Technical Data Sheet

Issued: March 7, 2018

Revised: March 21, 2018

910 ALLOY Filament (Nylon Based)

SECTION 1, IDENTIFICATION

Product Part Number: AW3D-F21503
AW3D-F21501
AW3D-F21603
AW3D-F21601

Manufacturer: Taulman 3D

Recommended Use: 3D printing filament

Restrictions on Use: For use with 3D printers

AIRWOLF 3D TESTED PROPERTIES

Ultimate Strength:	47.7 MPa
Elongation at Break:	28.8%

(see “Methodology of Test” for details)

SECTION 2, DESCRIPTION

Description: 910 Alloy is the combined effort of chemical companies, extrusion manufactures and Taulman 3D to specifically develop a single material to meet as many high performance 3D Printing needs as possible. With a combined tensile strength higher than the strongest co-polyesters, the durability of Nylons, a shrinkage factor that rivals our t-glase, a vast range of chemical resistance and a 95C working range, you now have one solution easily printable at 245C.

Applications:
Any industrial parts that are currently being made of other high tensile polymers.
Large motor mounting
Industrial vibration isolators and damping parts
High Pressure Sand Blasting resistant -Sand Blast Masking
Electroplating supports and hangers
Chemical dip and tank supports.
High end gears and cams
Chemical resistant equipment covers
Prosthetics
Pulleys, mounts and brackets for machines

Key Features:
Semi-flexible
Impact Resistant
Fatigue Resistant
Available in White or Black color
Does not shrink as much as traditional nylons
Extrudes at a lower temperature than other nylons

SECTION 3, SPECIFICATIONS (Manufacturer)

EXTRUDER TEMPERATURE	240-250C
BED TEMPERATURE	70-80C
HEATED BED	Required
RECOMMENDED BUILD SURFACE	Wolfbite NITRO
DIAMETER	2.88mm
COLOR	Black, Natural
COMPATIBLE MACHINE	AXIOM, AXIOM 20, AXIOM Dual Extruder, EVO, HD Series
HS Code	3916.9
THERMAL	
Printing Temperature	240-250C
Melting Temperature	210C
Tg Glass Transition	82C
Pyrolysis - Thermal degradation	349C
Non-Destructive Evaluation	YES
Print-Bed Temp	70-80C
Ambient Temp (Enclosure)	30 - 100C
PHYSICAL	
Nominal Diameter (3mm Maximum Dia)	2.85 mm
Weight / spool	1 lb
Nominal Lenght / spool (in feet)	180
Shrinkage - in/in	0.0033
Solvent/glue	ComPlete
MECHANICAL	
Tensile Stress "PSI" when 3D Printed	8100

Ultimate Elongation when 3D Printed	0.32
Modulus "PSI" when 3D Printed	72932
OPTICAL	
Opacity	0.7
Reflectivity	N/A
APPROVALS	
FDA - Direct Food Contact	YES
FDA Direct Drink Contact	YES
UL FLAMMABILITY	
UL 94 HB	YES
UL 94 V2 at 1.5 mm thickness	YES

SECTION 4, ADDITIONAL INFORMATION

Specifications are based on an average of reported values.

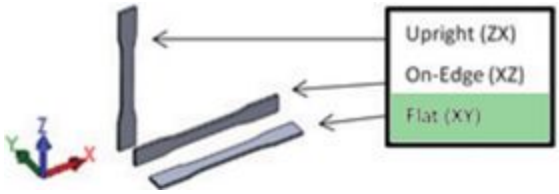
Moisture may play a strong part in shrinkage. Less moisture results less shrinkage.

To adhere nylon to nylon, use ComPlete Glue.

Methodology of tests performed by Airwolf 3D:

Airwolf 3D has tested this material, in its 3d printed form, for the mechanical properties of “Ultimate Strength” and “Elongation at Break” per ISO 527 standards. Specimens were printed on an AXIOM 3D printer with a nozzle (orifice size 0.5). The specimens were “dog bone” shaped with a size of 75mm x 10mm x 2mm and printed with 90 % fill density. Wolfbite Nitro adhesive was used to adhere the part to the heated bed during print cycle. The default “Standard” setting in APEX slicing software was used. Details are as follow:

Layer height: .2mm
Shell thickness: 1mm
Bottom/Top thickness: 1.2mm
Fill density: 90%
Printing temp: 245C
Bed temp: 80C
Flow: 100%
Specimens were printed flat on the XY plane



The equipment used: MODEL 1ST Electromechanical Testing Machine by Tinius Olsen (Crosshead).

A minimum of six specimens were tested. The Ultimate Strength and Elongation at Break values were determined by calculating the average of all specimens tested.

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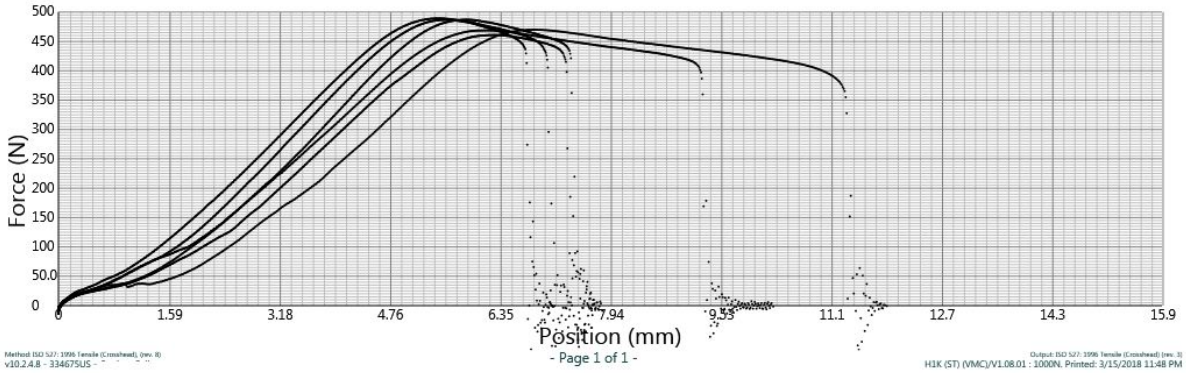
Version	1.200
Date	03/21/2018

AIRWOLF 3D FILAMENT - 910 ALLOY ISO 527 Tensile (Crosshead)
NYLON

	Ultimate Strength MPa	Elongation at Break %	Yield Strength MPa
	48.9	26.0	N/F
	48.7	23.9	N/F
	48.7	25.1	N/F
	46.1	24.2	N/F
	47.0	40.5	N/F
	46.9	33.4	N/F
Average		28.8	N/A
SD	47.7	6.70	N/A



Method ISO 527: 1996 Tensile (Crosshead), (rev. 8)
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Output: ISO 527: 1996 Tensile (Crosshead) (rev. 3)
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