



Black Nylon (6) Extruded (PA) Polyamide

## General Guide & Technical Data

### Overview

When using Nylon Extruded rods in manufacturing or machining processes, several key specifications are important to consider:

### General Guide

- **Melting Temperature:** The melting point of Nylon 6 is approximately 220°C (428°F).
- **Service Temperature:** The maximum service temperature of Nylon 6 in air is typically around 85-100°C (185-212°F) for long-term use, and up to 160°C (320°F) for short-term use.
- **Hardness:** Nylon 6 typically has a Rockwell hardness of around R115-R120 in Shore D hardness this is around 75-85.
- **Cutting Speeds:** Nylon is typically machined at high speeds. For small diameter rods (up to 25mm), consider a speed between 800 - 1,500 RPM. For larger diameters, around 500 - 700 RPM may be more suitable..
- **Feed Rate:** For roughing operations, start with a feed rate of 0.25 - 0.38 mm per revolution. For finishing operations, consider a smaller feed rate of 0.13 - 0.25 mm per revolution.
- **Depth of Cut:** Start with a depth of cut up to 2.5 mm for roughing operations and up to 0.5 mm for finishing operations.
- **Tooling:** Use sharp, high-speed steel (HSS) or carbide-tipped tools for best results.
- **Coolant:** While coolant isn't strictly necessary for machining nylon, it can help to evacuate chips and prevent them from being re-cut. If used, a standard water-soluble coolant is typically suitable.
- **Workholding:** Care must be taken when clamping nylon, as it is softer and more prone to deformation than metals. Excessive clamping force can distort the part.
- **Chip Control:** As with any machining operation, effective chip control is important. Because nylon is quite ductile, it tends to form long, stringy chips, which can wrap around the tool and workpiece if not effectively managed. Regularly clearing chips and potentially using a chip breaker can help.

These are fairly standard specifications, but if you have specific needs or if the nylon will be used in an extreme environment (for example, very high or low temperatures, corrosive chemicals, etc.), it might be a good idea to consult with a materials engineer to find the best product for your application. Always consult with a machining expert or your tool manufacturer when setting up a new operation.



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## Technical Data

General properties	Test method	Unit	Value
Specific Gravity (23°C / 23°C)	ASTM D792-13 (Test Method A)	-	1.160
Water absorption	ASTM D570-98 (2018) 24hr Immersion)	%	0,68
<b>Mechanical properties</b>			
Tensile Strength	ASTM D638-14(*)	MPa	85.2
Elongation at break	ASTM D638-14 (*)	%	28
Flexural Strength	ASTM D790-17 (Procedure A)	MPa	89.1
Izod Impact Resistance	ASTM D256-10 (2018) (Test Method A)	J/m	28
Rockwell Hardness (HRR)	ASTM D785-08 (2015) (Procedure A)	-	116
(*) Specimen Type: Type I, Speed of Testing: 50mm/min	-	-	-



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