

# Technical Data Sheet

## Ice9™ Rigid

Thermally conductive, electrically non-insulating nylon plastic  
Product code: TC-PA-15-315

Product type: filament or pellets  
Properties based on 3D printed samples



GENERAL PROPERTIES	VALUE
Base Material	Nylon
Color	Dark gray
Density	1450 kg/m <sup>3</sup>

THERMAL PROPERTIES	METRIC	ENGLISH	ASTM
Thermal conductivity, in-plane	4 W/m-K	28 BTU·in/hr·ft <sup>2</sup> ·°F	E1461
Thermal conductivity, through-plane	1 W/m-K	7 BTU·in/hr·ft <sup>2</sup> ·°F	E1461
Specific heat	1100 J/kg-K	0.31 BTU/lb·°F	E1269
Coefficient of thermal expansion	60 ppm/°C	33 ppm/°F	E831
Heat deflection temperature, 0.45 MPa	175 °C	347 °F	D648
Max. continuous temperature	200 °C	392 °F	*

MECHANICAL PROPERTIES	METRIC	ENGLISH	ASTM
Shore Hardness	70 D		D2240
Flexural modulus	4 GPa	580 ksi	D638
Tensile strength, Break	30 MPa	16 ksi	D638
Elongation at break	1 %	1 %	D638
Impact strength, Izod notched	50 J/m	1 lb-ft/in	D256

ELECTRICAL PROPERTIES	METRIC	ASTM
Volume resistivity	10 <sup>6</sup> Ω-cm	D257

\* Highest temperature recommended for operation of more than 1 hour and is based internal testing and not any recognized standard.

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# Recommended FDM Print Settings

## Ice9™ Rigid

Thermally conductive, electrically non-insulating nylon plastic  
Product code: TC-PA-15-315

Product type: FDM filament



### GENERAL PROPERTIES

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Base material	Nylon
Color	Dark gray
Filament diameter	1.75 or 2.85 +/- 0.05 mm

### TEMPERATURE SETTINGS

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	VALUE	UNITS
Extruder temperature	245-265	°C
Bed temperature	70-90	°C
Cooling fan	60%, Bridging Only	

### SLICING SETTINGS

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	VALUE	UNITS
Print speed	20-40	mm/s
Layer	0.2-0.8	mm
Retraction distance	4-8	mm
Retraction Speed	30-50	mm/s
Coasting distance	0.2-0.5	mm
Infill for best thermal performance	95-100	%

### ADDITIONAL GUIDELINES

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Nozzle diameter	0.3-1.0 mm
Extruder type (1.75 mm)	Direct or Bowden
Extruder type (2.85 mm)	Direct or Bowden
Print bed preparation	Glue stick on PEI or Glass
Drying instructions	4 hr @ 80°C
Storage instructions	Sealed bag
Part removal from bed	Heat bed to 100°C then gently remove with spatula