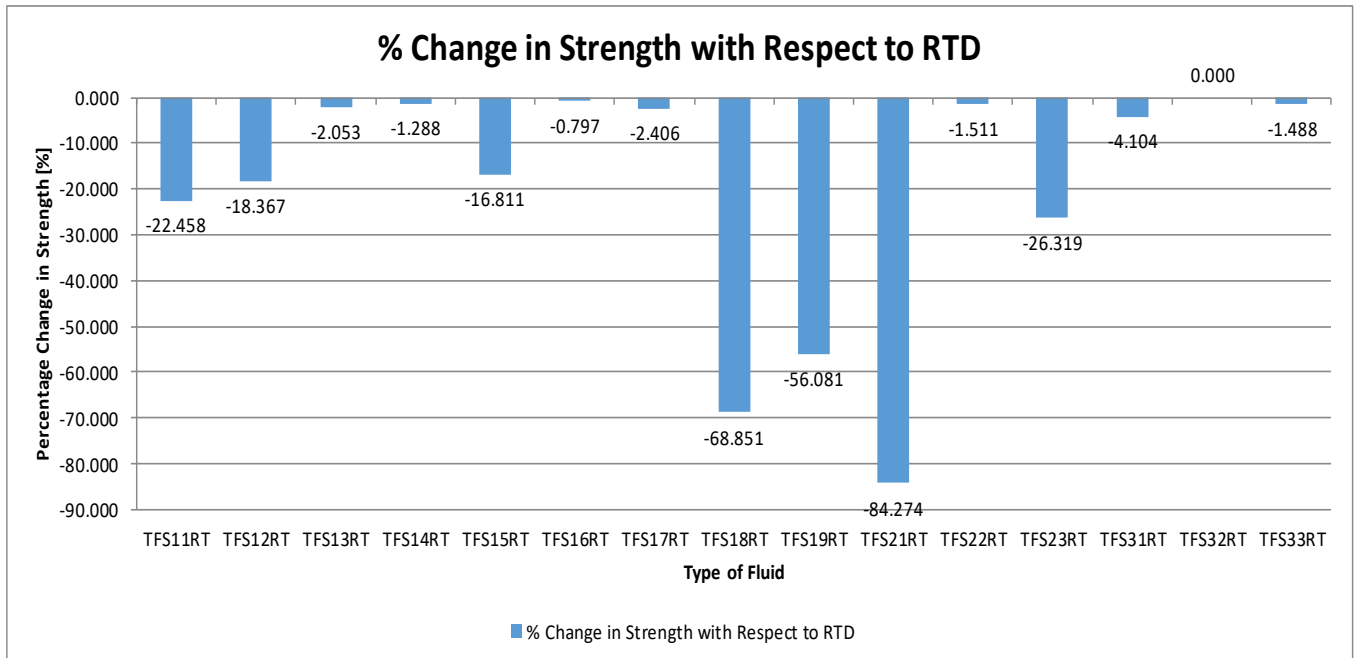
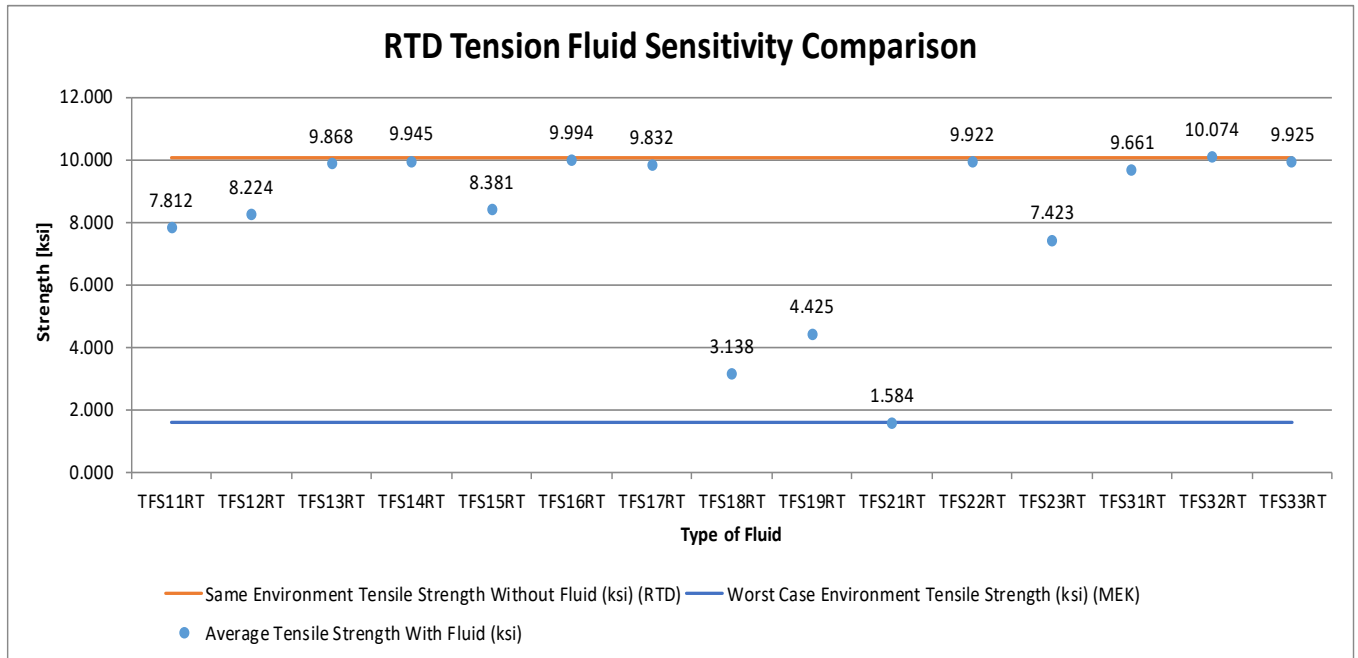




6. Fluid Sensitivity Comparison

6.1 Room Temperature Test Data

Fluid Code	Fluid	Exposure
TFS11RT	100 Low lead Fuel	90 days min @ 70°F ± 10F
TFS12RT	Jet A Fuel	
TFS13RT	Mil-PRF-5606 Hydraulic Oil	
TFS14RT	Mil-PRF-83282 Hydraulic Oil	
TFS15RT	Engine Lube Oil Mil-PRF-7808	
TFS16RT	Engine Lube Oil Mil-PRF-23699	
TFS17RT	Salt Water	
TFS18RT	Skydrol LD-4	
TFS19RT	50% Water w/ 50% Skydrol	
TFS31RT	Distilled Water	
TFS21RT	MEK washing fluid	90 mins @ 70°F ± 10F
TFS22RT	Polypropylene Glycol Deicer	
TFS23RT	Isopropyl Alcohol Deicing	48±4 hrs @ 70°F ± 10F
TFS32RT	Dry	Per section 6.1 Test Plan
TFS33RT	85% Relative Humidity	



Fluid Sensitivity Screening Dogbone Tension Properties (TFS)-- RT Strength Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Fluid Code	Specimen Number	AM Batch #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode	Average
TFS11RT	NTPAMP001-SY-UM9085-RPM-A-M1-TFS11RT-11-RTD-1	1	8.235	0.128	LWB	7.812
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS11RT-12-RTD-2	1	7.794	0.128	LWB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS11RT-13-RTD-3	1	7.435	0.128	LWB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS11RT-14-RTD-4	1	7.463	0.128	LWT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS11RT-15-RTD-5	1	8.132	0.128	LWB	
TFS12RT	NTPAMP001-SY-UM9085-RPM-A-M1-TFS12RT-11-RTD-1	1	8.604	0.127	LWB	8.224
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS12RT-12-RTD-2	1	8.322	0.126	LWT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS12RT-13-RTD-3	1	8.208	0.126	LWB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS12RT-14-RTD-4	1	7.882	0.126	LWB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS12RT-15-RTD-5	1	8.104	0.128	LWB	
TFS13RT	NTPAMP001-SY-UM9085-RPM-A-M1-TFS13RT-11-RTD-1	1	9.759	0.128	LWB	9.868
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS13RT-12-RTD-2	1	10.064	0.128	LWB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS13RT-13-RTD-3	1	9.752	0.128	LWB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS13RT-14-RTD-4	1	9.550	0.128	LWB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS13RT-15-RTD-5	1	10.214	0.128	LWB	
TFS14RT	NTPAMP001-SY-UM9085-RPM-A-M1-TFS14RT-11-RTD-1	1	10.312	0.127	LWB	9.945
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS14RT-12-RTD-2	1	9.927	0.126	LWT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS14RT-13-RTD-3	1	9.890	0.126	LWB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS14RT-14-RTD-4	1	9.728	0.127	LWB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS14RT-15-RTD-5	1	9.867	0.127	LWT	
TFS15RT	NTPAMP001-SY-UM9085-RPM-A-M1-TFS15RT-11-RTD-1	1	8.470	0.127	LWB	8.381
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS15RT-12-RTD-2	1	8.503	0.128	LWT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS15RT-13-RTD-3	1	8.259	0.128	LWB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS15RT-14-RTD-4	1	8.541	0.128	LWB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS15RT-15-RTD-5	1	8.131	0.129	LWT	
TFS16RT	NTPAMP001-SY-UM9085-RPM-A-M1-TFS16RT-11-RTD-1	1	10.426	0.127	LWB	9.994
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS16RT-12-RTD-2	1	10.122	0.128	LWT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS16RT-13-RTD-3	1	9.870	0.129	LWT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS16RT-14-RTD-4	1	9.764	0.128	LWT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS16RT-15-RTD-5	1	9.789	0.128	LWT	
TFS17RT	NTPAMP001-SY-UM9085-RPM-A-M1-TFS17RT-11-RTD-1	1	10.039	0.127	AGB	9.832
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS17RT-12-RTD-2	1	9.895	0.128	AGM	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS17RT-13-RTD-3	1	9.508	0.128	AGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS17RT-14-RTD-4	1	9.905	0.128	AGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS17RT-15-RTD-5	1	9.814	0.127	AGB	

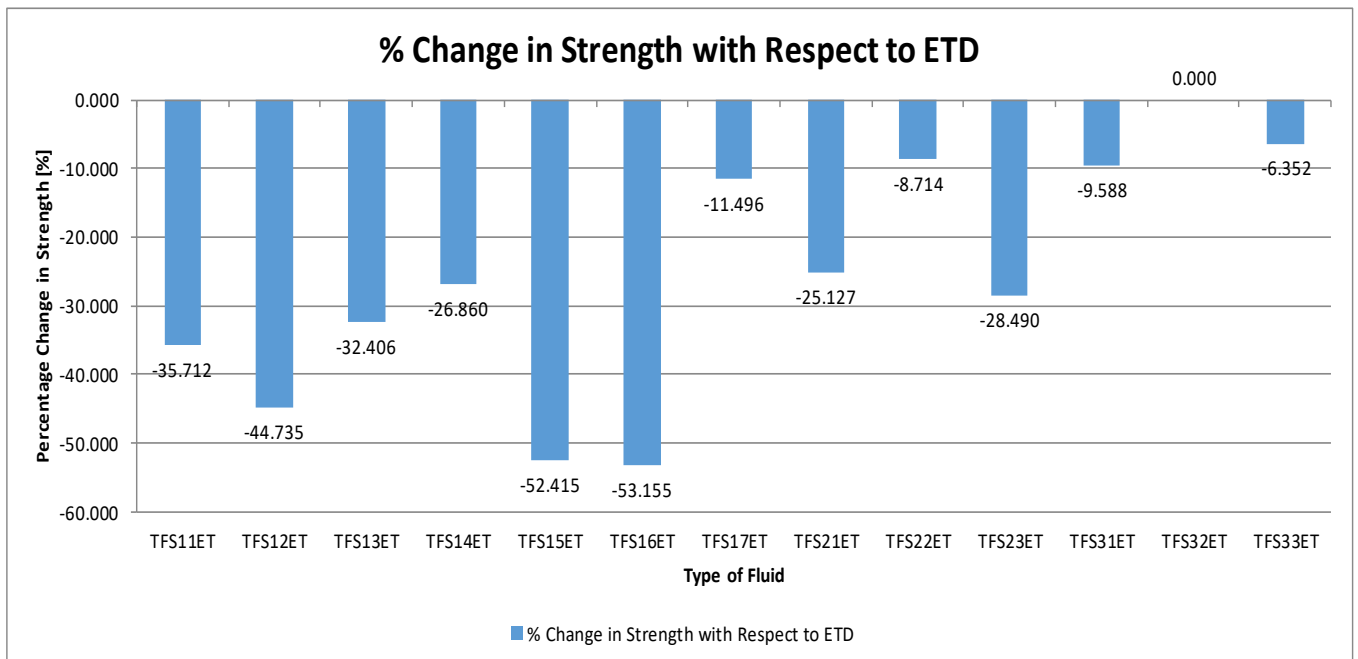
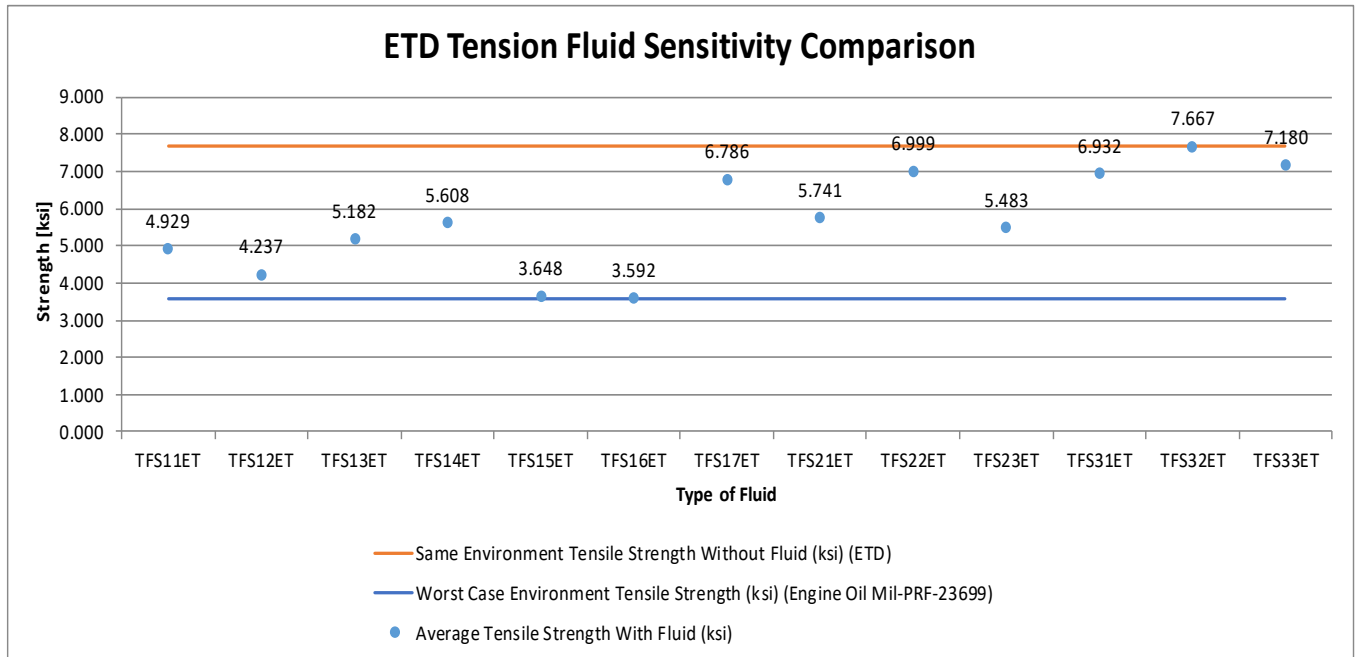
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	NTPAMP001-SY-UM9085-RPM-A-M1-TFS18RT-12-RTD-2	1	3.189	0.128	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS18RT-13-RTD-3	1	2.951	0.128	AGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS18RT-14-RTD-4	1	3.107	0.128	LWB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS18RT-15-RTD-5	1	3.341	0.128	LAT	
TFS19RT	NTPAMP001-SY-UM9085-RPM-A-M1-TFS19RT-11-RTD-1	1	4.808	0.128	LWT	4.425
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS19RT-12-RTD-2	1	4.538	0.128	LWT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS19RT-13-RTD-3	1	4.329	0.128	AGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS19RT-14-RTD-4	1	4.297	0.128	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS19RT-15-RTD-5	1	4.151	0.128	LWB	
TFS21RT	NTPAMP001-SY-UM9085-RPM-A-M1-TFS21RT-11-RTD-1*	1	0.138	0.126	LAT	1.584
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS21RT-12-RTD-2	1	1.465	0.127	AWT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS21RT-13-RTD-3	1	1.633	0.127	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS21RT-14-RTD-4	1	1.624	0.125	LGM	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS21RT-15-RTD-5	1	1.615	0.126	LWB	
TFS22RT	NTPAMP001-SY-UM9085-RPM-A-M1-TFS22RT-11-RTD-1	1	9.934	0.128	AGM	9.922
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS22RT-12-RTD-2	1	10.187	0.128	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS22RT-13-RTD-3	1	9.727	0.128	AGT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS22RT-14-RTD-4	1	10.085	0.127	LGT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS22RT-15-RTD-5	1	9.678	0.128	AGM	
TFS23RT	NTPAMP001-SY-UM9085-RPM-A-M1-TFS23RT-11-RTD-1	1	7.778	0.127	LGB	7.423
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS23RT-12-RTD-2	1	7.503	0.128	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS23RT-13-RTD-3	1	7.377	0.128	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS23RT-14-RTD-4	1	7.175	0.128	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS23RT-15-RTD-5	1	7.281	0.128	LGB	
TFS31RT	NTPAMP001-SY-UM9085-RPM-A-M1-TFS31RT-11-RTD-1	1	9.710	0.128	LGB	9.661
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS31RT-12-RTD-2	1	9.838	0.128	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS31RT-13-RTD-3	1	9.709	0.128	LWB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS31RT-14-RTD-4	1	9.325	0.129	LWB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS31RT-15-RTD-5	1	9.723	0.128	AGT	
TFS32RT	NTPAMP001-SY-UM9085-RPM-A-M1-TFS32RT-11-RTD-1	1	10.469	0.128	LGB	10.074
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS32RT-12-RTD-2	1	10.171	0.128	LWB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS32RT-13-RTD-3	1	9.821	0.128	LWT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS32RT-14-RTD-4	1	9.959	0.128	LWB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS32RT-15-RTD-5	1	9.953	0.128	LWT	
TFS33RT	NTPAMP001-SY-UM9085-RPM-A-M1-TFS33RT-11-RTD-1	1	9.982	0.127	LWB	9.925
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS33RT-12-RTD-2	1	9.828	0.128	LGT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS33RT-13-RTD-3	1	9.999	0.128	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS33RT-14-RTD-4	1	9.637	0.127	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS33RT-15-RTD-5	1	10.177	0.127	LGT	

*Specimen had premature failure due to grip pressure, strength value not included in calculations.

Average 0.128
Standard Dev. 0.001
Coeff. of Var. [%] 0.532
Min. 0.125
Max. 0.129
Number of Spec. 75

6.2 Elevated Temperature Test Data

Fluid Code	Fluid	Exposure
TFS11ET	100 Low lead Fuel	90 days min @ 70°F ± 10F
TFS12ET	Jet A Fuel	
TFS13ET	Mil-PRF-5606 Hydraulic Oil	
TFS14ET	Mil-PRF-83282 Hydraulic Oil	
TFS15ET	Engine Lube Oil Mil-PRF-7808	
TFS16ET	Engine Lube Oil Mil-PRF-23699	
TFS17ET	Salt Water	
TFS18ET	Skydrol LD-4	
TFS19ET	50% Water w/ 50% Skydrol	
TFS31ET	Distilled Water	
TFS21ET	MEK washing fluid	90 mins @ 70°F ± 10F
TFS22ET	Polypropylene Glycol Deicer	
TFS23ET	Isopropyl Alcohol Deicing	48±4 hrs @ 70°F ± 10F
TFS32ET	Dry	Per section 6.1 Test Plan
TFS33ET	85% Relative Humidity	



**Fluid Sensitivity Screening Dogbone Tension Properties (TFS)-
-ET Strength**
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Fluid Code	Specimen Number	AM Batch #	Strength [ksi]	Avg. Specimen Thickness [in]	Failure Mode	Average
TFS11ET	NTPAMP001-SY-UM9085-RPM-A-M1-TFS11ET-11-ETD-1	1	5.378	0.127	LGB	4.929
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS11ET-12-ETD-2	1	5.009	0.127	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS11ET-13-ETD-3	1	5.004	0.128	LGT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS11ET-14-ETD-4	1	4.549	0.128	LGT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS11ET-15-ETD-5	1	4.705	0.128	LGB	
TFS12ET	NTPAMP001-SY-UM9085-RPM-A-M1-TFS12ET-11-ETD-1	1	4.473	0.128	LGB	4.237
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS12ET-12-ETD-2	1	4.220	0.128	LGT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS12ET-13-ETD-3	1	4.016	0.128	LGT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS12ET-14-ETD-4	1	3.996	0.128	LGT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS12ET-15-ETD-5	1	4.481	0.128	LGT	
TFS13ET	NTPAMP001-SY-UM9085-RPM-A-M1-TFS13ET-11-ETD-1	1	5.512	0.128	LGB	5.182
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS13ET-12-ETD-2	1	5.163	0.127	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS13ET-13-ETD-3	1	4.883	0.128	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS13ET-14-ETD-4	1	5.141	0.128	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS13ET-15-ETD-5	1	5.214	0.128	LGB	
TFS14ET	NTPAMP001-SY-UM9085-RPM-A-M1-TFS14ET-11-ETD-1	1	6.158	0.127	LGB	5.608
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS14ET-12-ETD-2	1	6.015	0.128	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS14ET-13-ETD-3	1	4.637	0.128	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS14ET-14-ETD-4	1	5.595	0.128	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS14ET-15-ETD-5	1	5.634	0.128	AGT	
TFS15ET	NTPAMP001-SY-UM9085-RPM-A-M1-TFS15ET-11-ETD-1*	1	1.343	0.127	LWB	3.648
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS15ET-12-ETD-2	1	3.686	0.128	LWB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS15ET-13-ETD-3	1	3.527	0.128	AGT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS15ET-14-ETD-4	1	3.652	0.128	LGM	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS15ET-15-ETD-5	1	3.729	0.127	LGM	
TFS16ET	NTPAMP001-SY-UM9085-RPM-A-M1-TFS16ET-11-ETD-1	1	3.678	0.127	LGT	3.592
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS16ET-12-ETD-2	1	3.477	0.128	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS16ET-13-ETD-3	1	3.347	0.128	AGT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS16ET-14-ETD-4	1	3.610	0.128	LGM	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS16ET-15-ETD-5	1	3.846	0.127	AGM	
TFS17ET	NTPAMP001-SY-UM9085-RPM-A-M1-TFS17ET-11-ETD-1	1	6.664	0.128	AGM	6.786
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS17ET-12-ETD-2	1	6.880	0.128	LGM	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS17ET-13-ETD-3	1	6.895	0.128	AGM	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS17ET-14-ETD-4	1	7.222	0.128	AGM	
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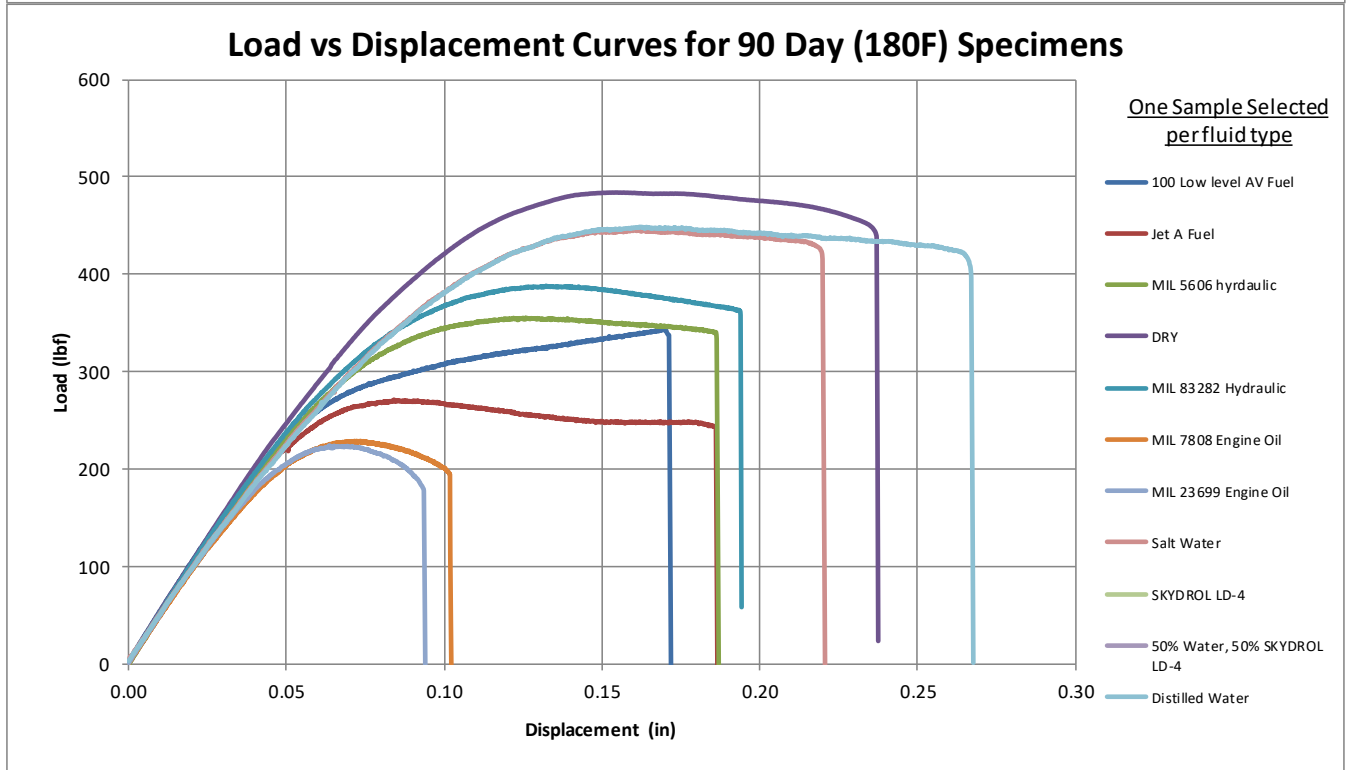
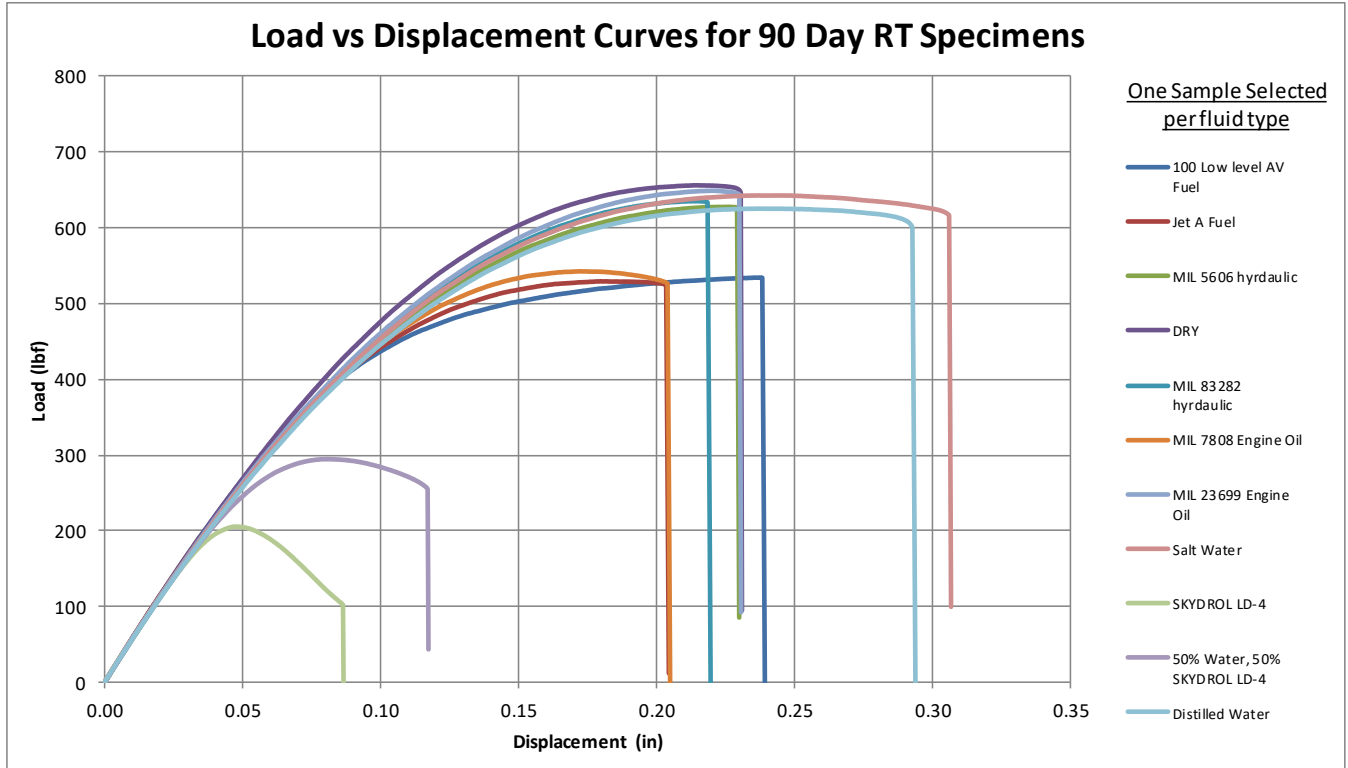
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	NTPAMP001-SY-UM9085-RPM-A-M1-TFS18ET-13-ETD-3**	1		0.128		
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS18ET-14-ETD-4**	1		0.127		
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS18ET-15-ETD-5**	1		0.129		
TFS19ET	NTPAMP001-SY-UM9085-RPM-A-M1-TFS19ET-11-ETD-1**	1		0.128		
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS19ET-12-ETD-2**	1		0.128		
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS19ET-13-ETD-3**	1		0.128		
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS19ET-14-ETD-4**	1		0.128		
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS19ET-15-ETD-5**	1		0.128		
TFS21ET	NTPAMP001-SY-UM9085-RPM-A-M1-TFS21ET-11-ETD-1	1	7.307	0.126	LAT	5.741
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS21ET-12-ETD-2*	1	0.920	0.127	LAT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS21ET-13-ETD-3	1	4.140	0.127	LAT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS21ET-14-ETD-4	1	5.263	0.126	LAB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS21ET-15-ETD-5	1	6.252	0.127	LAB	
TFS22ET	NTPAMP001-SY-UM9085-RPM-A-M1-TFS22ET-11-ETD-1	1	7.181	0.127	LGM	6.999
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS22ET-12-ETD-2	1	7.310	0.126	LGM	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS22ET-13-ETD-3	1	6.805	0.127	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS22ET-14-ETD-4	1	7.073	0.126	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS22ET-15-ETD-5	1	6.626	0.125	LGM	
TFS23ET	NTPAMP001-SY-UM9085-RPM-A-M1-TFS23ET-11-ETD-1	1	5.092	0.128	LGB	5.483
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS23ET-12-ETD-2	1	5.688	0.128	LWB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS23ET-13-ETD-3	1	5.956	0.128	LWT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS23ET-14-ETD-4	1	5.116	0.128	LGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS23ET-15-ETD-5	1	5.562	0.128	LWB	
TFS31ET	NTPAMP001-SY-UM9085-RPM-A-M1-TFS31ET-11-ETD-1	1	7.051	0.127	AGB	6.932
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS31ET-12-ETD-2	1	6.990	0.128	LGT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS31ET-13-ETD-3	1	6.882	0.128	AGM	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS31ET-14-ETD-4	1	6.961	0.128	AGT	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS31ET-15-ETD-5	1	6.775	0.128	AGM	
TFS32ET	NTPAMP001-SY-UM9085-RPM-A-M1-TFS32ET-11-ETD-1	1	7.543	0.128	AGB	7.667
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS32ET-12-ETD-2	1	7.472	0.129	AGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS32ET-13-ETD-3	1	7.504	0.129	AGB	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS32ET-14-ETD-4	1	7.807	0.127	AGM	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS32ET-15-ETD-5	1	8.009	0.128	AGM	
TFS33ET	NTPAMP001-SY-UM9085-RPM-A-M1-TFS33ET-11-ETD-1	1	7.244	0.128	AGB	7.180
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS33ET-12-ETD-2	1	7.198	0.126	AGM	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS33ET-13-ETD-3	1	7.082	0.128	AGM	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS33ET-14-ETD-4	1	7.241	0.127	AGM	
	NTPAMP001-SY-UM9085-RPM-A-M1-TFS33ET-15-ETD-5	1	7.135	0.127	AGB	

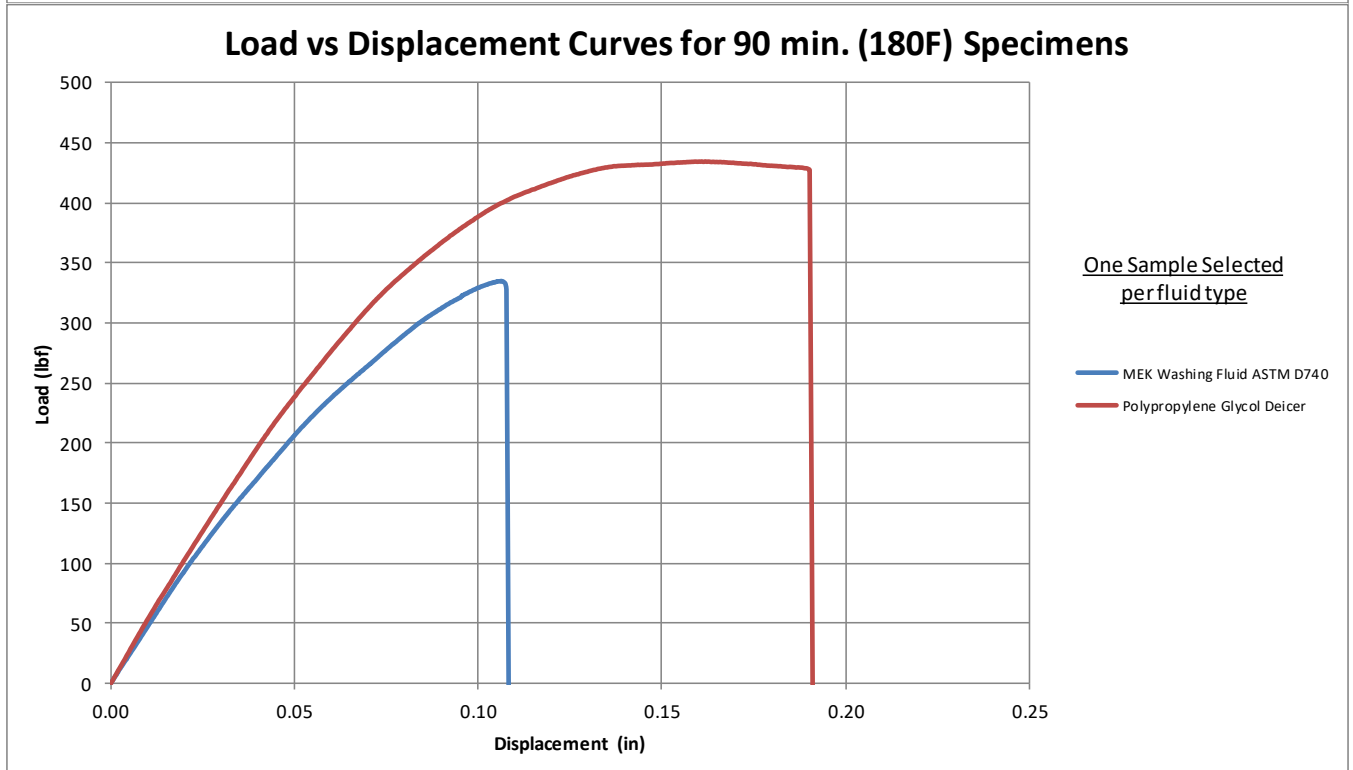
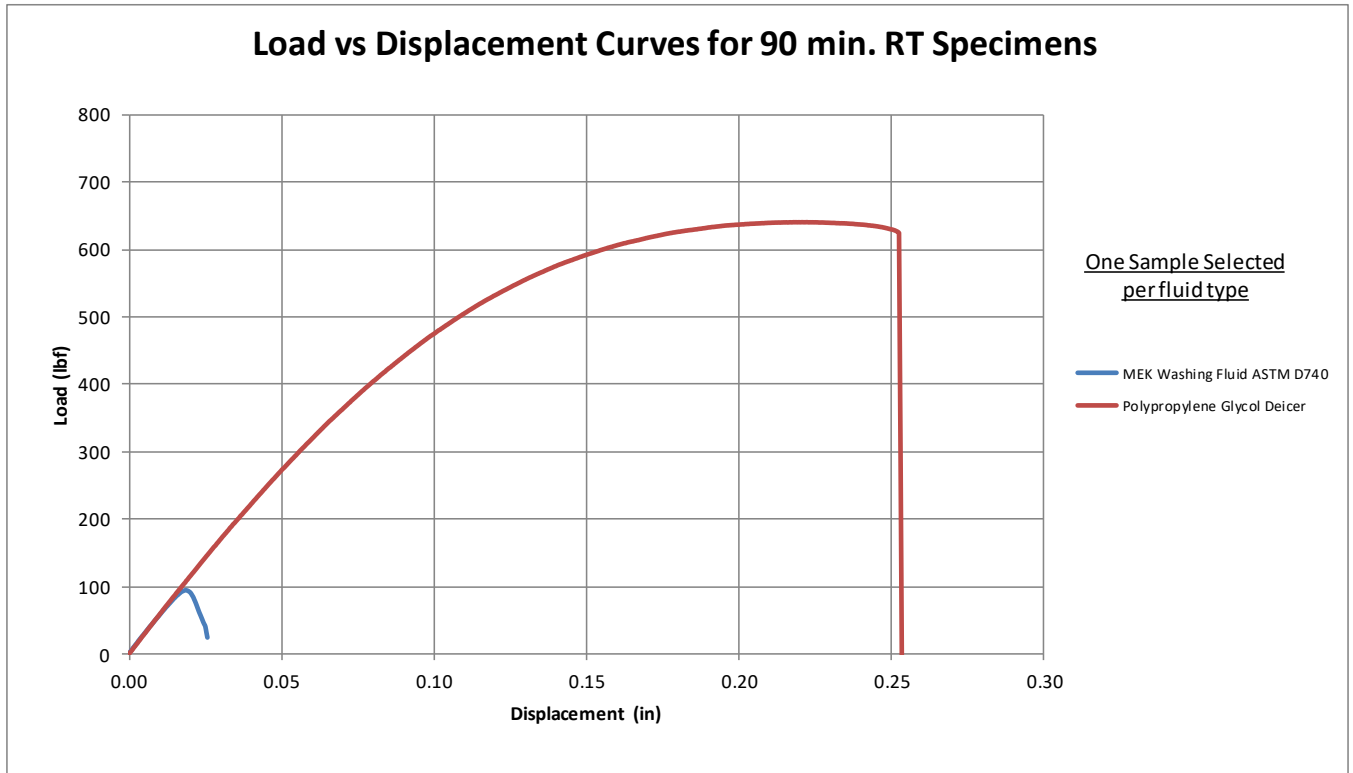
*Specimen had premature failure due to excessive grip pressure, strength value not included in calculations.

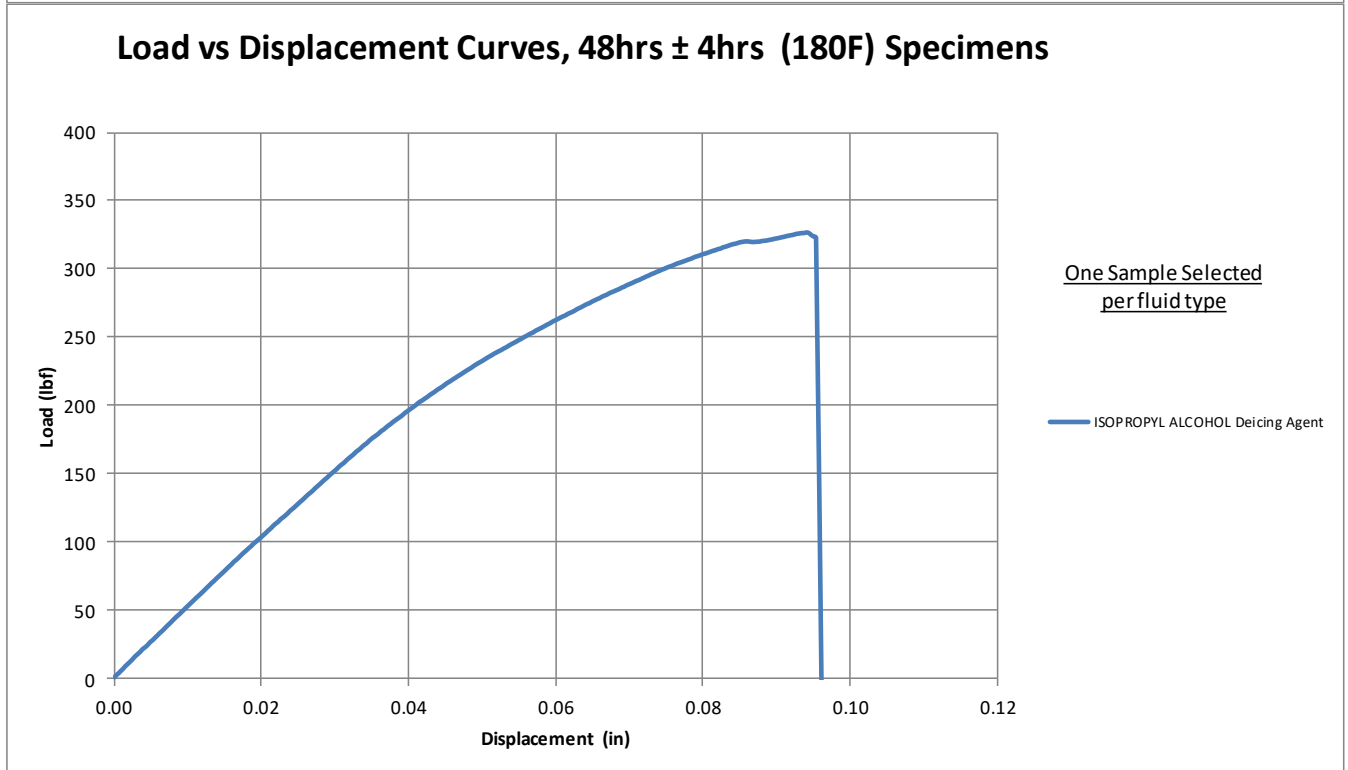
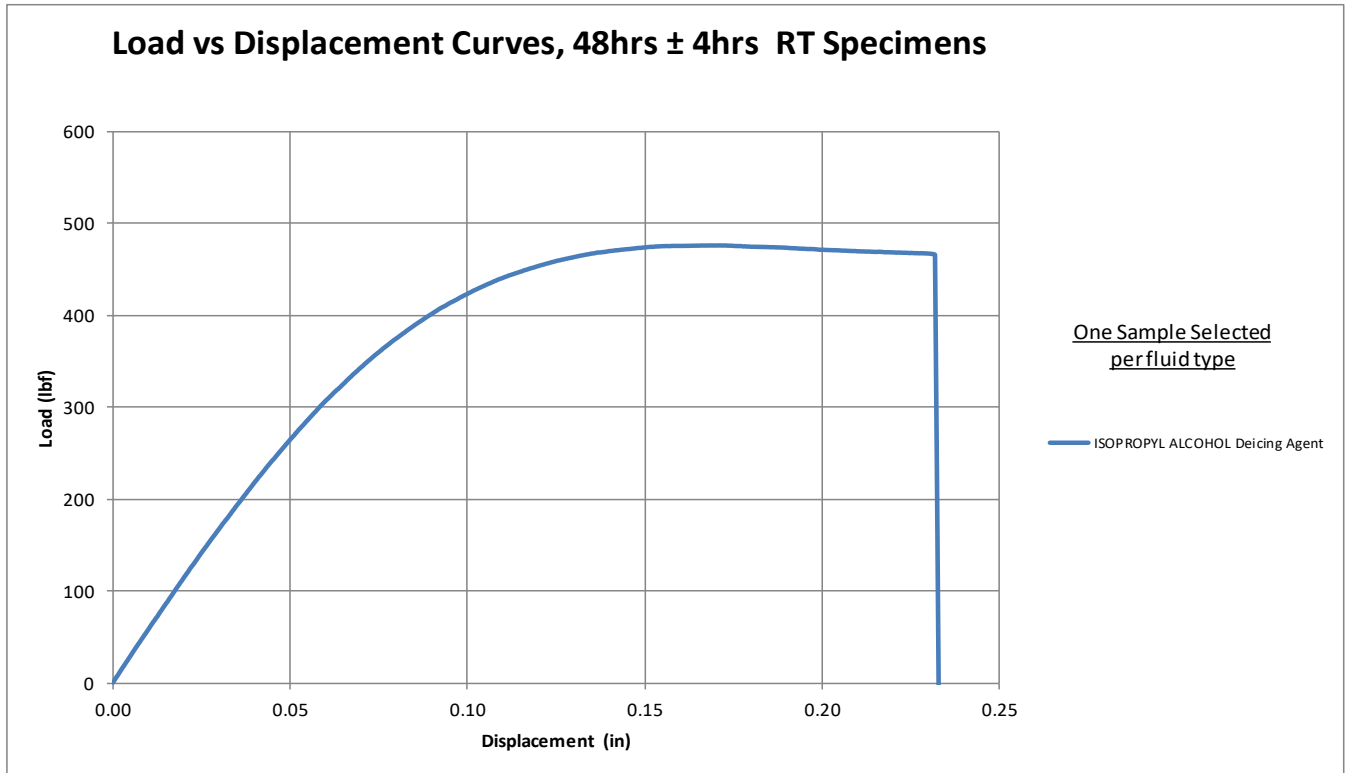
**Specimens broke upon being loaded into fixture, unable to test.

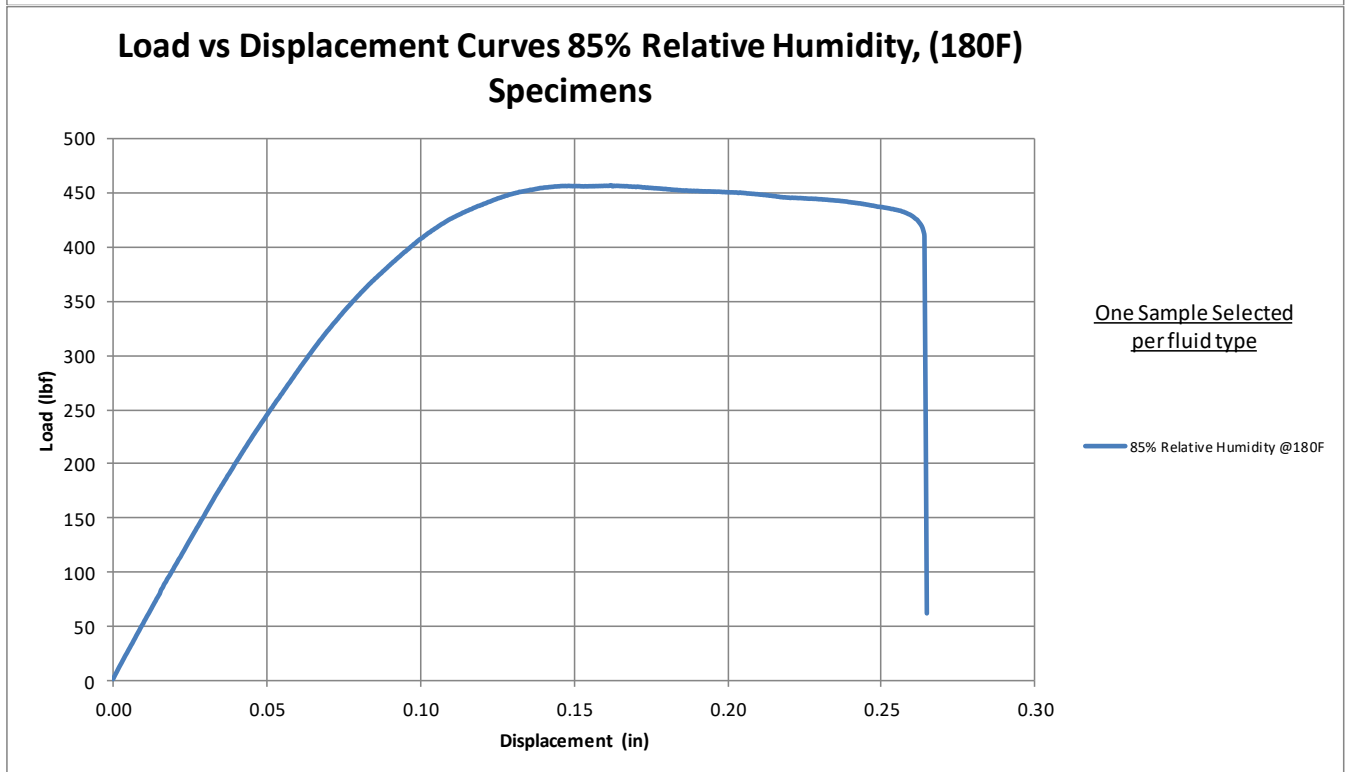
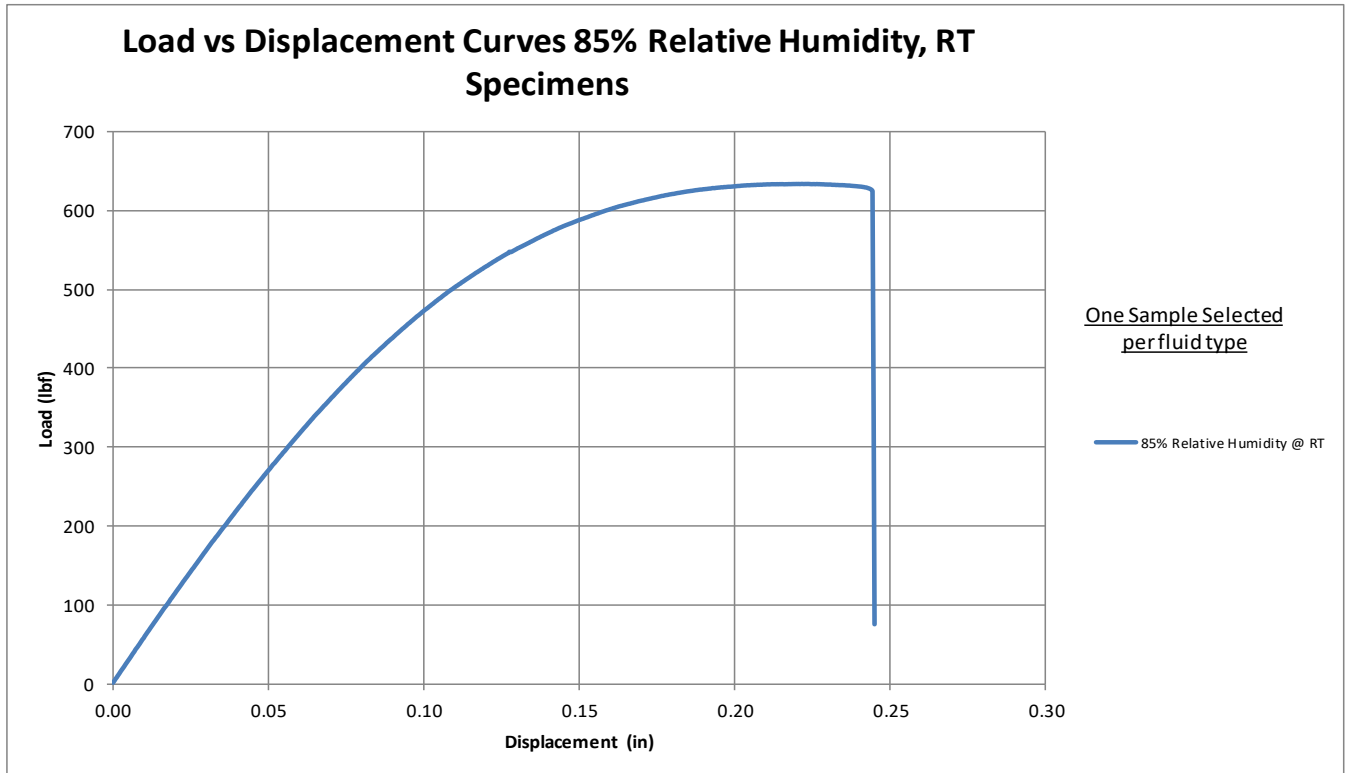
Average **0.128**
Standard Dev. **0.001**
Coeff. of Var. [%] **0.525**
Min. **0.125**
Max. **0.129**
Number of Spec. **75**

6.3 Load Displacement Curves



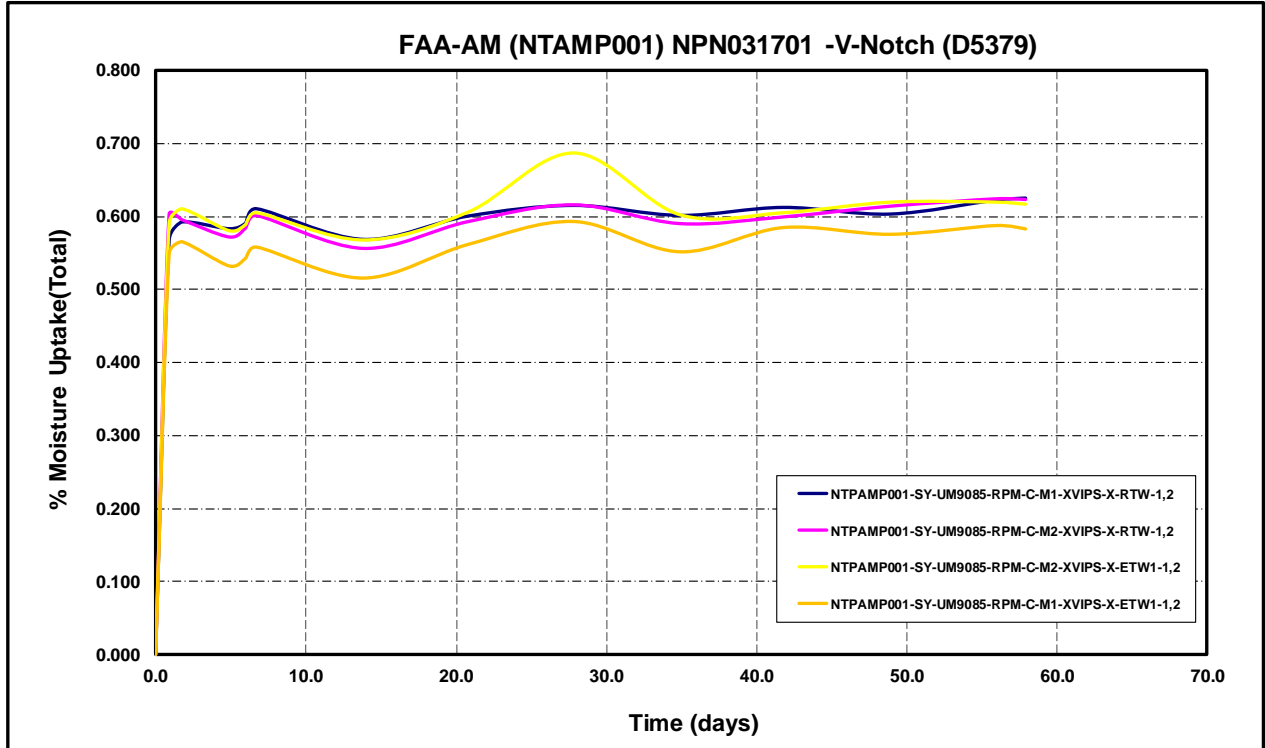




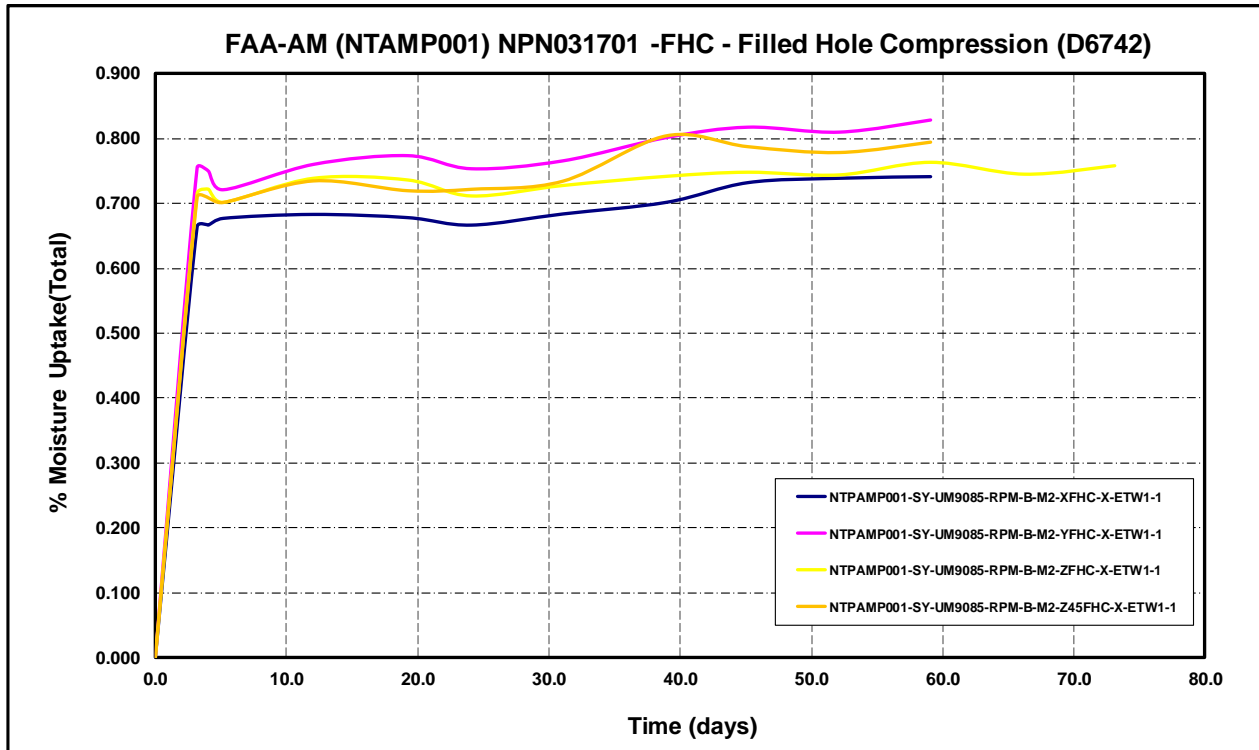


7. Moisture Conditioning Charts

7.1 Smallest Sample – V-Notch In-Plane Shear (3”x0.75”)



7.2 Largest Sample – FHC (12” x 1.5”)



For “wet” mechanical test specimens, the drying procedures may not have completely dried the specimens prior to moisture conditioning, so the total amount of moisture absorbed by the specimens may be higher than those recorded in the moisture gain charts.

8. Moisture Loss Data

8.1 Dogbone Tension

Build Direction	Specimen ID	Weight Pre-Test (g)	Weight Post-Test (g)	Moisture Loss (g)
X	NTPAMP001-SY-UM9085-RPM-A-M1-XT-13-ETW1-1	10.1515	10.1244	0.0271
	NTPAMP001-SY-UM9085-RPM-A-M1-XT-15-ETW1-2	10.1655	10.1478	0.0177
	NTPAMP001-SY-UM9085-RPM-A-M2-XT-13-ETW1-1	10.1639	10.1444	0.0195
	NTPAMP001-SY-UM9085-RPM-A-M2-XT-15-ETW1-2	10.1344	10.1130	0.0214
	NTPAMP001-SY-UM9085-RPM-B-M1-XT-13-ETW1-1	10.1822	10.1531	0.0291
	NTPAMP001-SY-UM9085-RPM-B-M1-XT-15-ETW1-2	10.1937	10.1678	0.0259
	NTPAMP001-SY-UM9085-RPM-B-M2-XT-13-ETW1-1	10.2629	10.2458	0.0171
	NTPAMP001-SY-UM9085-RPM-B-M2-XT-15-ETW1-2	10.1915	10.1738	0.0177
	NTPAMP001-SY-UM9085-RPM-C-M1-XT-15-ETW1-2	10.1028	10.0866	0.0162
	NTPAMP001-SY-UM9085-RPM-C-M2-XT-13-ETW1-1	10.1380	10.1241	0.0139
	NTPAMP001-SY-UM9085-RPM-C-M2-XT-15-ETW1-2	10.1350	10.1213	0.0137
	NTPAMP001-SY-UM9085-RPM-C-M1-XT-13-RTW-1	10.1336	10.1251	0.0085
NTPAMP001-SY-UM9085-RPM-C-M1-XT-15-RTW-2	10.1419	10.1256	0.0163	
Y	NTPAMP001-SY-UM9085-RPM-A-M1-YT-13-ETW1-1	10.5007	10.4895	0.0112
	NTPAMP001-SY-UM9085-RPM-A-M1-YT-15-ETW1-2	10.5180	10.5039	0.0141
	NTPAMP001-SY-UM9085-RPM-A-M2-YT-13-ETW1-1	10.5141	10.5033	0.0108
	NTPAMP001-SY-UM9085-RPM-A-M2-YT-15-ETW1-2	10.4959	10.4823	0.0136
	NTPAMP001-SY-UM9085-RPM-B-M1-YT-13-ETW1-1	10.4618	10.4525	0.0093
	NTPAMP001-SY-UM9085-RPM-B-M1-YT-14-ETW1-3	10.4858	10.4730	0.0128
	NTPAMP001-SY-UM9085-RPM-B-M2-YT-13-ETW1-1	10.5618	10.5519	0.0099
	NTPAMP001-SY-UM9085-RPM-B-M2-YT-15-ETW1-2	10.5414	10.5291	0.0123
	NTPAMP001-SY-UM9085-RPM-C-M1-YT-15-ETW1-2	10.4032	10.3919	0.0113
	NTPAMP001-SY-UM9085-RPM-C-M1-YT-14-ETW1-3	10.4128	10.4024	0.0104
	NTPAMP001-SY-UM9085-RPM-C-M2-YT-13-ETW1-1	10.5561	10.5456	0.0105
	NTPAMP001-SY-UM9085-RPM-C-M2-YT-15-ETW1-2	10.5492	10.5367	0.0125
	NTPAMP001-SY-UM9085-RPM-C-M1-YT-13-RTW-1	10.5720	10.5698	0.0022
	NTPAMP001-SY-UM9085-RPM-C-M1-YT-15-RTW-2	10.5106	10.5034	0.0072
	NTPAMP001-SY-UM9085-RPM-C-M2-YT-13-RTW-1	10.5527	10.5470	0.0057
	NTPAMP001-SY-UM9085-RPM-C-M2-YT-15-RTW-2	10.5490	10.5447	0.0043
Z	NTPAMP001-SY-UM9085-RPM-A-M1-ZT-13-ETW1-1	10.5492	10.5400	0.0092
	NTPAMP001-SY-UM9085-RPM-A-M1-ZT-15-ETW1-2	10.5503	10.5414	0.0089
	NTPAMP001-SY-UM9085-RPM-A-M2-ZT-13-ETW1-1	10.5345	10.5257	0.0088
	NTPAMP001-SY-UM9085-RPM-A-M2-ZT-15-ETW1-2	10.5324	10.5210	0.0114
	NTPAMP001-SY-UM9085-RPM-B-M1-ZT-13-ETW1-1	10.5526	10.5397	0.0129
	NTPAMP001-SY-UM9085-RPM-B-M1-ZT-15-ETW1-2	10.5464	10.5336	0.0128
	NTPAMP001-SY-UM9085-RPM-B-M2-ZT-13-ETW1-1	10.5569	10.5517	0.0052
	NTPAMP001-SY-UM9085-RPM-B-M2-ZT-15-ETW1-2	10.5555	10.5489	0.0066
	NTPAMP001-SY-UM9085-RPM-C-M1-ZT-15-ETW1-2	10.4055	10.3941	0.0114
	NTPAMP001-SY-UM9085-RPM-C-M1-ZT-11-ETW1-3	10.3960	10.3848	0.0112
	NTPAMP001-SY-UM9085-RPM-C-M2-ZT-13-ETW1-1	10.5485	10.5425	0.0060
	NTPAMP001-SY-UM9085-RPM-C-M2-ZT-15-ETW1-2	10.5398	10.5336	0.0062
	NTPAMP001-SY-UM9085-RPM-C-M1-ZT-12-RTW-3	10.6281	10.6269	0.0012
	NTPAMP001-SY-UM9085-RPM-C-M1-ZT-11-RTW-4	10.6487	10.6465	0.0022
	NTPAMP001-SY-UM9085-RPM-C-M2-ZT-15-RTW-2	10.5764	10.5753	0.0011
	NTPAMP001-SY-UM9085-RPM-C-M2-ZT-14-RTW-3	10.6149	10.6120	0.0029
Z(45)	NTPAMP001-SY-UM9085-RPM-A-M1-Z45T-13-ETW1-1	10.4304	10.4199	0.0105
	NTPAMP001-SY-UM9085-RPM-A-M1-Z45T-15-ETW1-2	10.4019	10.3949	0.0070
	NTPAMP001-SY-UM9085-RPM-A-M2-Z45T-13-ETW1-1	10.4546	10.4459	0.0087
	NTPAMP001-SY-UM9085-RPM-A-M2-Z45T-15-ETW1-2	10.4321	10.4224	0.0097
	NTPAMP001-SY-UM9085-RPM-B-M1-Z45T-15-ETW1-2	10.4024	10.3998	0.0026
	NTPAMP001-SY-UM9085-RPM-B-M2-Z45T-13-ETW1-1	10.5727	10.5640	0.0087
	NTPAMP001-SY-UM9085-RPM-B-M2-Z45T-15-ETW1-2	10.5623	10.5532	0.0091
	NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-13-ETW1-1	10.4977	10.4911	0.0066
	NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-15-ETW1-2	10.4476	10.4411	0.0065
	NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-13-ETW1-1	10.4805	10.4783	0.0022
	NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-15-ETW1-2	10.4794	10.4728	0.0066
	NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-13-RTW-1	10.6445	10.6441	0.0004
	NTPAMP001-SY-UM9085-RPM-C-M1-Z45T-15-RTW-2	10.5818	10.5809	0.0009
	NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-13-RTW-1	10.5424	10.5408	0.0016
	NTPAMP001-SY-UM9085-RPM-C-M2-Z45T-15-RTW-2	10.4864	10.4856	0.0008

8.2 Dogbone Compression

Build Direction	Specimen ID	Weight Pre-Test (g)	Weight Post-Test (g)	Moisture Loss (g)	
X	NTPAMP001-SY-UM9085-RPM-A-M1-XC-15-ETW1-1(R)	5.4016	5.3840	0.0176	
	NTPAMP001-SY-UM9085-RPM-A-M1-XC-15-ETW1-2	5.3930	5.3831	0.0099	
	NTPAMP001-SY-UM9085-RPM-A-M1-XC-15-ETW1-3	5.4130	5.3819	0.0311	
	NTPAMP001-SY-UM9085-RPM-A-M1-XC-15-ETW1-4	5.3835	5.3704	0.0131	
	NTPAMP001-SY-UM9085-RPM-A-M2-XC-13-ETW1-1	5.4049	5.3937	0.0112	
	NTPAMP001-SY-UM9085-RPM-A-M2-XC-15-ETW1-2	5.3908	5.3775	0.0133	
	NTPAMP001-SY-UM9085-RPM-A-M2-XC-14-ETW1-3	5.3935	5.3810	0.0125	
	NTPAMP001-SY-UM9085-RPM-B-M1-XC-13-ETW1-1	5.4187	5.4043	0.0144	
	NTPAMP001-SY-UM9085-RPM-B-M1-XC-15-ETW1-2	5.4223	5.4096	0.0127	
	NTPAMP001-SY-UM9085-RPM-B-M1-XC-12-ETW1-3	5.4205	5.4128	0.0077	
	NTPAMP001-SY-UM9085-RPM-B-M2-XC-13-ETW1-1	5.4524	5.4450	0.0074	
	NTPAMP001-SY-UM9085-RPM-B-M2-XC-15-ETW1-2	5.4414	5.4294	0.0120	
	NTPAMP001-SY-UM9085-RPM-B-M2-XC-14-ETW1-3	5.4611	5.4520	0.0091	
	NTPAMP001-SY-UM9085-RPM-C-M1-XC-13-ETW1-1	5.3446	5.3241	0.0205	
	NTPAMP001-SY-UM9085-RPM-C-M1-XC-15-ETW1-2	5.3389	5.3119	0.0270	
	NTPAMP001-SY-UM9085-RPM-C-M1-XC-12-ETW1-3	5.3591	5.3416	0.0175	
	NTPAMP001-SY-UM9085-RPM-C-M2-XC-13-ETW1-1	5.3669	5.3513	0.0156	
	NTPAMP001-SY-UM9085-RPM-C-M2-XC-15-ETW1-2	5.3708	5.3509	0.0199	
	NTPAMP001-SY-UM9085-RPM-C-M2-XC-14-ETW1-3	5.3615	5.3457	0.0158	
	Y	NTPAMP001-SY-UM9085-RPM-A-M1-YC-13-ETW1-1	5.6495	5.6145	0.0350
NTPAMP001-SY-UM9085-RPM-A-M1-YC-15-ETW1-2		5.5576	5.5560	0.0016	
NTPAMP001-SY-UM9085-RPM-A-M1-YC-14-ETW1-3 (R)		5.6637	5.6603	0.0034	
NTPAMP001-SY-UM9085-RPM-A-M2-YC-13-ETW1-1 (R)		5.5842	5.5760	0.0082	
NTPAMP001-SY-UM9085-RPM-A-M2-YC-15-ETW1-2		5.5647	5.5539	0.0108	
NTPAMP001-SY-UM9085-RPM-A-M2-YC-12-ETW1-3 (R)		5.6184	5.6106	0.0078	
NTPAMP001-SY-UM9085-RPM-B-M1-YC-13-ETW1-1		5.6058	5.5985	0.0073	
NTPAMP001-SY-UM9085-RPM-B-M1-YC-15-ETW1-2		5.6317	5.6257	0.0060	
NTPAMP001-SY-UM9085-RPM-B-M1-YC-14-ETW1-3		5.6437	5.6363	0.0074	
NTPAMP001-SY-UM9085-RPM-B-M2-YC-13-ETW1-1 (R)		5.6206	5.6049	0.0157	
NTPAMP001-SY-UM9085-RPM-B-M2-YC-15-ETW1-2 (R)		5.6234	5.6115	0.0119	
NTPAMP001-SY-UM9085-RPM-B-M2-YC-12-ETW1-3		5.6132	5.6032	0.0100	
NTPAMP001-SY-UM9085-RPM-B-M2-YC-11-ETW1-4 (R)		5.6187	5.6112	0.0075	
NTPAMP001-SY-UM9085-RPM-C-M1-YC-13-ETW1-1 (R)		5.6192	5.6111	0.0081	
NTPAMP001-SY-UM9085-RPM-C-M1-YC-14-ETW1-3 (R)		5.6274	5.6157	0.0117	
NTPAMP001-SY-UM9085-RPM-C-M2-YC-13-ETW1-1 (R)		5.6412	5.6319	0.0093	
NTPAMP001-SY-UM9085-RPM-C-M2-YC-15-ETW1-2		5.5852	5.5743	0.0109	
NTPAMP001-SY-UM9085-RPM-C-M2-YC-11-ETW1-4		5.5901	5.5786	0.0115	
Z		NTPAMP001-SY-UM9085-RPM-A-M1-ZC-15-ETW1-2	5.6018	5.5937	0.0081
		NTPAMP001-SY-UM9085-RPM-A-M1-ZC-12-ETW1-3	5.5934	5.5862	0.0072
	NTPAMP001-SY-UM9085-RPM-A-M2-ZC-13-ETW1-1	5.6270	5.6202	0.0068	
	NTPAMP001-SY-UM9085-RPM-A-M2-ZC-15-ETW1-2	5.6533	5.6463	0.0070	
	NTPAMP001-SY-UM9085-RPM-A-M2-ZC-14-ETW1-3	5.6567	5.6497	0.0070	
	NTPAMP001-SY-UM9085-RPM-B-M1-ZC-15-ETW1-2 (R)	5.7644	5.7592	0.0052	
	NTPAMP001-SY-UM9085-RPM-B-M1-ZC-12-ETW1-3 (R)	5.7299	5.7234	0.0065	
	NTPAMP001-SY-UM9085-RPM-B-M1-ZC-11-ETW1-4 (R)	5.7400	5.7322	0.0078	
	NTPAMP001-SY-UM9085-RPM-B-M2-ZC-13-ETW1-1	5.6415	5.6340	0.0075	
	NTPAMP001-SY-UM9085-RPM-B-M2-ZC-15-ETW1-2	5.6051	5.5983	0.0068	
	NTPAMP001-SY-UM9085-RPM-B-M2-ZC-14-ETW1-3	5.6133	5.6071	0.0062	
	NTPAMP001-SY-UM9085-RPM-C-M1-ZC-15-ETW1-2	5.6004	5.5929	0.0075	
	NTPAMP001-SY-UM9085-RPM-C-M1-ZC-12-ETW1-3	5.6201	5.6145	0.0056	
	NTPAMP001-SY-UM9085-RPM-C-M1-ZC-11-ETW1-4	5.6195	5.6134	0.0061	
	NTPAMP001-SY-UM9085-RPM-C-M2-ZC-13-ETW1-1	5.6701	5.6637	0.0064	
	NTPAMP001-SY-UM9085-RPM-C-M2-ZC-15-ETW1-2	5.6399	5.6336	0.0063	
	NTPAMP001-SY-UM9085-RPM-C-M2-ZC-14-ETW1-3	5.6475	5.6432	0.0043	
	Z(45)	NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-13-ETW1-1 (R)	5.6733	5.6656	0.0077
		NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-15-ETW1-2 (R)	5.6693	5.6646	0.0047
		NTPAMP001-SY-UM9085-RPM-A-M1-Z45C-12-ETW1-3 (R)	5.6544	5.6354	0.0190
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-13-ETW1-1		5.6692	5.6650	0.0042	
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-15-ETW1-2		5.5590	5.5549	0.0041	
NTPAMP001-SY-UM9085-RPM-A-M2-Z45C-14-ETW1-3		5.5626	5.5534	0.0092	
NTPAMP001-SY-UM9085-RPM-B-M1-Z45C-13-ETW1-1		5.5155	5.4988	0.0167	
NTPAMP001-SY-UM9085-RPM-B-M1-Z45C-15-ETW1-2		5.5004	5.4951	0.0053	
NTPAMP001-SY-UM9085-RPM-B-M1-Z45C-12-ETW1-3		5.4961	5.4844	0.0117	
NTPAMP001-SY-UM9085-RPM-B-M2-Z45C-13-ETW1-1		5.5222	5.5187	0.0035	
NTPAMP001-SY-UM9085-RPM-B-M2-Z45C-15-ETW1-2 (R)		5.5957	5.5876	0.0081	
NTPAMP001-SY-UM9085-RPM-B-M2-Z45C-14-ETW1-3 (R)		5.5986	5.5894	0.0092	
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-13-ETW1-1		5.5621	5.5535	0.0086	
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-15-ETW1-2		5.5598	5.5519	0.0079	
NTPAMP001-SY-UM9085-RPM-C-M1-Z45C-12-ETW1-3		5.5684	5.5646	0.0038	
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-13-ETW1-1		5.6202	5.6116	0.0086	
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-15-ETW1-2		5.6100	5.6045	0.0055	
NTPAMP001-SY-UM9085-RPM-C-M2-Z45C-14-ETW1-3		5.6207	5.6146	0.0061	

8.3 Filled-Hole Compression

Build Direction	Specimen ID	Weight Pre-Test (g)	Weight Post-Test (g)	Moisture Loss (g)
X	NTPAMP001-SY-UM9085-RPM-A-M1-XFHC-13-ETW1-1	44.7967	44.6817	0.1150
	NTPAMP001-SY-UM9085-RPM-A-M2-XFHC-13-ETW1-1	44.5138	44.4154	0.0984
	NTPAMP001-SY-UM9085-RPM-B-M1-XFHC-13-ETW1-1	44.3104	44.1880	0.1224
	NTPAMP001-SY-UM9085-RPM-B-M2-XFHC-13-ETW1-1	44.6240	44.5353	0.0887
	NTPAMP001-SY-UM9085-RPM-C-M1-XFHC-13-ETW1-1	44.2584	44.1568	0.1016
Y	NTPAMP001-SY-UM9085-RPM-A-M1-YFHC-13-ETW1-1	46.5549	46.5121	0.0428
	NTPAMP001-SY-UM9085-RPM-A-M2-YFHC-13-ETW1-1	46.7929	46.7238	0.0691
	NTPAMP001-SY-UM9085-RPM-B-M1-YFHC-13-ETW1-1	46.1400	46.0987	0.0413
	NTPAMP001-SY-UM9085-RPM-B-M2-YFHC-13-ETW1-1	46.4475	46.3427	0.1048
	NTPAMP001-SY-UM9085-RPM-C-M1-YFHC-13-ETW1-1	46.5108	46.4735	0.0373
	NTPAMP001-SY-UM9085-RPM-C-M2-YFHC-13-ETW1-1	46.9547	46.9137	0.0410
	NTPAMP001-SY-UM9085-RPM-C-M2-YFHC-11-ETW1-4 (R)	59.4831	59.4353	0.0478
Z	NTPAMP001-SY-UM9085-RPM-A-M1-ZFHC-13-ETW1-1	46.4586	46.4136	0.0450
	NTPAMP001-SY-UM9085-RPM-A-M2-ZFHC-13-ETW1-1	46.5474	46.5071	0.0403
	NTPAMP001-SY-UM9085-RPM-B-M1-ZFHC-13-ETW1-1	46.3002	46.2636	0.0366
	NTPAMP001-SY-UM9085-RPM-B-M2-ZFHC-13-ETW1-1	46.2819	46.2477	0.0342
	NTPAMP001-SY-UM9085-RPM-C-M1-ZFHC-13-ETW1-1	46.3678	46.3404	0.0274
	NTPAMP001-SY-UM9085-RPM-C-M2-ZFHC-13-ETW1-1	46.4910	46.4583	0.0327
Z(45)	NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHC-13-ETW1-1	46.9446	46.9020	0.0426
	NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHC-13-ETW1-1	46.9630	46.9266	0.0364
	NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHC-13-ETW1-1	46.4525	46.4033	0.0492
	NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHC-13-ETW1-1	46.0563	45.9748	0.0815
	NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHC-13-ETW1-1	46.3489	46.3046	0.0443
	NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHC-13-ETW1-1	47.2280	47.1971	0.0309

8.4 Filled-Hole Tension

Build Direction	Specimen ID	Weight Pre-Test (g)	Weight Post-Test (g)	Moisture Loss (g)
X	NTPAMP001-SY-UM9085-RPM-A-M1-XFHT-13-ETW1-1	29.8283	29.7552	0.0731
	NTPAMP001-SY-UM9085-RPM-A-M2-XFHT-13-ETW1-1	29.9715	29.9149	0.0566
	NTPAMP001-SY-UM9085-RPM-B-M1-XFHT-13-ETW1-1	29.8360	29.7577	0.0783
	NTPAMP001-SY-UM9085-RPM-B-M2-XFHT-13-ETW1-1	29.2029	29.1769	0.0260
	NTPAMP001-SY-UM9085-RPM-C-M1-XFHT-13-ETW1-1	29.3833	29.2682	0.1151
	NTPAMP001-SY-UM9085-RPM-C-M2-XFHT-13-ETW1-1	29.4003	29.3511	0.0492
Y	NTPAMP001-SY-UM9085-RPM-A-M1-YFHT-13-ETW1-1	31.0628	31.028	0.0348
	NTPAMP001-SY-UM9085-RPM-A-M2-YFHT-13-ETW1-1	31.1578	31.1209	0.0369
	NTPAMP001-SY-UM9085-RPM-B-M1-YFHT-13-ETW1-1	30.6734	30.6325	0.0409
	NTPAMP001-SY-UM9085-RPM-B-M2-YFHT-13-ETW1-1	30.9905	30.9585	0.0320
	NTPAMP001-SY-UM9085-RPM-C-M1-YFHT-13-ETW1-1	30.8086	30.7175	0.0911
	NTPAMP001-SY-UM9085-RPM-C-M2-YFHT-13-ETW1-1	30.8920	30.8567	0.0353
Z	NTPAMP001-SY-UM9085-RPM-A-M1-ZFHT-13-ETW1-1	31.1503	31.1247	0.0256
	NTPAMP001-SY-UM9085-RPM-A-M2-ZFHT-13-ETW1-1	31.2221	31.1921	0.0300
	NTPAMP001-SY-UM9085-RPM-B-M1-ZFHT-13-ETW1-1	30.8497	30.8164	0.0333
	NTPAMP001-SY-UM9085-RPM-B-M2-ZFHT-13-ETW1-1	31.3565	31.2949	0.0616
	NTPAMP001-SY-UM9085-RPM-C-M1-ZFHT-13-ETW1-1	30.9367	30.8876	0.0491
	NTPAMP001-SY-UM9085-RPM-C-M2-ZFHT-13-ETW1-1	31.2012	31.1766	0.0246
Z(45)	NTPAMP001-SY-UM9085-RPM-A-M1-Z45FHT-13-ETW1-1	31.0313	31.0025	0.0288
	NTPAMP001-SY-UM9085-RPM-A-M2-Z45FHT-13-ETW1-1	31.1919	31.1632	0.0287
	NTPAMP001-SY-UM9085-RPM-B-M1-Z45FHT-13-ETW1-1	30.7229	30.6945	0.0284
	NTPAMP001-SY-UM9085-RPM-B-M2-Z45FHT-13-ETW1-1	31.3571	31.3339	0.0232
	NTPAMP001-SY-UM9085-RPM-C-M1-Z45FHT-13-ETW1-1	30.8682	30.8297	0.0385
	NTPAMP001-SY-UM9085-RPM-C-M2-Z45FHT-13-ETW1-1	30.9931	30.8973	0.0958

8.5 Flex

Build Direction	Specimen ID	Weight Pre-Test (g)	Weight Post-Test (g)	Moisture Loss (g)	
X	NTPAMP001-SY-UM9085-RPM-A-M1-XF-13-ETW1-1	6.2915	6.2768	0.0147	
	NTPAMP001-SY-UM9085-RPM-A-M1-XF-15-ETW1-2	6.3114	6.2958	0.0156	
	NTPAMP001-SY-UM9085-RPM-A-M1-XF-11-ETW1-3	6.3021	6.2868	0.0153	
	NTPAMP001-SY-UM9085-RPM-A-M2-XF-13-ETW1-1	6.3329	6.3195	0.0134	
	NTPAMP001-SY-UM9085-RPM-A-M2-XF-15-ETW1-2	6.3120	6.2991	0.0129	
	NTPAMP001-SY-UM9085-RPM-A-M2-XF-11-ETW1-3	6.3373	6.3244	0.0129	
	NTPAMP001-SY-UM9085-RPM-B-M1-XF-13-ETW1-1	6.2809	6.2625	0.0184	
	NTPAMP001-SY-UM9085-RPM-B-M1-XF-15-ETW1-2	6.2874	6.2681	0.0193	
	NTPAMP001-SY-UM9085-RPM-B-M1-XF-11-ETW1-3	6.2852	6.2682	0.0170	
	NTPAMP001-SY-UM9085-RPM-B-M2-XF-13-ETW1-1	6.3224	6.3111	0.0113	
	NTPAMP001-SY-UM9085-RPM-B-M2-XF-15-ETW1-2	6.3490	6.3365	0.0125	
	NTPAMP001-SY-UM9085-RPM-B-M2-XF-11-ETW1-3	6.3130	6.3023	0.0107	
	NTPAMP001-SY-UM9085-RPM-C-M1-XF-13-ETW1-1	6.2679	6.2518	0.0161	
	NTPAMP001-SY-UM9085-RPM-C-M1-XF-15-ETW1-2	6.2654	6.2464	0.0190	
	NTPAMP001-SY-UM9085-RPM-C-M1-XF-11-ETW1-3	6.2759	6.2581	0.0178	
	NTPAMP001-SY-UM9085-RPM-C-M2-XF-13-ETW1-1	6.3295	6.3104	0.0191	
	NTPAMP001-SY-UM9085-RPM-C-M2-XF-15-ETW1-2	6.3454	6.3265	0.0189	
	NTPAMP001-SY-UM9085-RPM-C-M2-XF-11-ETW1-3	6.3509	6.3351	0.0158	
	Y	NTPAMP001-SY-UM9085-RPM-A-M1-YF-13-ETW1-1	6.1492	6.1421	0.0071
		NTPAMP001-SY-UM9085-RPM-A-M1-YF-15-ETW1-2	6.1593	6.1519	0.0074
NTPAMP001-SY-UM9085-RPM-A-M1-YF-14-ETW1-3		6.1690	6.1603	0.0087	
NTPAMP001-SY-UM9085-RPM-A-M1-YF-11-ETW1-4		6.1734	6.1675	0.0059	
NTPAMP001-SY-UM9085-RPM-A-M2-YF-13-ETW1-1		6.1648	6.1584	0.0064	
NTPAMP001-SY-UM9085-RPM-A-M2-YF-15-ETW1-2		6.1731	6.1713	0.0018	
NTPAMP001-SY-UM9085-RPM-A-M2-YF-12-ETW1-3		6.1764	6.1718	0.0046	
NTPAMP001-SY-UM9085-RPM-B-M1-YF-13-ETW1-1		6.1383	6.1314	0.0069	
NTPAMP001-SY-UM9085-RPM-B-M1-YF-15-ETW1-2		6.1724	6.1611	0.0113	
NTPAMP001-SY-UM9085-RPM-B-M1-YF-14-ETW1-3		6.1669	6.1564	0.0105	
NTPAMP001-SY-UM9085-RPM-B-M2-YF-13-ETW1-1		6.2300	6.2169	0.0131	
NTPAMP001-SY-UM9085-RPM-B-M2-YF-15-ETW1-2		6.2379	6.2279	0.0100	
NTPAMP001-SY-UM9085-RPM-B-M2-YF-12-ETW1-3		6.2432	6.2330	0.0102	
NTPAMP001-SY-UM9085-RPM-C-M1-YF-13-ETW1-1		6.1214	6.1153	0.0061	
NTPAMP001-SY-UM9085-RPM-C-M1-YF-15-ETW1-2		6.1294	6.1188	0.0106	
NTPAMP001-SY-UM9085-RPM-C-M1-YF-14-ETW1-3		6.1071	6.0972	0.0099	
NTPAMP001-SY-UM9085-RPM-C-M2-YF-13-ETW1-1		6.1815	6.1703	0.0112	
NTPAMP001-SY-UM9085-RPM-C-M2-YF-15-ETW1-2		6.2045	6.1944	0.0101	
NTPAMP001-SY-UM9085-RPM-C-M2-YF-12-ETW1-3		6.2023	6.1924	0.0099	
Z		NTPAMP001-SY-UM9085-RPM-A-M1-ZF-13-ETW1-1	6.2583	6.2513	0.0070
	NTPAMP001-SY-UM9085-RPM-A-M1-ZF-15-ETW1-2	6.2352	6.2291	0.0061	
	NTPAMP001-SY-UM9085-RPM-A-M1-ZF-11-ETW1-3	6.2564	6.2501	0.0063	
	NTPAMP001-SY-UM9085-RPM-A-M1-ZF-12-ETW1-4	6.2397	6.2331	0.0066	
	NTPAMP001-SY-UM9085-RPM-A-M2-ZF-13-ETW1-1	6.2463	6.2436	0.0027	
	NTPAMP001-SY-UM9085-RPM-A-M2-ZF-15-ETW1-2	6.2357	6.2325	0.0032	
	NTPAMP001-SY-UM9085-RPM-A-M2-ZF-11-ETW1-3	6.2544	6.2514	0.0030	
	NTPAMP001-SY-UM9085-RPM-B-M1-ZF-13-ETW1-1	6.2411	6.2359	0.0052	
	NTPAMP001-SY-UM9085-RPM-B-M1-ZF-15-ETW1-2	6.2190	6.2130	0.0060	
	NTPAMP001-SY-UM9085-RPM-B-M1-ZF-11-ETW1-3	6.2376	6.2319	0.0057	
	NTPAMP001-SY-UM9085-RPM-B-M2-ZF-13-ETW1-1	6.3169	6.3113	0.0056	
	NTPAMP001-SY-UM9085-RPM-B-M2-ZF-15-ETW1-2	6.2986	6.2918	0.0068	
	NTPAMP001-SY-UM9085-RPM-B-M2-ZF-11-ETW1-3	6.3152	6.3099	0.0053	
	NTPAMP001-SY-UM9085-RPM-C-M1-ZF-13-ETW1-1	6.2163	6.2083	0.0080	
	NTPAMP001-SY-UM9085-RPM-C-M1-ZF-15-ETW1-2	6.1944	6.1871	0.0073	
	NTPAMP001-SY-UM9085-RPM-C-M1-ZF-11-ETW1-3	6.2114	6.2044	0.0070	
	NTPAMP001-SY-UM9085-RPM-C-M2-ZF-13-ETW1-1	6.3345	6.3282	0.0063	
	NTPAMP001-SY-UM9085-RPM-C-M2-ZF-15-ETW1-2	6.3272	6.3195	0.0077	
	NTPAMP001-SY-UM9085-RPM-C-M2-ZF-11-ETW1-3	6.3328	6.3282	0.0046	
	Z(45)	NTPAMP001-SY-UM9085-RPM-A-M1-Z45F-13-ETW1-1	6.2767	6.2716	0.0051
NTPAMP001-SY-UM9085-RPM-A-M1-Z45F-15-ETW1-2		6.2588	6.2533	0.0055	
NTPAMP001-SY-UM9085-RPM-A-M1-Z45F-14-ETW1-3		6.2748	6.2698	0.0050	
NTPAMP001-SY-UM9085-RPM-A-M1-Z45F-11-ETW1-4		6.2757	6.2693	0.0064	
NTPAMP001-SY-UM9085-RPM-A-M2-Z45F-13-ETW1-1		6.2342	6.2299	0.0043	
NTPAMP001-SY-UM9085-RPM-A-M2-Z45F-15-ETW1-2		6.2234	6.2171	0.0063	
NTPAMP001-SY-UM9085-RPM-A-M2-Z45F-12-ETW1-3		6.2293	6.2246	0.0047	
NTPAMP001-SY-UM9085-RPM-B-M1-Z45F-13-ETW1-1		6.2431	6.2404	0.0027	
NTPAMP001-SY-UM9085-RPM-B-M1-Z45F-15-ETW1-2		6.2327	6.2230	0.0097	
NTPAMP001-SY-UM9085-RPM-B-M1-Z45F-14-ETW1-3		6.2441	6.2404	0.0037	
NTPAMP001-SY-UM9085-RPM-B-M2-Z45F-13-ETW1-1		6.3190	6.3157	0.0033	
NTPAMP001-SY-UM9085-RPM-B-M2-Z45F-15-ETW1-2		6.3033	6.2992	0.0041	
NTPAMP001-SY-UM9085-RPM-B-M2-Z45F-12-ETW1-3		6.3030	6.3010	0.0020	
NTPAMP001-SY-UM9085-RPM-C-M1-Z45F-13-ETW1-1		6.2410	6.2338	0.0072	
NTPAMP001-SY-UM9085-RPM-C-M1-Z45F-15-ETW1-2		6.2231	6.2150	0.0081	
NTPAMP001-SY-UM9085-RPM-C-M1-Z45F-14-ETW1-3		6.2438	6.2371	0.0067	
NTPAMP001-SY-UM9085-RPM-C-M2-Z45F-13-ETW1-1		6.2991	6.2917	0.0074	
NTPAMP001-SY-UM9085-RPM-C-M2-Z45F-15-ETW1-2		6.2906	6.2844	0.0062	
NTPAMP001-SY-UM9085-RPM-C-M2-Z45F-12-ETW1-3		6.2785	6.2715	0.0070	

8.6 Open-Hole Compression

Build Direction	Specimen ID	Weight Pre-Test (g)	Weight Post-Test (g)	Moisture Loss (g)
X	NTPAMP001-SY-UM9085-RPM-A-M1-XOHC-13-ETW1-1	44.5880	44.5007	0.0873
	NTPAMP001-SY-UM9085-RPM-A-M2-XOHC-13-ETW1-1	44.6853	44.5447	0.1406
	NTPAMP001-SY-UM9085-RPM-B-M1-XOHC-13-ETW1-1	44.7361	44.6387	0.0974
	NTPAMP001-SY-UM9085-RPM-B-M2-XOHC-13-ETW1-1	44.2701	44.1679	0.1022
	NTPAMP001-SY-UM9085-RPM-C-M1-XOHC-13-ETW1-1	44.2766	44.1538	0.1228
Y	NTPAMP001-SY-UM9085-RPM-C-M2-XOHC-13-ETW1-1	44.6256	44.5395	0.0861
	NTPAMP001-SY-UM9085-RPM-A-M1-YOHC-13-ETW1-1	46.7485	46.6886	0.0599
	NTPAMP001-SY-UM9085-RPM-A-M2-YOHC-13-ETW1-1	46.9340	46.3217	0.6123
	NTPAMP001-SY-UM9085-RPM-B-M1-YOHC-13-ETW1-1	46.4072	46.3545	0.0527
	NTPAMP001-SY-UM9085-RPM-B-M2-YOHC-13-ETW1-1	45.9758	45.9074	0.0684
Z	NTPAMP001-SY-UM9085-RPM-C-M1-YOHC-13-ETW1-1	46.6014	46.5603	0.0411
	NTPAMP001-SY-UM9085-RPM-C-M2-YOHC-13-ETW1-1	46.7292	46.6702	0.0590
	NTPAMP001-SY-UM9085-RPM-A-M1-ZOHC-13-ETW1-1	46.2368	46.1940	0.0428
	NTPAMP001-SY-UM9085-RPM-A-M2-ZOHC-13-ETW1-1	46.6678	46.6103	0.0575
	NTPAMP001-SY-UM9085-RPM-B-M1-ZOHC-13-ETW1-1	46.3526	46.3032	0.0494
Z(45)	NTPAMP001-SY-UM9085-RPM-B-M2-ZOHC-13-ETW1-1	46.4551	46.4220	0.0331
	NTPAMP001-SY-UM9085-RPM-C-M1-ZOHC-13-ETW1-1	46.0759	46.0400	0.0359
	NTPAMP001-SY-UM9085-RPM-C-M2-ZOHC-13-ETW1-1	46.4850	46.4431	0.0419
	NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHC-13-ETW1-1	46.8863	46.8550	0.0313
	NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHC-13-ETW1-1	47.0399	46.9906	0.0493
Z(45)	NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHC-13-ETW1-1	46.8736	46.8343	0.0393
	NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHC-13-ETW1-1	46.5020	46.4508	0.0512
	NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHC-13-ETW1-1	46.8560	46.8147	0.0413
	NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHC-13-ETW1-1	47.1116	47.0738	0.0378

8.7 Open-Hole Tension

Build Direction	Specimen ID	Weight Pre-Test (g)	Weight Post-Test (g)	Moisture Loss (g)
X	NTPAMP001-SY-UM9085-RPM-A-M1-XOHT-13-ETW1-1	29.9074	29.8323	0.0751
	NTPAMP001-SY-UM9085-RPM-A-M2-XOHT-13-ETW1-1	29.9384	29.8872	0.0512
	NTPAMP001-SY-UM9085-RPM-B-M1-XOHT-13-ETW1-1	29.6942	29.6283	0.0659
	NTPAMP001-SY-UM9085-RPM-B-M2-XOHT-13-ETW1-1	29.4988	29.4361	0.0627
	NTPAMP001-SY-UM9085-RPM-C-M1-XOHT-13-ETW1-1	29.3594	29.2810	0.0784
Y	NTPAMP001-SY-UM9085-RPM-C-M2-XOHT-13-ETW1-1	29.2428	29.1634	0.0794
	NTPAMP001-SY-UM9085-RPM-A-M1-YOHT-13-ETW1-1	31.0290	30.9968	0.0322
	NTPAMP001-SY-UM9085-RPM-B-M1-YOHT-13-ETW1-1	31.1254	31.1002	0.0252
	NTPAMP001-SY-UM9085-RPM-B-M2-YOHT-13-ETW1-1	30.8936	30.8168	0.0768
	NTPAMP001-SY-UM9085-RPM-C-M1-YOHT-13-ETW1-1	30.6997	30.6684	0.0313
Z	NTPAMP001-SY-UM9085-RPM-C-M2-YOHT-13-ETW1-1	30.5373	30.4921	0.0452
	NTPAMP001-SY-UM9085-RPM-A-M1-ZOHT-13-ETW1-1 (R)	31.1237	31.1015	0.0222
	NTPAMP001-SY-UM9085-RPM-A-M2-ZOHT-13-ETW1-1 (R)	31.0470	31.0270	0.0200
	NTPAMP001-SY-UM9085-RPM-B-M1-ZOHT-13-ETW1-1	30.8399	30.8173	0.0226
	NTPAMP001-SY-UM9085-RPM-B-M2-ZOHT-13-ETW1-1	30.9040	30.8811	0.0229
Z(45)	NTPAMP001-SY-UM9085-RPM-C-M1-ZOHT-13-ETW1-1	30.9595	30.8417	0.1178
	NTPAMP001-SY-UM9085-RPM-C-M2-ZOHT-13-ETW1-1	30.5910	30.5578	0.0332
	NTPAMP001-SY-UM9085-RPM-A-M1-Z45OHT-13-ETW1-1	31.0915	31.0628	0.0287
	NTPAMP001-SY-UM9085-RPM-A-M2-Z45OHT-13-ETW1-1	31.0337	31.0039	0.0298
	NTPAMP001-SY-UM9085-RPM-B-M1-Z45OHT-13-ETW1-1	30.8810	30.8553	0.0257
Z(45)	NTPAMP001-SY-UM9085-RPM-B-M2-Z45OHT-13-ETW1-1	30.9334	30.9056	0.0278
	NTPAMP001-SY-UM9085-RPM-C-M1-Z45OHT-13-ETW1-1	30.7651	30.7407	0.0244
	NTPAMP001-SY-UM9085-RPM-C-M2-Z45OHT-13-ETW1-1	30.5333	30.4960	0.0373

8.8 Single-Shear Bearing

Build Direction	Specimen ID	Weight Pre-Test (g)	Weight Post-Test (g)	Moisture Loss (g)
X	NTPAMP001-SY-UM9085-RPM-A-M1-XSSB-13-ETW1-1	20.4158	20.3614	0.0544
	NTPAMP001-SY-UM9085-RPM-A-M2-XSSB-13-ETW1-1	20.4823	20.4306	0.0517
	NTPAMP001-SY-UM9085-RPM-B-M1-XSSB-13-ETW1-1	20.4344	20.3532	0.0812
	NTPAMP001-SY-UM9085-RPM-B-M2-XSSB-13-ETW1-1	20.3577	20.3121	0.0456
	NTPAMP001-SY-UM9085-RPM-C-M1-XSSB-13-ETW1-1	19.8942	19.8317	0.0625
	NTPAMP001-SY-UM9085-RPM-C-M2-XSSB-13-ETW1-1	20.1911	20.1460	0.0451
Y	NTPAMP001-SY-UM9085-RPM-A-M1-YSSB-13-ETW1-1	21.3757	21.3527	0.0230
	NTPAMP001-SY-UM9085-RPM-A-M2-YSSB-13-ETW1-1	21.3718	21.3429	0.0289
	NTPAMP001-SY-UM9085-RPM-B-M1-YSSB-13-ETW1-1	21.3310	21.2329	0.0981
	NTPAMP001-SY-UM9085-RPM-B-M2-YSSB-13-ETW1-1	21.4386	21.4308	0.0078
	NTPAMP001-SY-UM9085-RPM-C-M1-YSSB-13-ETW1-1	20.9345	20.9061	0.0284
	NTPAMP001-SY-UM9085-RPM-C-M2-YSSB-13-ETW1-1	21.2408	21.2226	0.0182
Z	NTPAMP001-SY-UM9085-RPM-A-M1-ZSSB-13-ETW1-1	21.3273	21.3115	0.0158
	NTPAMP001-SY-UM9085-RPM-A-M2-ZSSB-13-ETW1-1	21.3281	21.3130	0.0151
	NTPAMP001-SY-UM9085-RPM-B-M1-ZSSB-13-ETW1-1	21.1531	21.1397	0.0134
	NTPAMP001-SY-UM9085-RPM-B-M2-ZSSB-13-ETW1-1	21.4482	21.4338	0.0144
	NTPAMP001-SY-UM9085-RPM-C-M1-ZSSB-13-ETW1-1	20.9576	20.8410	0.1166
	NTPAMP001-SY-UM9085-RPM-C-M2-ZSSB-13-ETW1-1	21.0800	21.0632	0.0168
Z(45)	NTPAMP001-SY-UM9085-RPM-A-M1-Z45SSB-13-ETW1-1	21.2127	21.1842	0.0285
	NTPAMP001-SY-UM9085-RPM-B-M1-Z45SSB-13-ETW1-1	21.1436	21.0840	0.0596
	NTPAMP001-SY-UM9085-RPM-C-M1-Z45SSB-13-ETW1-1	21.0147	20.9963	0.0184
	NTPAMP001-SY-UM9085-RPM-C-M2-Z45SSB-13-ETW1-1	21.1348	21.1200	0.0148

8.9 V-Notch In-Plane Shear

X Orientation V-Notch In-Plane Shear moisture loss data not recorded due to the inability to achieve accurate data with strain gauge interference.

9. Physical Testing

9.1 DMA Results

DMA Results Summary				
FAA-AM (NTPAMP001) NPN031701 DMA Dry				
Sample #	Onset Storage Modulus		Peak of Tangent Delta	
	T _g [°C]	T _g [°F]	T _g [°C]	T _g [°F]
NTPCMP001-SY-UM9085-RPM-A-M1-XDMA-12-RTD	178.62	353.52	188.94	372.09
NTPCMP001-SY-UM9085-RPM-A-M1-YDMA-13-RTD	178.81	353.86	188.89	372.00
NTPCMP001-SY-UM9085-RPM-A-M1-ZDMA-15-RTD	178.15	352.67	188.86	371.95
NTPCMP001-SY-UM9085-RPM-A-M1-Z45DMA-14-RTD	178.65	353.57	189.16	372.49
NTPCMP001-SY-UM9085-RPM-A-M2-XDMA-11-RTD	178.84	353.91	188.99	372.18
NTPCMP001-SY-UM9085-RPM-A-M2-YDMA-12-RTD	178.73	353.71	188.88	371.98
NTPCMP001-SY-UM9085-RPM-A-M2-ZDMA-14-RTD	178.43	353.17	189.16	372.49
NTPCMP001-SY-UM9085-RPM-A-M2-Z45DMA-13-RTD	178.48	353.26	189.26	372.67
NTPCMP001-SY-UM9085-RPM-B-M1-XDMA-12-RTD	180.10	356.18	190.20	374.36
NTPCMP001-SY-UM9085-RPM-B-M1-YDMA-14-RTD	179.37	354.87	189.62	373.32
NTPCMP001-SY-UM9085-RPM-B-M1-ZDMA-11-RTD	179.31	354.76	189.95	373.91
NTPCMP001-SY-UM9085-RPM-B-M1-Z45DMA-15-RTD	180.12	356.22	190.73	375.31
NTPCMP001-SY-UM9085-RPM-B-M2-XDMA-13-RTD	179.64	355.35	190.12	374.22
NTPCMP001-SY-UM9085-RPM-B-M2-YDMA-14-RTD	179.46	355.03	189.73	373.51
NTPCMP001-SY-UM9085-RPM-B-M2-ZDMA-11-RTD	178.93	354.07	189.74	373.53
NTPCMP001-SY-UM9085-RPM-B-M2-Z45DMA-15-RTD	179.52	355.14	190.01	374.02
NTPCMP001-SY-UM9085-RPM-C-M1-XDMA-13-RTD	178.10	352.58	188.28	370.90
NTPCMP001-SY-UM9085-RPM-C-M1-YDMA-14-RTD	177.76	351.97	187.92	370.26
NTPCMP001-SY-UM9085-RPM-C-M1-ZDMA-12-RTD	177.35	351.23	188.26	370.87
NTPCMP001-SY-UM9085-RPM-C-M1-Z45DMA-11-RTD	177.93	352.27	188.45	371.21
NTPCMP001-SY-UM9085-RPM-C-M2-XDMA-14-RTD	178.02	352.44	188.49	371.28
NTPCMP001-SY-UM9085-RPM-C-M2-YDMA-15-RTD	177.70	351.86	187.98	370.36
NTPCMP001-SY-UM9085-RPM-C-M2-ZDMA-12-RTD	177.07	350.73	187.81	370.06
NTPCMP001-SY-UM9085-RPM-C-M2-Z45DMA-11-RTD	177.67	351.81	188.33	370.99
Average	178.62	353.51	189.07	372.33
Standard Deviation	0.84	1.51	0.80	1.44

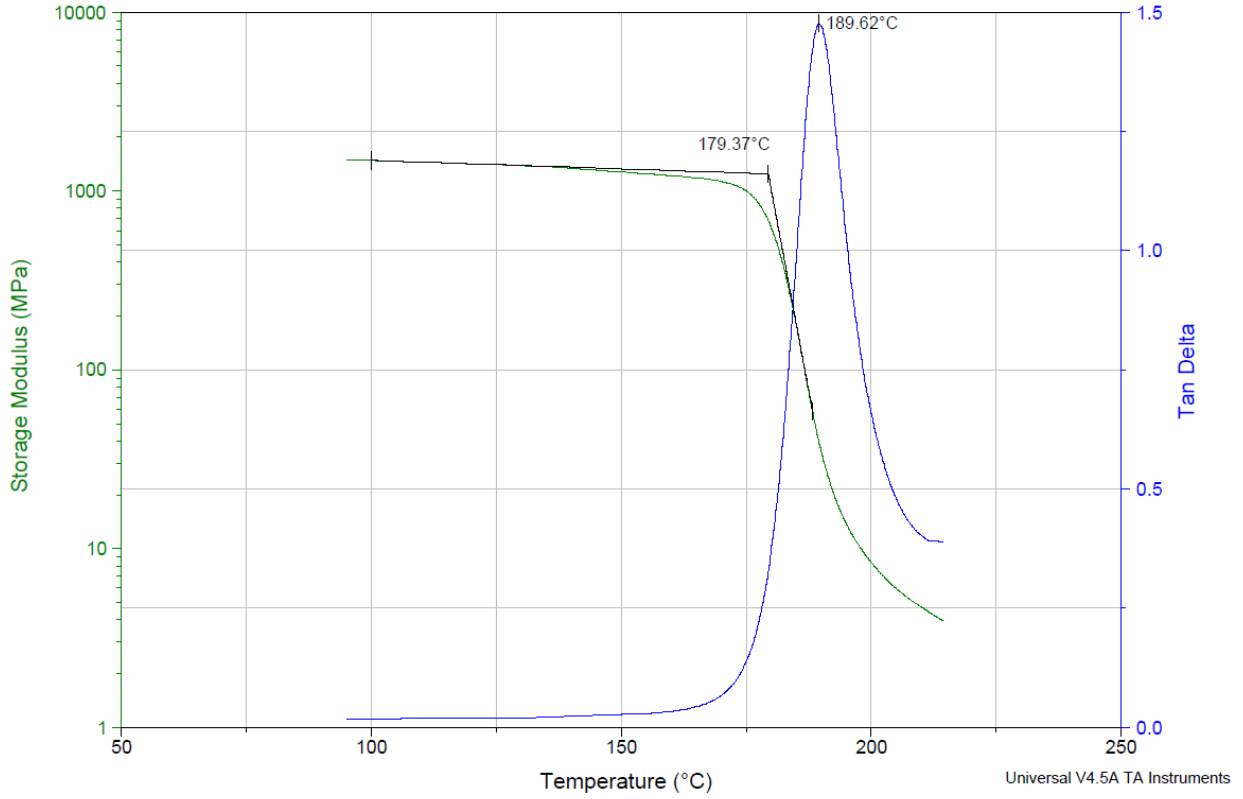
DMA Results Summary				
FAA-AM (NTPAMP001) NPN031701 DMA Wet				
Sample #	Onset Storage Modulus		Peak of Tangent Delta	
	T _g [°C]	T _g [°F]	T _g [°C]	T _g [°F]
NTPCMP001-SY-UM9085-RPM-A-M1-XDMA-12-ETW	176.76	350.17	187.72	369.90
NTPCMP001-SY-UM9085-RPM-A-M1-YDMA-13-ETW	175.41	347.74	186.99	368.58
NTPCMP001-SY-UM9085-RPM-A-M1-ZDMA-15-ETW	175.03	347.05	187.00	368.60
NTPCMP001-SY-UM9085-RPM-A-M1-Z45DMA-14-ETW	176.41	349.54	187.73	369.91
NTPCMP001-SY-UM9085-RPM-A-M2-XDMA-11-ETW	177.99	352.38	188.70	371.66
NTPCMP001-SY-UM9085-RPM-A-M2-YDMA-12-ETW	177.25	351.05	187.96	370.33
NTPCMP001-SY-UM9085-RPM-A-M2-ZDMA-14-ETW	173.98	345.16	186.89	368.40
NTPCMP001-SY-UM9085-RPM-A-M2-Z45DMA-13-ETW	175.40	347.72	187.51	369.52
NTPCMP001-SY-UM9085-RPM-B-M1-XDMA-12-ETW	179.04	354.27	189.79	373.62
NTPCMP001-SY-UM9085-RPM-B-M1-YDMA-14-ETW	178.28	352.90	189.06	372.31
NTPCMP001-SY-UM9085-RPM-B-M1-ZDMA-11-ETW	177.06	350.71	188.82	371.88
NTPCMP001-SY-UM9085-RPM-B-M1-Z45DMA-15-ETW	177.89	352.20	188.95	372.11
NTPCMP001-SY-UM9085-RPM-B-M2-XDMA-13-ETW	179.37	354.87	190.03	374.05
NTPCMP001-SY-UM9085-RPM-B-M2-YDMA-14-ETW	176.96	350.53	188.63	371.53
NTPCMP001-SY-UM9085-RPM-B-M2-ZDMA-11-ETW	174.43	345.97	187.74	369.93
NTPCMP001-SY-UM9085-RPM-B-M2-Z45DMA-15-ETW	175.73	348.31	188.17	370.71
NTPCMP001-SY-UM9085-RPM-C-M1-XDMA-13-ETW	177.24	351.03	187.95	370.31
NTPCMP001-SY-UM9085-RPM-C-M1-YDMA-14-ETW	176.20	349.16	187.14	368.85
NTPCMP001-SY-UM9085-RPM-C-M1-ZDMA-12-ETW	174.69	346.44	186.71	368.08
NTPCMP001-SY-UM9085-RPM-C-M1-Z45DMA-11-ETW	176.52	349.74	187.56	369.61
NTPCMP001-SY-UM9085-RPM-C-M2-XDMA-14-ETW	176.99	350.58	187.43	369.37
NTPCMP001-SY-UM9085-RPM-C-M2-YDMA-15-ETW	174.89	346.80	186.33	367.39
NTPCMP001-SY-UM9085-RPM-C-M2-ZDMA-12-ETW	174.04	345.27	186.39	367.50
NTPCMP001-SY-UM9085-RPM-C-M2-Z45DMA-11-ETW	174.53	346.15	186.59	367.86
Average	176.34	349.41	187.82	370.08
Standard Deviation	1.55	2.78	1.03	1.85

9.2 DMA Dry Batch A

Sample: SY-UM9085-RPM-B-M1-YDMA-14-RTD
Size: 20.0000 x 11.9700 x 2.0900 mm
Method: Strain Controlled Ramp @5C/min
Comment: FAA-AM (NTPAMP001) NPN031701 DMA Dry

DMA

File: Y:\...SY-UM9085-RPM-B-M1-YDMA-14-RTD.00
Operator: Ping Q800-SN0041
Run Date: 15-Oct-2018 16:55
Instrument: DMA Q800 V7.5 Build 127

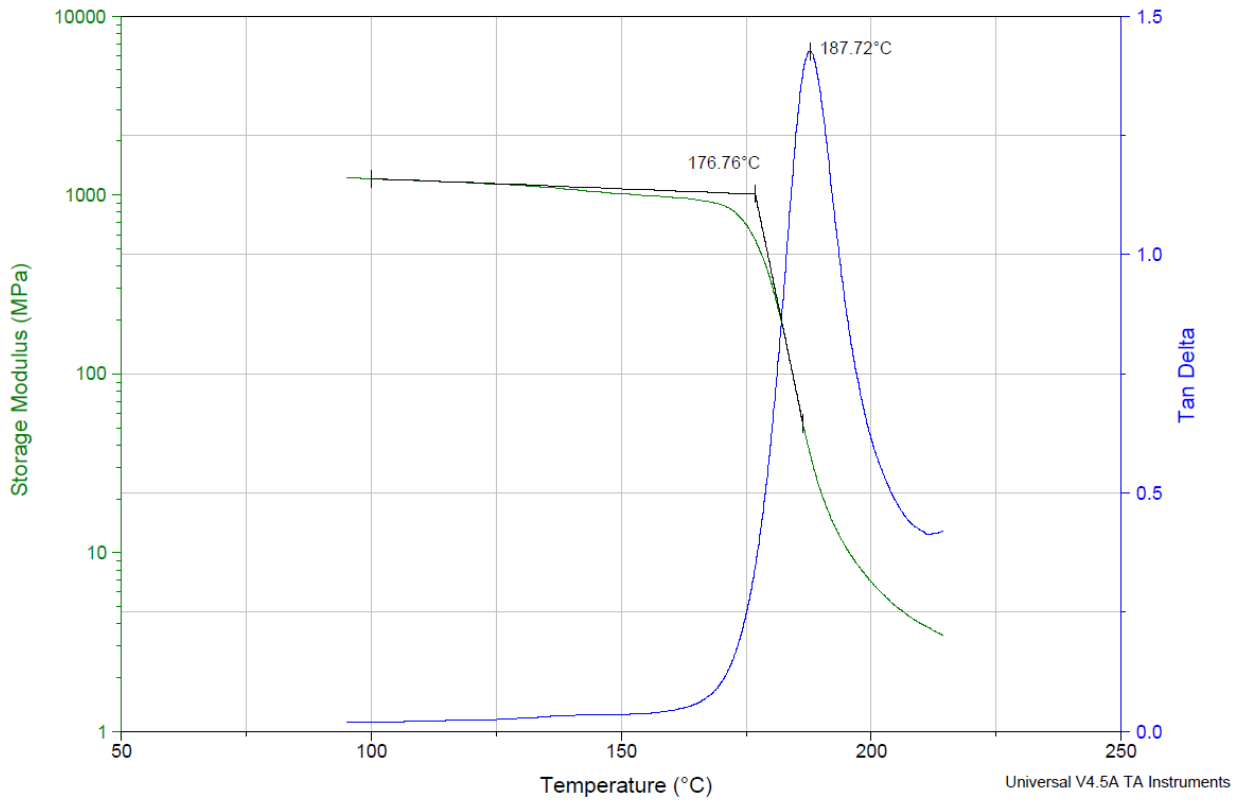


9.3 DMA Wet Batch A

Sample: SY-UM9085-RPM-A-M1-XDMA-12-ETW
Size: 20.0000 x 12.0300 x 1.9800 mm
Method: Strain Controlled Ramp @5C/min
Comment: FAA-AM (NTPAMP001) NPN031701 DMA Wet

DMA

File: Y:\...\SY-UM9085-RPM-A-M1-XDMA-12-ETW.00
Operator: Ping Q800-SN0041
Run Date: 04-Dec-2018 15:41
Instrument: DMA Q800 V7.5 Build 127



9.4 TMA Results

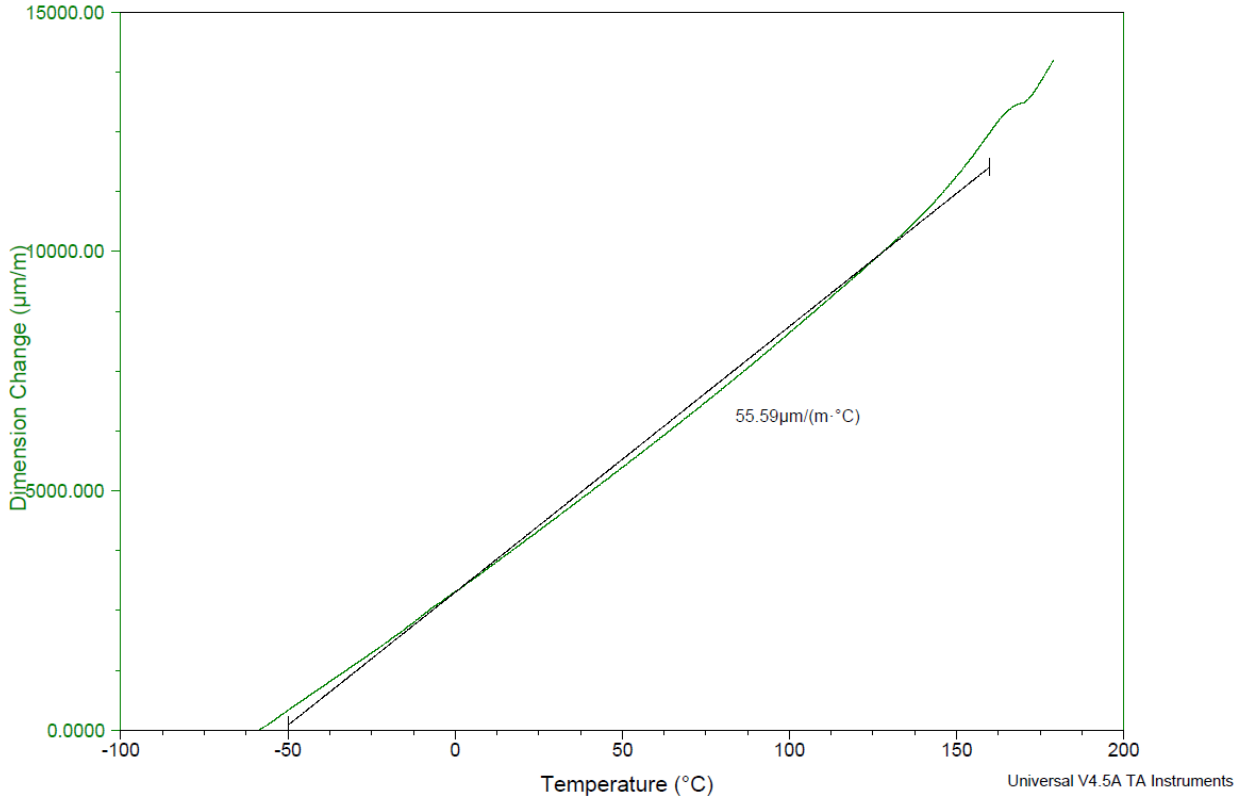
TMA Results			
FAA-AM (NTPAMP001) NPN031701 TMA Dry			
Sample #	Coefficient of Thermal Expansion [$\mu\text{m}/(\text{m}\cdot^\circ\text{C})$]		
NTPCMP001-SY-UM9085-RPM-A-M1-XTMA-12-RTD	54.80	Average	55.49
NTPCMP001-SY-UM9085-RPM-A-M1-YTMA-11-RTD	54.08		
NTPCMP001-SY-UM9085-RPM-A-M1-ZTMA-14-RTD	55.59	St. Dev.	2.09
NTPCMP001-SY-UM9085-RPM-A-M1-Z45TMA-13-RTD	61.52		
NTPCMP001-SY-UM9085-RPM-B-M1-XTMA-13-RTD	53.93		
NTPCMP001-SY-UM9085-RPM-B-M1-YTMA-14-RTD	54.02		
NTPCMP001-SY-UM9085-RPM-B-M1-ZTMA-11-RTD	56.29		
NTPCMP001-SY-UM9085-RPM-B-M1-Z45TMA-12-RTD	54.85		
NTPCMP001-SY-UM9085-RPM-C-M1-XTMA-14-RTD	54.40		
NTPCMP001-SY-UM9085-RPM-C-M1-YTMA-12-RTD	54.27		
NTPCMP001-SY-UM9085-RPM-C-M1-ZTMA-13-RTD	56.27		
NTPCMP001-SY-UM9085-RPM-C-M1-Z45TMA-11-RTD	55.82		

9.5 TMA Dry Batch A

Sample: SY-UM9085-RPM-A-M1-ZTMA-14-RTD
Size: 10.1874 mm
Method: Ramp
Comment: FAA-AM (NTPAMP001) NPN031701 TMA Dry

TMA

File: Y:\...SY-UM9085-RPM-A-M1-ZTMA-14-RTD.001
Operator: Ping Q400-0227
Run Date: 10-Oct-2018 16:12
Instrument: TMA Q400 V7.4 Build 93



9.6 Flammability Results

9.6.1 Vertical Burn Flammability Test

**FAR 25.853 (a) Appendix F, Part I, (a) 1, (i): 60 sec,
Vertical Burn Flammability Test**
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen ID	Burning Time (sec)	Burning Length (in)	Longest Burning Particle (sec)	Pass/Fail
NTPAMP001-SY-UM9085-RPM-A-M1-XFLM-15-RTD-1	0	1.5	None	Pass
NTPAMP001-SY-UM9085-RPM-A-M1-XFLM-15-RTD-2	0	1.4	None	Pass
NTPAMP001-SY-UM9085-RPM-A-M1-XFLM-15-RTD-3	0	1.4	None	Pass
NTPAMP001-SY-UM9085-RPM-A-M1-YFLM-15-RTD-1	2	2.3	None	Pass
NTPAMP001-SY-UM9085-RPM-A-M1-YFLM-15-RTD-2	0	1.6	None	Pass
NTPAMP001-SY-UM9085-RPM-A-M1-YFLM-15-RTD-3	0	1.7	None	Pass
NTPAMP001-SY-UM9085-RPM-B-M1-ZFLM-15-RTD-1	0	2.0	None	Pass
NTPAMP001-SY-UM9085-RPM-B-M1-ZFLM-15-RTD-2	0	2.0	None	Pass
NTPAMP001-SY-UM9085-RPM-B-M1-ZFLM-15-RTD-3	0	2.0	None	Pass
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FLM-15-RTD-1	0	1.8	None	Pass
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FLM-15-RTD-2	4	2.1	None	Pass
NTPAMP001-SY-UM9085-RPM-B-M1-Z45FLM-15-RTD-3	0	1.8	None	Pass

Passing Criteria:

Maximum Burn Time: 15 sec

Maximum Burn Length: 6 in

Maximum Longest Burning: 3 sec

Sample Dimension: 12" x 3" x 0.13"

9.6.2 Smoke Density Test

**FAR 25.853 (d) Appendix F, Part V,
Smoke Density Test**
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen ID	Ds @ 1.5m	Ds @ 4.0m	Ds Max	Pass/Fail	Dmax time
NTPAMP001-SY-UM9085-RPM-B-M1-XNBS-15-RTD-1	0	11	11	Pass	240
NTPAMP001-SY-UM9085-RPM-B-M1-XNBS-15-RTD-2	0	9	9	Pass	238
NTPAMP001-SY-UM9085-RPM-B-M1-XNBS-15-RTD-3	0	5	5	Pass	239
NTPAMP001-SY-UM9085-RPM-B-M1-YNBS-15-RTD-1	1	15	15	Pass	235
NTPAMP001-SY-UM9085-RPM-B-M1-YNBS-15-RTD-2	1	7	7	Pass	228
NTPAMP001-SY-UM9085-RPM-B-M1-YNBS-15-RTD-3	1	11	11	Pass	234
NTPAMP001-SY-UM9085-RPM-B-M1-ZNBS-15-RTD-1	1	17	17	Pass	234
NTPAMP001-SY-UM9085-RPM-B-M1-ZNBS-15-RTD-2	0	14	14	Pass	233
NTPAMP001-SY-UM9085-RPM-B-M1-ZNBS-15-RTD-3	0	13	13	Pass	236
NTPAMP001-SY-UM9085-RPM-B-M1-Z45NBS-15-RTD-1	1	8	8	Pass	233
NTPAMP001-SY-UM9085-RPM-B-M1-Z45NBS-15-RTD-2	1	14	14	Pass	235
NTPAMP001-SY-UM9085-RPM-B-M1-Z45NBS-15-RTD-3	1	30	30	Pass	240

Passing Criteria:
Ds Max <200

Sample Dimension: 3” x 3” x 0.13”

9.6.3 Heat Release Test

**FAR 25.853 (d) Appendix F, Part IV,
Heat Release Test**
Stratasys Certified ULTEM™ 9085 / Fortus 900mc

Specimen ID	Total HR at 2 min (kWmin/m ²)	Peak HR (kW/m ²)	Peak Time (Sec)	Melting (Yes/No)	Sagging (Yes/No)	Dripping (Yes/No)	Pass/Fail
NTPAMP001-SY-UM9085-RPM-B-M1-XHRP-15-RTD-1	9.3	51.7	278	Yes	Yes	Yes	Pass
NTPAMP001-SY-UM9085-RPM-B-M1-XHRP-15-RTD-2	13.2	59.8	291	Yes	Yes	Yes	Pass
NTPAMP001-SY-UM9085-RPM-B-M1-XHRP-15-RTD-3	11.0	51.5	299	Yes	Yes	Yes	Pass
NTPAMP001-SY-UM9085-RPM-A-M1-YHRP-15-RTD-1	12.8	53.1	288	Yes	Yes	Yes	Pass
NTPAMP001-SY-UM9085-RPM-A-M1-YHRP-15-RTD-2	7.3	59.5	237	Yes	Yes	Yes	Pass
NTPAMP001-SY-UM9085-RPM-A-M1-YHRP-15-RTD-3	7.9	49.7	297	Yes	Yes	Yes	Pass
NTPAMP001-SY-UM9085-RPM-B-M1-ZHRP-15-RTD-1	6.3	49.2	298	Yes	Yes	Yes	Pass
NTPAMP001-SY-UM9085-RPM-B-M1-ZHRP-15-RTD-2	9.4	51.0	257	Yes	Yes	Yes	Pass
NTPAMP001-SY-UM9085-RPM-B-M1-ZHRP-15-RTD-3	10.0	51.2	299	Yes	Yes	Yes	Pass
NTPAMP001-SY-UM9085-RPM-A-M1-Z45HRP-15-RTD-1	10.8	53.3	264	No	No	No	Pass
NTPAMP001-SY-UM9085-RPM-A-M1-Z45HRP-15-RTD-2	9.7	50.2	217	No	No	No	Pass
NTPAMP001-SY-UM9085-RPM-A-M1-Z45HRP-15-RTD-3	0.0	47.2	276	No	No	No	Pass

Passing Criteria:
FAR 25.853 (d). Amdt. 25-116, 65/65

Sample Dimension: 6” x 6” x 0.13”

9.7 Relative Density

D792-13 Specific Gravity (Relative Density)								
Sample Name	W1 [g]	W2 [g]	Water Temp. [°C]	Water Density at Temp. [g/cc]	Specific Gravity	Specimen Density [g/cc]	Specimen Density [lbm/in3]	
NTPAMP001-SY-UM9085-RPM-A-M1-XDEN-13-RTD-1 MACH&TEST	2.512	0.373	21.800	0.998	1.174	1.172	0.042	
NTPAMP001-SY-UM9085-RPM-A-M2-XDEN-15-RTD-1 MACH&TEST	2.476	0.365	21.800	0.998	1.173	1.170	0.042	
NTPAMP001-SY-UM9085-RPM-B-M1-XDEN-14-RTD-1 MACH&TEST	2.489	0.417	21.800	0.998	1.201	1.199	0.043	
NTPAMP001-SY-UM9085-RPM-B-M2-XDEN-11-RTD-1 MACH&TEST	2.490	0.366	21.800	0.998	1.172	1.170	0.042	
NTPAMP001-SY-UM9085-RPM-C-M1-XDEN-13-RTD-1 MACH&TEST	2.443	0.341	21.800	0.998	1.162	1.160	0.042	
NTPAMP001-SY-UM9085-RPM-C-M2-XDEN-12-RTD-1 MACH&TEST	2.447	0.343	21.700	0.998	1.163	1.160	0.042	
NTPAMP001-SY-UM9085-RPM-A-M1-YDEN-13-RTD-1 MACH&TEST	2.603	0.483	21.800	0.998	1.228	1.225	0.044	
NTPAMP001-SY-UM9085-RPM-A-M2-YDEN-11-RTD-1 MACH&TEST	2.624	0.504	21.800	0.998	1.238	1.235	0.045	
NTPAMP001-SY-UM9085-RPM-B-M1-YDEN-14-RTD-1 MACH&TEST	2.651	0.502	21.800	0.998	1.234	1.231	0.044	
NTPAMP001-SY-UM9085-RPM-B-M2-YDEN-12-RTD-1 MACH&TEST	2.643	0.520	21.800	0.998	1.245	1.242	0.045	
NTPAMP001-SY-UM9085-RPM-C-M1-YDEN-15-RTD-1 MACH&TEST	2.600	0.458	21.800	0.998	1.214	1.211	0.044	
NTPAMP001-SY-UM9085-RPM-C-M2-YDEN-11-RTD-1 MACH&TEST	2.650	0.518	21.800	0.998	1.243	1.240	0.045	
NTPAMP001-SY-UM9085-RPM-A-M1-ZDEN-13-RTD-1 MACH&TEST	2.631	0.510	21.800	0.998	1.240	1.238	0.045	
NTPAMP001-SY-UM9085-RPM-A-M2-ZDEN-15-RTD-1 MACH&TEST	2.651	0.501	21.700	0.998	1.233	1.231	0.044	
NTPAMP001-SY-UM9085-RPM-B-M1-ZDEN-12-RTD-1 MACH&TEST	2.647	0.518	21.800	0.998	1.243	1.240	0.045	
NTPAMP001-SY-UM9085-RPM-B-M2-ZDEN-14-RTD-1 MACH&TEST	2.627	0.505	21.800	0.998	1.238	1.235	0.045	
NTPAMP001-SY-UM9085-RPM-C-M1-ZDEN-11-RTD-1 MACH&TEST	2.632	0.494	21.800	0.998	1.231	1.229	0.044	
NTPAMP001-SY-UM9085-RPM-C-M2-ZDEN-14-RTD-1 MACH&TEST	2.639	0.509	21.800	0.998	1.239	1.236	0.045	
NTPAMP001-SY-UM9085-RPM-A-M1-Z45DEN-RTD-1 MACH&TEST	2.608	0.491	21.800	0.998	1.232	1.229	0.044	
NTPAMP001-SY-UM9085-RPM-A-M2-Z45DEN-15-RTD-1 MACH&TEST	2.608	0.483	21.800	0.998	1.228	1.225	0.044	
NTPAMP001-SY-UM9085-RPM-B-M1-Z45DEN-12-RTD-1 MACH&TEST	2.613	0.499	21.700	0.998	1.236	1.233	0.045	
NTPAMP001-SY-UM9085-RPM-B-M2-Z45DEN-11-RTD-1 MACH&TEST	2.637	0.508	21.800	0.998	1.239	1.236	0.045	
NTPAMP001-SY-UM9085-RPM-C-M1-Z45DEN-13-RTD-1 MACH&TEST	2.549	0.475	21.800	0.998	1.229	1.226	0.044	
NTPAMP001-SY-UM9085-RPM-C-M2-Z45DEN-14-RTD-1 MACH&TEST	2.623	0.494	21.800	0.998	1.232	1.229	0.044	
AVERAGE (composite)					1.219	1.217	0.044	
STANDARD DEVIATION					0.028	0.028	0.001	
COEFF. OF VARIATION					2.309	2.309	0.042	
Minimum					1.162	1.160	0.042	
Maximum					1.245	1.242	0.045	
Number of Specimens					24	24	24	

10. Deviations/Program Test Notes

- a. Holes and notches on coupons were machined at NIAR for OHT, OHC, FHT, FHC, SSB, and V-Notch In-Plane Shear.
- b. Coupons for fluid sensitivity screening exposed to Skydrol and 50% Skydrol + 50% water for a duration for 90 days were not tested in the elevated temperature condition. Coupons were unstable and broke when gripped at 100 psi.
- c. Y-Orientation Dogbone Compression ETW coupons printed on Machine 1 do not satisfy requirements for build location per NTP-AM-P-001 Rev F.