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CAST NYLON 6

Monomer-Cast Polyamide 6 (PA6)

ASTM D4066 — PA MOLDING AND EXTRUSION MATERIALS

ISO 1874 — POLYAMIDES FOR MOLDING AND EXTRUSION

ROHS / REACH COMPLIANT

Higher-molecular-weight nylon, machined from cast stock.

Monomer-cast polyamide 6 is polymerized directly into rod, sheet, and tube form, producing higher molecular weight and lower internal stress than extruded nylon. The result is improved mechanical strength, better wear performance, and superior dimensional stability for large machined parts. Cast nylon is the standard choice for heavy-load gears, sheaves, wear pads, and structural bushings in industrial machinery.

APPLICATIONS

- Large gears, sprockets, and sheaves
- Wear pads, bushings, and bearings under heavy load
- Mining, marine, and material handling components
- Rollers, idlers, and conveyor wheels
- Structural machined parts replacing bronze and steel

STANDARD COLORS

Natural / Ivory, Black

GENERAL

Density ASTM D792	0.042 lb/in³ 1.1 g/cm³
Water absorption 24 / 96 h immersion @ 73°F · ASTM D570	44/83 / 0.65/1.22 mg / %
Water absorption Saturation in air @ 73°F, 50% RH · ASTM D570	2.2 %
Water absorption Saturation in water @ 73°F · ASTM D570	6.5 %
Flammability rating UL 94, 3 / 6 mm thickness · UL 94	HB/HB

MECHANICAL

Tensile strength At yield / break · ASTM D638	12,300 psi 84 MPa
Tensile strain at break ASTM D638	25 %
Tensile modulus ASTM D638	508,000 psi 3,500 MPa
Compressive stress At 10% nominal strain · ASTM D695	15,000 psi 100 MPa
Izod impact (notched) ASTM D256	0.6 ft·lb/in 32 J/m
Rockwell hardness ASTM D785	R118

OPERATING ENVIRONMENT

Melting temperature ASTM D2133	430 °F 220 °C
Thermal conductivity @ 73°F · ASTM C177	2.0 Btu·in/ft²·h·°F 0.28 W/m·K
Coefficient of thermal expansion Avg. 73 – 140°F · ASTM D696	44 µin/in/°F 79 µm/m/°C
Coefficient of thermal expansion Avg. 73 – 212°F · ASTM D696	50 µin/in/°F 90 µm/m/°C
Heat deflection temperature 264 psi (Method A) · ASTM D648	355 °F 175 °C
Max service temperature Short-term	340 °F 170 °C
Max service temperature Continuous (5,000 / 20,000 h)	220/195 °F 100 / 90 °C
Min service temperature	-30 °F -34 °C

ELECTRICAL

Dielectric strength ASTM D149	635 V/mil 24 kV/mm
Volume resistivity ASTM D257	>10¹⁴ Ω·cm
Surface resistivity ASTM D257	>10¹³ Ω