AEROSPACE MATERIAL SPECIFICATION

AMS7100™/1

Issued 2022-07

Fused Filament Fabrication Process - Stratasys Fortus 900mc Plus
with Type 1, Class 1, Form 1, Grade 0
Natural Color Material for

RATIONALE

This documents is intended to describe the specific technical and parameter requirements needed for the Stratasys Fortus 900mc Plus with Type 1, Class 1, Form 1, Grade 0, natural color material for fused filament fabrication system to produce parts capable of service in aerospace service. It will define and discuss critical requirements which have a substantial effect on the print quality and final print part properties. No such document currently exists and such a document is needed to maintain high quality additive manfactured material extruded produced components.

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For more information on this standard, visit
https://www.sae.org/standards/content/AMS7100/1/

1. SCOPE

This specification establishes the critical controls and requirements for the production of reliable, repeatable, reproducible aerospace parts by the Stratasys Fortus 900mc Plus with Type 1, Class 1, Form 1, Grade 0, natural color material for fused filament fabrication system, but is not limited to such application. This procedure will establish the configuration of the machine and build parameters, the testing methodology, and mechanical specification minimum guidelines required to create aerospace part.

1.1 Detail Specification

The base specification contains generic requirements that apply to every fused filament fabrication system (machine/software/feedstock combination). This slash sheet contains additional or superseding properties and requirements that apply to the Stratasys Fortus 900mc Plus with Type 1, Class 1, Form 1, Grade 0, natural color material fused filament fabrication system. This specification is in addition to and in no way limiting, superseding, or abrogating any contractual obligation as required by the applicable procurement documents. In the event of conflict in requirements, the order of precedence shall be this detail specification (AMS7100/1), the associated base specification (AMS7100), all other specifications referenced in this document.

1.2 Classification

1.2.1 Fused Filament Fabrication System

The fused filament fabrication system is the combination of equipment, software, and feedstock that is configured, calibrated, and maintained as outlined per this detailed specification.

1.2.2 Machine

The fused filament fabrication machine in this detailed specification is Stratasys Fortus 900mc Plus. The serial number is located on the back of the Stratasys Fortus 900mc Plus. The head serial number is the nine-digit number, without the dash (e.g., 123100454) located on the extrusion head. Both numbers shall be recorded for documentation and traceability purposes. The Stratasys's T16A tip (Stratasys P/N 511-10410) shall be used in conjunction with the Stratasys Fortus 900mc Plus for this detailed specification.

1.2.3 Software

There are multiple software programs needed for fused filament fabrication. The software used for this detailed specification shall be Stratasys's Insight Version 11.5 and Stratasys's Controller Software Version 3.21.2922.0.

1.2.4 Feedstock

The feedstock in this detailed specification is Type 1, Class 1, Form 1, Grade 0, natural color material. The feedstock shall be procured, processed, and identified according to AMS7101/1.

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS7100 Fused Filament Fabrication, Process Specification for

AMS7101 Fused Filament Fabrication, Material for

AMS7101/1 Material for Fused Filament Fabrication, Type 1, Class 1, Form 1, Grade 0, Natural Color

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM 52921-13 Standard Terminology for Additive Manufacturing-Coordinate Systems and Test Methodologies

ASTM D638 Standard Test Method for Tensile Properties of Plastics

ASTM D790 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

ASTM D7191 Standard Test Method for Determination of Moisture in Plastics by Relative Humidity Sensor

2.3 Stratasys Publications

Available from Stratasys Publications, 9600 West 76th Street, Suite 108, Eden Prairie, MN 55344, http://www.stratasys.com.

SSYS 108314-0010 Fortus 900mc 3D Production System User Guide

2.4 Definitions and Acronyms

Definitions are according to base specification AMS7100.

3. TECHNICAL REQUIREMENTS

3.1 Facility

The fabrication facility conditions, electrical, and compressed air must meet the requirements as specified in Table 1.

Table 1 - Fabrication facility requirements

Utility	Requirement	Allowable Range
Facility Conditions	Location	Indoors only
	Temperature	15.5 to 29 °C (60 to 85 °F)
	Relative humidity	0 to 80% RH
Electrical Requirements[2]	Rating	13.5 KVA
	Voltage	230 VAC nominal three-phase service with 5% regulation[1]
	Frequency	50 Hz or 60 Hz
	Current	40 A circuit
	Full load current	34 A full load current on all three phases
	Maximum inrush current	570 A for 2 ms
Compressed Air[3]	Supply pressure	90 to 120 psi
	Input manifold pressure setting	75 psi ± 5 psi
	Quality	Non-lubricated, non-condensing
	Connection	A-A-59439 dimensional standard

Notes:
[1] 230 VAC as measured phase-to-phase.
[2] Operation of the FFF system outside of this range is not recommended and degradation of the FFF system performance and shortened component life expectancy will be experienced. The FFF system shall be operated on a three-phase service meeting the recommendations for power quality give in IEEE Standard 141-1976.
[3] Requirements of air-line with compressed air that is supplied to the FFF system.

3.2 Materials

3.2.1 Direct Material

The Type 1, Class 1, Form 1, Grade 0, natural color material shall be procured and processed to AMS7101/1. The feedstock supplier shall provide the appropriate documentation and testing as specified in AMS7101. Each part shall have the feedstock lot identified and documented for traceability by the user's internal documentation system.

3.2.2 Indirect Materials

Consumable and expendable materials are necessary for part production but not a part of the final product assembly. These materials shall not adversely affect or contaminate the finished product. Indirect materials shall be as specified in Table 2.

Table 2 - Consumables for printing Type 1, Class 1, Form 1, Grade 0, natural color material

Material	Description	Specification or Approved Part Number(s)
Support Feedstock	Ultem support	Stratasys P/N 355-03220
Model Tip	T16A	Stratasys P/N 511-10410
Support Tip	T16	Stratasys P/N 511-10401
Build Sheets	Polyethersulfone (PES) build sheets	Stratasys P/N 325-00400, P/N 325-00475, P/N 325-00475-S, P/N 325-00200, P/N 325-00275, or P/N 325-00275-S purchased after July 2015; no reuse permitted

3.2.3 Storage and Pre-Processing

Feedstock storage area conditions shall maintain a temperature between 13 to 24 °C (55 to 75 °F) and a relative humidity of 0 to 60%. If conditions exceed requirements, feedstock shall be tested for moisture content per 3.2.3.1. Type 1, Class 1, Form 1, Grade 0, natural color material shall be stored unopened in the original canisters until ready for installation and use in the FFF system within the 36 months from date of manufacture shelf life.

Opened, partially used canisters shall be sealed by retracting all filament feedstock and returning the stopper to prevent moisture absorption and can be stored with unopened canisters. Opened, partially used canisters can be stored for 36 months from date of manufacture after opening provided the factory seals and caps are returned to place after use. Opened, partially used canisters that have been stored for longer than 12 hours shall be tested for moisture content per 3.2.3.1.

3.2.3.1 Feedstock Moisture Dryness and Testing

Feedstock material shall have a moisture content less than 0.01% by mass as tested per ASTM D7191 or another standard if shown to be equivalent. If feedstock moisture content does not meet this criterion the feedstock will be dried per procedures in 3.2.3.2 and retested. If canister fails a second time, feedstock shall be rejected and disposition by a user approved authority.

3.2.3.2 Feedstock Drying Procedures

The feedstock shall be dried by removing the plastic plug on the top of the canister and placed in upright position in a vacuum oven at 68 °C ± 5 °C (154 °F ± 9 °F). Drying oven tempertaure must not exceed 75 °C (167 °F). Feedstock must be dried in oven for a minimum of 12 hours. All drying conditions must be recorded through user's internal documentation system.

3.3 Equipment

The Stratasys Fortus 900mc Plus shall be identified by names or serial numbers for setup and traceability. Serial numbers shall be recorded. A record of all machine maintenance activities, calibrations, and repairs shall be maintained for each system and stored through the user's internal documentation system. The location of each machine shall also be identified.

All systems shall be calibrated in accordance with Stratasys's SSYS 108314-0010 calibration procedure at a minimum.

Preventive maintenance shall be performed a minimum of every three months per Stratasys's recommend maintenance procedures SSYS 108314-0010. This maintenance will verify proper operation of the system.

The maintenance of all machines shall be controlled by the user's internal quality system. All maintenance activities shall be performed in accordance with the Stratasys standard procedure using Stratasys replacement parts as needed. All major sub-systems are identified in Table 3. Modifications or repairs to major sub-system equipment, described in Table 3, may demonstrate significant changes in build quality. Any changes made, or replacement of these components, shall require testing (4.1.2).

Table 3 - Identification of major sub-system equipment that may demonstrate significant changes in build quality if modified

Sub-System	Description
Head	Critical sub-components with the head consist of drive motors, heater blocks, drive wheels, on-board electronics.
Platen	Scratching of the build surface can result in a lack of vacuum.
X, Y, Z Motor	Mechanism that drives belt or screw controlling gantry motion or platen location. Observed faults, shifts, and motion failures will result in replacing these motors.
Gantry Rail	Structures holds the head and bridge and controls and maintains rigidity during x and y motions.
Master Computer	On-board computing system.
Universal Power Supply	Critical component of the electrical system to regulate incoming power to all electronics on the FFF system.

3.4 Software

Software for additive manufacturing systems is an essential part of the process and must be defined and be under configuration control. Software versions capable of producing the fused filament fabrication parts as outlined by this specification are identified in Table 4.

Table 4 - Acceptable software versions

Number	Revision Description
Pre-Processing Software: Insight Version 11.5 Build 4993	Contains T16 and T16A configurations for U9085CG material on Fortus 900mc Plus in Modeler dropdown menu.
Pre-Processing Software: Control Center 11.5 Build 4993	Software used to send files prepared in Insight 11.5 to the Fortus 900mc printer.
Machine Controlling Software: 3.21.2922.0	Contains T16/U9085CG configuration with T16/U9085CG parameters and T16A/U9085CG configuration with T16A/U9085CG model and support high quality build mode parameters. Model activeWipeTime returns non-four digit number, Model inActiveWipeTime returns a value "0." Contains restrictions against building mismatched tip/material cmbs and tip/CGmaterial machine configurations.

3.4.1 Pre-Processing Software

The Insight software, provided by Stratasys, has a release version designation that must be recorded and maintained. Version installed on the machine must match version listed in Table 4. Stratasys has developed, recommended and evaluated build parameters for impact on part quality, within the Insight preprocessing software. The low parameters are recorded in Table 5 and the high-impact parameters are within Table 6.

Per 3.5.2 of AMS7100, any changes to pre-processing parameters from default settings shall require substantiation and notification to the cognizant engineering organization (CEO). The user shall document the changes and substantiation of such parameters.

Table 5 - Low impact insight build parameters

Build Parameter Attribute	Insight Section Where Parameter is Located	Default Parameter	Notes
Support Style	Modeler Setup	Sparse	
Linked Contours	Toolpath Parameters	Unchecked	
Bypass Seam Placement	Toolpath Parameters	Unchecked	

Table 6 - High-impact insight build parameters

Build Parameter Attribute	Insight Section Where Parameter is Located	Default Parameter	Notes
Part Interior Style	Modeler Setup	Dropdown: Solid	
Part Fill Style	Toolpath Parameters	Dropdown: One contour/rasters	
Contour Width	Toolpath Parameters	0.020 inch	
Number of Contours	Toolpath Parameters	1	Deselected when “single contour” style is selected
Part Raster Width	Toolpath Parameters	0.020 inch	
Visible Surface Style	Modeler Setup	Dropdown: Normal	
Part Sparse Fill Air Gap	Sparse Fill Controls	0.0800 inch	
Start Angle (Sparse Fill)	Sparse Fill Controls	45.0	
Enhanced Visible Surface Rasters	Toolpath Parameters	0.0170	
Visible Surface Raster Air Gap	Toolpath Parameters	-0.0010 inch	
Surface Max Contours	Toolpath Parameters	0	
Slice Height	Modeler Setup	Dropdown: 0.010 inch	
Invert Build Materials	Modeler Setup	Dropdown: No	
Allow Increased Contour Overfill	Custom Groups	Unchecked	
Outer Contour Location	Custom Groups	Dropdown: Inside	
Raster to Raster Air Gap	Toolpath Parameters	0.0000 inch	
Contours to Raster Air Gap	Toolpath Parameters	0.0000 inch	
Contour to Contour Air Gap	Toolpath Parameters	0.0000 inch	
Align Rasters	Custom Groups	Unchecked	
Raster Angle	Toolpath Parameters	45.0	
Use Parallel Offset Part Rasters	Toolpath Parameters	Unchecked	
Delta Angle	Custom Groups	90	
Layers Between Deltas	Custom Groups	1	
Part X Shrink Factor	Toolpath Parameters	1.0100	Not a default setting for Insight 11.5, but is approved setting value
Part Y Shrink Factor	Toolpath Parameters	1.0100	Not a default setting for Insight 11.5, but is approved setting value
Part Z Shrink Factor	Toolpath Parameters	1.0097	Not a default setting for Insight 11.5, but is approved setting value

3.5 Preparation

The user shall follow the Fortus 900mc Plus start-up procedure and record a final checklist to ensure all critical PMs and information is checked and recorded. This final machine readiness checklist shall be recorded in the user’s part documentation system.

3.5.1 Machine Readiness

Machine readiness values shall fall within the prescribed limits. Machine readiness checks shall be performed quarterly, prior to initial part fabrication, after any repair or modification to a critical subsystem, an annual preventative maintenance, head change, or material type changeover. Measured values shall be recorded in accordance with a user's quality management system.

3.5.1.1 Dryer Check

Air pressure within the model and support tubes as measured at the head shall be greater than 0 psig. Dew point within the model and support tubes as measured at the head shall be less than or equal to -50 °C using Vaisala DM70 or equivalent.

3.5.1.2 Head Motor Check

A head health test shall be run for both the model and support motors without filament loaded (free-spinning). Free-spinning failure motor torque current shall be less than 5% of the maximum current for the model and support motors.

3.5.1.3 Tip Ramp up Check

Tip ramp up from 200 to 300 °C shall take less than 45 seconds for the model and support tip.

3.5.1.4 Tip Wipe Height

Tip wipe performance shall be verified. Tip wipe height shall be adjusted as necessary to achieve acceptable performance in accordance to the guidelines in SSYS 108314-0010.

3.5.1.5 Liquefier Heater Gradient Check

Model liquefier temperature shall be 380 °C ± 15 °C when stabilized at 380 °C setpoint as measured with a Stratasys 0.250 thermocouple (P/N 403609-0001) installed as a tip. Model liquefier temperature shall be 380 °C ± 15 °C when stabilized at 380 °C setpoint as measured with a Stratasys 0.500 thermocouple (P/N 403610-0001) installed as a tip.

Support liquefier temperature shall be 421 °C ± 15 °C when stabilized at 421 °C setpoint as measured with a Stratasys 0.250 thermocouple (P/N 403609-0001) installed as a tip. Support liquefier temperature shall be 421 °C ± 15 °C when stabilized at 421 °C setpoint as measured with a Stratasys 0.500 thermocouple (P/N 403610-0001) installed as a tip.

3.5.1.6 Oven Temperature Check

The oven temperature shall exceed 165 °C as measured approximately one inch above the back-left corner of the platen while the platen is at Z = 4 location. The oven tempeature shall vary by no more than 20 °C between back-left corner, center, and front-right corner of the platen when measures approximately 1 inch above the platen while the platen is at the Z = 4 location.

3.5.1.7 Density Cubes

Five solid-fill cubes of 1 in^3 in volume shall be printed and weighed individually. Each cube shall weigh at least 19 g.

3.5.2 Oven Stabilization

The oven plane temperature shall be stabilized to 185 °C (+4/-11 °C) as measured by the system thermocouple and displayed on the system interface.

3.5.3 Loading Consumables and Expendables

Feedstock loading shall be conducted in accordance to the procedure outlined in SSYS 108314-0010.

3.5.3.1 Tip Calibration and Tip Life

All tips shall be calibrated in accordance with procedures in SSYS 108314-001. Tips must be calibrated any time a tip is changed.

Model tip life must be sufficient to complete the build and stay under the maximum allowed tip material volume consumption of 369.2 in^3 (equivalent of four full canisters). If tip life is not sufficient, tip shall be replaced with a tip per Stratasys extruding tip procedure in SSYS 108314-0010 as tips cannot be replaced during a part build. Changes in tip during the build can lead to defects in the part such as misalignment.

3.5.3.2 Feedstock and Support Feedstock Loading

Feedstock and support feedstock volume shall be sufficient to complete the entire build without enabling the system automated “material change-over” procedure to occur. If the quantity is insufficient, the canister shall be replaced with a canister that can meet this criterion and has been dried sufficiently to the 0.01% moisture. Change in feedstock or feedstock support during the build can lead to defects in the part such as misalignment.

3.5.3.3 Build Sheet Loading

Material build sheets shall be placed on the platen to achieve vacuum and the vacuum light must illuminate green to indicate acceptable vacuum before the job is started.

3.5.4 Initiating the Build Job

Parts shall be sent to the printer using Control Center 11.5. When starting the build, parts must stay in the same location as set by control center, no part relocation is acceptable.

3.6 Post Processing

3.6.1 Part Removal

Parts shall not be removed for the machine until the build cycle is complete. Parts shall be removed from the machine at a minimum of 30 minutes after the platen has reached its end of build position. No degradation has been shown on parts removed up to 96 hours after build cycle completion. Refer to user’s internal parts qualification for any builds that exceed this time. Parts shall be removed manually from machine and care shall be taken on fine feature geometries to not distort parts on removal.

Support removal shall be conducted while parts are between 90 to 160 °C and support can be easily removed without damaging the part. In the case where support removal cannot be completed prior to part cool down, the parts shall be reheated in an oven at 130 to 175 °C until they reach oven temperature and supports can again be easily removed. Parts shall not exceed a 2 hour out-of-oven limit while the support removal procedure is still being conducted.

3.7 Inspection and Test Methods

3.7.1 Mechanical Property Testing

The mechanical properties of test coupons created by a system (machine/material combination) shall be tested at a minimum by the test methods listed in Table 7. Drawings of the test coupons are provided in Appendix A. The build orientation has an effect on the mechanical properties due to the anisotropic properties of fused filament fabrication so multiple build orientations must be considered and reported according to ASTM 52921. Figure 1 provides a schematic of the four orientations that may be used for testing, include the two listed in Table 7. This testing or a subset of the testing shall be performed according to 4.1. All testing averages shall fall within each specification limit as shown in Tables 8 and 9 for each test.

Additional testing or witness coupons may be needed for critical parts and shall be specified according to user’s quality management system. Additional design allowables shall be found in NIAR TESTING database.

Table 7 - Mechanical property testing required for the Stratasys Fortus 900mc Plus with Type 1, Class 1, Form 1, Grade 0, natural color material

Properties	ASTM Method	Test Frequency per Feedstock Lot	Environmental Conditions	Replicates per Test
Tension[1] Strength and Modulus[4] XZ Orientation	ASTM D638	Once every 1250 pounds of filament manufactured, or portion thereof	RTD[3]	5
Tension[1] Strength and Modulus[4] ZX Orientation	ASTM D638	Once every 1250 pounds of filament manufactured, or portion thereof	RTD	5
Flexural Strength[2,5] XZ Orientation	ASTM D790	Once every 1250 pounds of filament manufactured, or portion thereof	RTD	5

Notes:
[1] Type 1, T = 0.130 inch.
[2] Modified type 6.7.2.
[3] RTD stands for room temperature dry. Room temperature is 21 °C ± 6 °C (70 °F ± 10 °F). Coupons are dried at 121 °C ± 3 °C (250 °F ± 5 °F) for a minimum of 24 hours and kept in a desiccator until mechanical testing.
[4] Modulus strain range: 1000 to 3000 με.
[5] Span length is 16T, where T = Average specimen thickness.

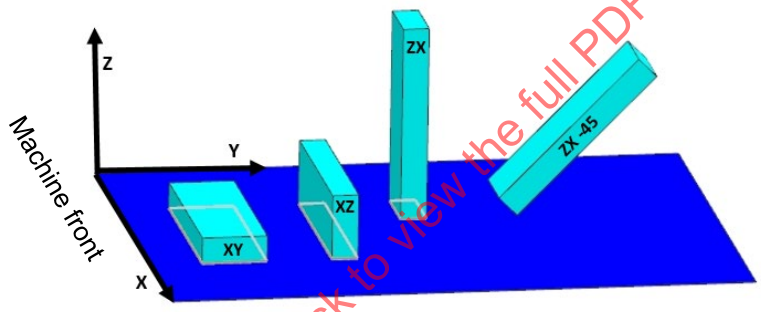

Figure 1 - Coupon build orientations according to ASTM F2921

Table 8 - ASTM Method D638 tensile standard test method for tensile properties of plastics for room temperature, dry environmental conditions

Test Method	Value[1]	Environmental Conditions
Tension Strength[3] XZ Orientation	Average ≥ 10.4 ksi Min individual ≥ 9.1 ksi	RTD
Tension Modulus XZ Orientation[2]	0.35 to 0.41 Msi, average	RTD
Tension Strength[3] ZX Orientation	Average ≥ 8.0 ksi Min individual ≥ 7.0 ksi	RTD
Tension Modulus ZX Orientation[2]	0.32 to 0.37 Msi, average	RTD

Notes:
[1] "Individual" refers to individual measurements. "Average" refers to the average of five specimens.
[2] Modulus strain range: 1000 to 3000 με.
[3] Tensile strength is ultimate tensile strength.

Table 9 - ASTM D790 standard test methods for flexural properties of unreinforced and reinforced plastics and electrical insulating materials for room temperature, dry environmental conditions

Test Method	Value[1]	Environmental Conditions
Flexural Strength XZ Orientation	Average ≥ 17.6 ksi Min individual ≥ 15.5 ksi	RTD

Notes:
[1] "Individual" refers to individual measurements. "Average" refers to the average of five specimens.

3.7.2 Visual Inspection

A visual inspection for quality shall be conducted on each part post build completion. The visual inspection shall follow the AMS7100 base specification detail.

4. QUALITY ASSURANCE

4.1 Classification of Tests

The testing required for qualtiy assurance varies based on the classification of test that are being performed. Table 10 outlines the tests and minimum quantity of specimen that are required for each test type.

Table 10 - Tests and specimen required by classification of tests

	Preproduction Tests	Lot Acceptance Tests	Periodic Tests and Maintenance Testing
Tests	Dimensional analysis Weight analysis Mechanical testing Visual inspection	Dimensional analysis Weight analysis Mechanical testing Visual inspection	Dimensional analysis Weight analysis Subset of mechanical testing Visual inspection
Specimens[1]	Dependent on qualification or equivalency requirements	5 ASTM D638 XZ Orientation 5 ASTM D638 ZX Orientation 5 ASTM D790 XZ Orientation	15 ASTM D638 XZ Orientation 15 ASTM D638 ZX Orientation Five density cubes (1 x 1 x 1 inch)

Notes:
[1] Specimen should be printed on the five different build platform locations (each corner and middle).

4.1.1 Preproduction Tests

System preproduction tests shall be carried out when the system undergoes installation, machine relocation, or change in high-impact parameters. The preproduction testing required shall be determined based on the test matrix that is required to show equivalency to machine that was used for qualification. The system user shall work with NCAMP or other group with qualification data to determine the testing required for preproduction testing.

The results shall by compared to the specification limits (generated per SAE AMS AM Polymer Data Submission Guidelines, available on the SAE AMS AM-P Committee page) listed in Tables 8 through 9 and the qualification dataset.

4.1.2 Maintenance Testing

Maintenance testing should occur when the major sub-systems listed in Table 3 undergo modification, repair, or replacement. At a minimum, the 15 ASTM D638 tensile coupons in the XZ orientation, 15 ASTM D638 tensile coupons in the ZX orientation, and five density cubes shall be built as outlined in Table 10. The coupons shall be spread out across the build platen as shown in Figure 2.

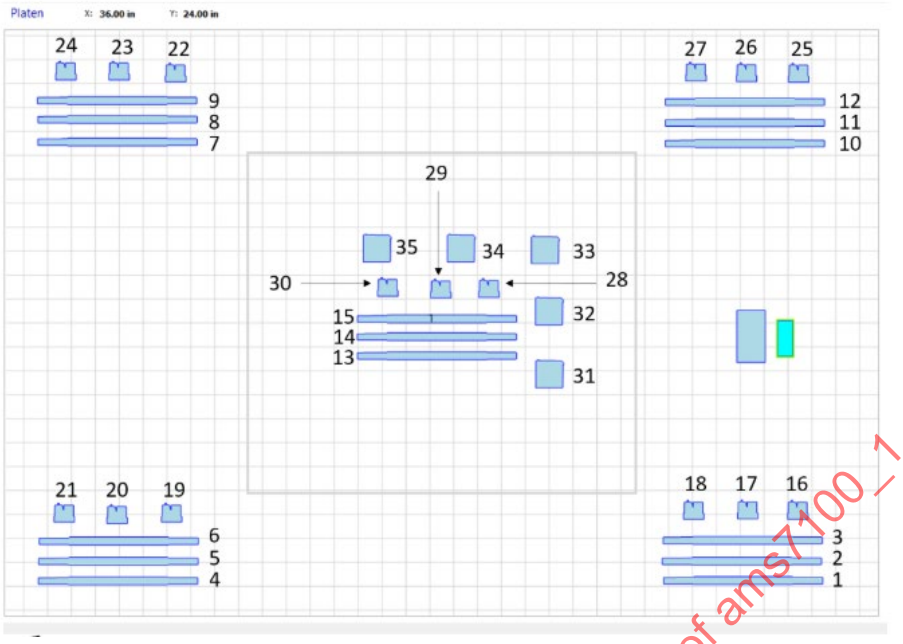

Figure 2 - Process control document (PCD) build arrangement of 15 ASTM D638 tensile coupons in the XZ orientation (parts 1 to 15 in image), 15 ASTM D638 tensile coupons in the ZX orientation (parts 16 to 30), and five density cubes (parts 31 to 35) spread across five build locations

4.1.3 Periodic Tests

The system shall undergo periodic tests to determine if the process is under control and minor changes are fully understood and have no influence on the certified part quality. Periodic tests shall be taken if the system sits idle for a period of 3 months or more. The periodic tests may only require a subset (as defined by user's quality management system) of the mechanical testing. Periodic tests shall be performed, justified, and documented according to the user's quality management system.

At a minimum, the 15 ASTM D638 tensile coupons in the XZ orientation, 15 ASTM D638 tensile coupons in the ZX orientation, and five density cubes shall be built as outlined in Table 10. The coupons shall be spread out across the build platen as shown in Figure 2.

4.1.4 Lot Acceptance Tests (for Lot Release)

Either the feedstock manufacturer or the system user can perform lot acceptance testing. All acceptance tests shall be documented according to the user's quality management system. The system user is responsible for documenting the lot acceptance data into their system. One set of specimens will represent up to 1250 pounds of filament per filament lot if tested by the manufacturer or up to 240 canisters of filament per filament lot if tested by the user. The quantity of mechanical coupons prescribed in Table 10 for lot acceptance tests shall all be built and tested. The results shall by compared to the specification limits (generated per SAE AMS AM Polymer Data Submission Guidelines, available on the SAE AMS AM-P Committee page) listed in Tables 8 through 9.

5. ACKNOWLEDGEMENTS

A supplier shall mention this specification number and the applicable details specification number and their revision letters, if any, in all quotations and when acknowledging purchase orders.

6. REJECTIONS

Parts on which the FFF process does not conform to this specification and the applicable detail specification will be subject to rejection.