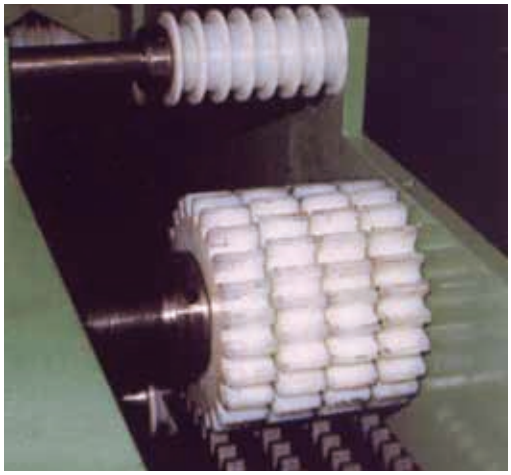
ENGINEERING PLASTIC PRODUCTS

POLYAMIDE
NYLON



The casting process used to manufacture Nylon produces in a high-molecular and highly crystalline polyamide type 6 material with outstanding physical properties. Nylon has similar mechanical properties and chemical resistance to a standard Nylon 66. Stock shapes are available in sheet, rod or tube form in a wide selection of sizes.

PROPERTIES:

- Good sliding properties.
- Extremely high abrasion resistance.
- High mechanical strength coupled with high impact strength.
- Good machinability.
- High mechanical damping ability.
- Working temperature range of -40°C to 110°C continuous.
- EU & FDA approved for direct food contact applications.
- High absorption of moisture (of up to 3 % in standard atmosphere) results in increased impact resistance.

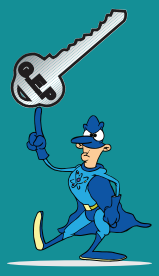
Please note: In thin-walled parts, reduced mechanical strength and dimensional stability.

APPLICATIONS:

Nylon is frequently used as a substitute for aluminium, brass or bronze. Used for a wide range of industrial components both for Original Equipment Manufacture and maintenance.

Mechanical engineering: e.g. sliding parts, rollers, bushes, slide bearings, wear pads, support and guide wheels, sprockets tension rollers.
Offshore: e.g. bogies, cable winches, sheaves.
Vehicle construction: e.g. sliding parts, hoisting gear, rope pulleys.
Foodstuffs industry: e.g. sliding parts, conveyor stars wheels, spiral conveyors, feed screws.

Gauteng Engineering Plastics
The Right Application is Key



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NYLON (POLYAMIDE)					
PROPERTIES	TEST METHOD	UNIT OF MEASURE	SUSTAMID		
			6 G	6 G MO	6 G OL
GENERAL					
DENISTY	DIN EN ISO 1183-1	g/cm³	1,15	1,15	1,14
WATER ABSORPTION	DIN EN ISO 62	%	2,5	2,5	2
FLAMABILITY 3mm	UL 94	3mm	HB	HB	HB
FLAMABILITY 6mm	UL 94	6mm	V2	HB	HB
MECHANICAL					
TENSILE STRENGTH	DIN EN ISO 527	MPA	75	82	70
ELONGATION AT BREAK	DIN EN ISO 527	%	>45	>35	>50
E MODULUS	DIN EN ISO 527	MPA	3 400	3 500	3 300
NOTCHED IMPACT STRENGTH	DIN EN ISO 179	kJ/m²	>3.0	>2.5	>4.0
BALL INDENTATION HARDNESS	DIN EN ISO 2039-1	MPA	180	185	165
SHORE HARDNESS	DIN EN ISO 868	SCALED	83	83	82
THERMAL					
MELTING TEMPERATURE	ISO 11357-3	°C	260	216	213
THERMAL CONDUCTIVITY	DIN 52612-2	W/(m.K)	0,25	0,25	0,25
SPECIFIC THERMAL CAPACITY	DIN 52612	kJ/(kg.K)	1,7	1,7	1,7
COEFFICIENT OF LINEAR THERMAL EXPANSION	DIN 53752	10^{-6}K-1	80	80	80
LONG TERM SERVICE TEMPERATURE	GUIDELINE ONLY	°C	- 40 TO 110	- 40 TO 110	- 40 TO 110
SHORT TERM SERVICE TEMPERATURE	GUIDELINE ONLY	°C	170	170	160
HEAT DEFLECTION TEMPERATURE	DIN EN ISO 75.VERF.A	°C	95	95	90
ELECTRICAL					
DIELECTRIC CONSTANT	IEC 60250	N/A	3,7	N/A	N/A
DIELECTRIC DISSIPATION FACTOR	IEC 60250	N/A	0,02	N/A	N/A
SPECIFIC VOLUME RESISTIVITY	IEC 60093	Ω.cm	10^15	N/A	N/A
SURFACE RESISTIVITY	IEC 60093	Ω	10^13	N/A	N/A
DIELECTRIC STRENGTH	IEC 60243	kV/mm	20	N/A	N/A

When machining thermoplastic stock shapes, remember...

- Thermal expansion is up to 10 times greater with plastics than metals.
- Plastics lose heat more slowly than metals, so avoid localized overheating.
- Softening (and melting) temperatures of plastics are much lower than metals and plastics are much more elastic than metals.

Getting started

- Positive tool geometries with ground peripheries are recommended.
- HSS/Tip tooling with polished top surfaces is suggested for optimum tool life and surface finish.
- Use adequate chip clearance to prevent clogging.
- Adequately support the material to restrict deflection away from the cutting tool.

Coolants

Coolants are generally not required for most machining operations, but are strongly suggested during drilling operations, especially with notch sensitive materials such as Nylon, PET-P, PAI, PBI and glass or carbon reinforced products.

In addition to minimizing localized part heat-up, coolants prolong tool life. For optimum surface finishes and close tolerances, non-aromatic, water soluble coolants are suggested. General purpose petroleum based cutting fluids, although suitable for many metals and plastics, may contribute to stress cracking of amorphous plastics such as Polycarbonate.

Because of these differences, you may wish to experiment with fixtures, tool materials, angles, speeds and feed rates to obtain optimum results.

GENERAL NOTE:

The data shown fall within the normal parameters of product properties. They should only be used as a guide to initial materia selection for the relevant application and for material specification limits. Further technical information is available for specific application requirements. When no value is listed, insufficient details were available to present a usable value.