ENTEC

Nylon 66 vs. Nylon 6 vs. PBT
Material Selection Guide

Properties	Nylon 66	Nylon 6	PBT
COST	$$$		
SHORT TERM HEAT RESISTANCE	+++	++	++
UNFILLED IEC LONG TERM TESTING (20,000 hrs)	195° F	195° F	248° F
UNFILLED IEC SHORT TERM TESTING (5,000 hrs)	220° F	220° F	284° F
HDT @ 264 PSI NEAT/NAT	212° F	167° F	150° F
HDT @ 264 PSI 33% GF (PA 6 & PA 66) 30% GF (PBT)	480° F	410° F	420° F
LONG TERM THERMAL OXIDATION RESISTANCE	++	++	+++
TENSILE STRENGTH - NEAT (psi)	12,000	11,500	8,000
TENSILE STRENGTH 33% GF (PA 6 & 66) 30% GF (PBT) (psi)	27,000	25,000	19,725
STIFFNESS (psi)	440,000	377,098	320,000
IMPACT RESISTANCE UNFILLED	++	+++	++
ABRASION RESISTANCE	+++	++	++
CHEMICAL RESISTANCE	+++	+++	+++
SHRINKAGE (%)	1.0 - 2.0	0.8 - 1.5	0.6 - 2.0
DENSITY UNFILLED	1.13	1.13	1.31
DENSITY 33% GF (PA 6 & 66) 30% GF (PBT)	1.40	1.41	1.53
ELECTRICAL PROPERTIES	++	++	+++
30% GF - MOISTURE ABSORPTION: EQUILIBRIUM 23°C/50% r.h. (%)	1.50 - 2.80	1.90 - 2.30	0.2 - 0.4

KEY	EXCELLENT	GOOD	FAIR	MOST EXPENSIVE
	+++	++	+	$$$

NYLON 66

- High strength, stiffness and creep resistance
- Good impact resistance
- Good temperature resistance
- Good friction and wear characteristics
- Good chemical resistance to a wide range of chemicals, solvents, oils, greases, and fuels

Common Applications: Automotive, Air Bags, Conveyor Belts, Air Intake Manifolds, Tie Ropes

NYLON 6

- High strength, stiffness and creep resistance (lower than nylon 66)
- Good impact resistance
- Good temperature resistance
- Good friction and wear characteristics
- Good chemical resistance to a wide range of chemicals, solvents, oils, greases, and fuels

Common Applications: Firearm Components, Automotive, Gears, Carpeting, Surgical Sutures

PBT POLYESTER

- High strength, stiffness and creep resistance (lower than nylon 66)
- Good long term thermo-oxidation resistance/resistance to yellowing
- Good dimensional stability/low moisture absorption
- Good electrical properties
- Good chemical resistance

Common Applications: Electrical/High Energy Applications, Gear Wheels, Bumpers, Terminal Boards