

### ESSENTIUM HTN Z

Essentium Z HTN (high-temperature nylon) is the ESD-safe version in our HTN line of materials. This material is designed for use in medium-duty electronics manufacturing. The HTN line has improved mechanical and thermal properties compared to standard nylons. Additionally, it is an easy-to-print, low-warp material that boasts high toughness and wear-resistance. This material is a drop in replacement for ESD-safe Acetal (Delrin<sup>®</sup>) and has best in-class slow-moisture absorption.

#### RECOMMENDED PRINT SETTINGS

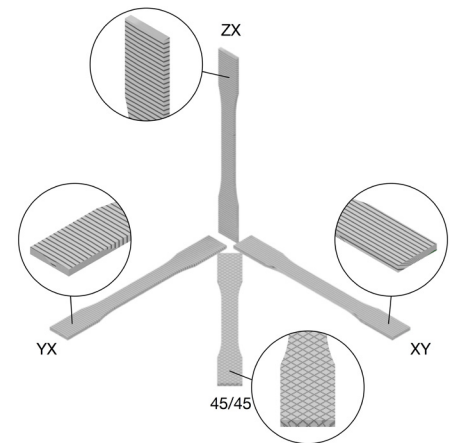
Nozzle Temperature, °C	265 - 285	Fan Speed, %	0 – 20
Bed Temperature, °C	60 – 80	Bed Material	G-10/FR4 or Glass
Print Speed, mm/s	40 – 80	Retraction Distance, mm	Dimafix <sup>®</sup> and Magigoo <sup>®</sup>
First Layer Speed, mm/s	40	Infill Density, %	<75
Ex. Multiplier (Flow)	1		

#### MATERIAL PROPERTIES<sup>1</sup>

Property	Method	Value
Specific Gravity	ISO 1183	1.2
HDT, °C	ISO 75	90
Surface resistance <sup>2</sup> , Ohms	ANSI/ESD STM11.11	10 <sup>5</sup> - 10 <sup>9</sup>

1 Values taken from raw material TDS

2 Values based on recommended print settings



#### MECHANICAL PROPERTIES

Metric	Test Method	Print Orientation			
		45-45	XY	YX	ZX
Tensile Strength, MPa	ISO 527	63	73	63	57
Tensile Modulus, GPa	ISO 527	3.5	3.5	3.2	2.9
Elongation at Break, %	ISO 527	4	83	5	4

**PRINT PARAMETERS<sup>3</sup>**

Nozzle Temperature, °C	335	Ex. Multiplier (Flow)	1
Bed Temperature, °C	80	Fan Speed, %	10
Print Speed, mm/s	150	Machine	HSE
Layer Height, mm	0.2	Nozzle Size, mm	0.4

3 Print parameters in reference to mechanical properties

**KEY FEATURES:**

- ESD-safe
- Solvent resistance
- Good temperature resistance
- Higher strength than PCTG, ABS, and Nylons

**APPLICATIONS INCLUDE:**

- Assembly aids for electronics
- ESD safe fixtures
- Electrical housings
- Part trays for electronics manufacturing

Revision Date: 9/30/19