ESSENTIUM

# Essentium Z HTN
# TECHNICAL DATA SHEET

## ESSENTIUM Z HTN

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 resistantance. This material is a drop-in replacement for ESD-safe Acetal (Delrin®) and has best-in-class slow moisture absorption.

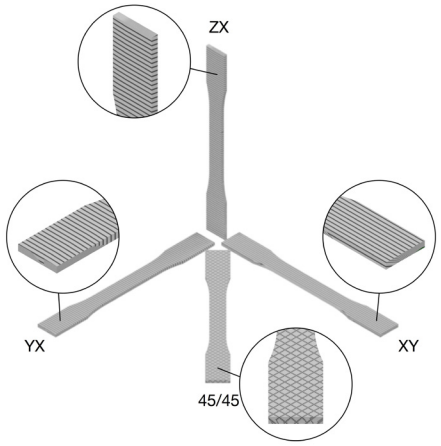
### RECOMMENDED FDM PRINT SETTINGS

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

### MATERIAL PROPERTIES[1]

| Property | Method | Value |
|---|---|---|
| Specific Gravity | ISO 1183 | 1.2 |
| HDT, ºC | ISO 75 | 90 |
| Surface resistance[2], Ohms | ANSI/ESD STM11.11 | $10^5$ - $10^9$ |

1 Values taken from raw material TDS
2 Values based on recommended print settings




### MECHANICAL PROPERTIES

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

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## PRINT PARAMETERS[3]

| | | | |
|---|---|---|---|
| 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

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