

Technical Data Sheet

NemoBLEND™ PA12-ESD Conductive Filament

High-Performance Conductive Filament for Functional FFF Printing

Description

NemoBLEND™ PA12-ESD is a conductive Polyamide 12 filament developed for FFF/FDM additive manufacturing of functional parts requiring electrostatic discharge protection and controlled electrical conductivity. The filament combines a PA12 matrix with Nemo Nanomaterials' carbon-nanotube-based conductive technology, providing robust mechanical performance and printability.



Key Benefits

- Conductive performance suitable for ESD applications
- High tensile and flexural strength
- Good impact resistance and durability
- Low density compared with conventional highly filled conductive compounds



General information

Property	Information
Product type	Conductive filament for additive manufacturing
Polymer base	Polyamide 12 (PA12)
Conductive technology	Carbon nanotube-based conductive system
Printing technology	FFF / FDM
Nominal filament diameter	1.75 / 2.85 mm
Color	Black
Typical applications	ESD-safe parts, tooling, fixtures, housings and functional prototypes

* Surface resistance depends on print orientation and part geometry.



Application Fields

NemoBLEND™ PA12-ESD may be used for FFF/FDM additive manufacturing of functional parts requiring electrostatic discharge protection or controlled electrical conductivity, including:

- ESD-safe jigs, fixtures, and assembly tooling
- Electronic housings, enclosures, and protective components
- PCB and electronic component handling tools
- Robotic end-effectors, grippers, and automation components
- Sensor, instrumentation, and electrical equipment housings
- Aerospace and defense electronic components and tooling
- Custom functional parts for static-sensitive environments

Typical Properties

Typical values measured on 3D-printed specimens. These values are guidelines and are not product specifications.

Property	Method	Unit	Neat PP Repsol PP C ISPLEN PB176 N4M
Density	ISO 1183	g/cm ³	1.03
Surface resistance - XY	ASTM D257	Ω/sq	10 ⁶ -10 ⁸
Surface resistance - XZ / YZ	ASTM D257	Ω/sq	10 ⁴ -10 ⁵
Tensile modulus	ISO 527	MPa	2,286
Yield strength	ISO 527	MPa	57
Stress at break	ISO 527	MPa	53
Elongation at yield	ISO 527	%	6.0
Elongation at break	ISO 527	%	13
Flexural modulus	ISO 178	MPa	2,102
Flexural strength	ISO 178	MPa	75
Izod impact, notched	ASTM D256	J/m	92

Recommended Printing Conditions

Property	Unit	Recommended Setting
Nozzle temperature	°C	280
Build plate temperature	°C	100
Print speed	mm/s	60
Layer height	mm	0.20
Nozzle diameter	mm	0.40
Retraction distance	mm	2
Fan speed	%	20
Build plate	-	Smooth PEI
Bed adhesion	-	PA-compatible adhesive / purple glue
Drying before printing	°C, h	80, 4

Storage and handling

Store the filament in its sealed packaging in a cool, dry environment, protected from heat, moisture and direct sunlight. PA12 is moisture-sensitive; drying at 80°C for 4 hours before printing is recommended.

Disclaimer: The technical information and typical values are based on laboratory testing and are supplied as general guidance only. Actual performance may vary with equipment, print orientation, process parameters, geometry and environmental conditions. Users are responsible for evaluating product suitability and safe use. This document does not constitute a warranty or product specification.