NYLON N60125(L) and N60125HS(L)

N60125 is an intermediate viscosity nylon 6, suitable for extrusion of sheet, rod or stock shapes, or for injection molding of parts requiring improved practical ductility and toughness. Grades are offered unlubricated primarily for extension, and, for injection molding applications, lubricated for improved mold release. For parts which are to be exposed to high temperature for extended periods of time, the use of **N60125HS(L)**, which contains an effective stabilizer package, is recommended. Mechanical properties for this heat stabilized compound are generally similar to those for the base formulations, except for tensile elongation which may be slightly reduced.

Nylon 6 offers a unique combination of strength and toughness, excellent static and dynamic fatigue resistance, natural lubricity, and resistance to the effects of broad range of chemicals, oils and solvents, and is therefore used for a very wide range of applications in every end-use category.

TYPICAL PROPERTIES
DRY AS MOLDED

PROPERTY	ASTM TEST METHOD	ENGLISH UNITS	ENGLISH VALUE	S.I. UNITS	S.I. VALUE
Melting Range	D789	◦F	420-428	◦C	215-220
Specific Gravity	D792	-	1.13	-	1.13
Water Absorption (24 hrs. immersion)	D570	%	1.5	%	1.5
Heat Deflection Temp. at 264 lbs/in^2(1.82MPa)	D648	◦F	126	◦C	52
Mold Shrinkage* (Flow Direction)	1/8" section	%	1.5	%	1.5
Tensile Strength at Yield	D638	lbs/in^2	11,800	MPa	81
Elongation at Break	D638	%	80-100	%	80-100
Flexural Strength	D790	lbs/in^2	15,000	MPa	103
Flexural Modulus	D790	lbs/in^2	410,000	MPa	2,828
Izod Impact Strength (Notched, 1/8" specimen)	D256	ft. lbs/in of notch	1.0	J/m	53
Tensile Impact Strength (Type S specimen)	D1822	ft.lbs/in^2	130	kJ/m^2	273
Rockwell Hardness	D785	R scale	R119	-	-

*** Please review shrinkage projections for specific applications with an MDE Technical Representative.**

All data generated using test specimens injection molded from natural color material. Inclusion of color pigments or other additives may change some or all of these test results. Test specimens are stored in a moisture proof container immediately after molding and contain less than 0.2% moisture; tests are conducted at 23◦C and 50% relative humidity unless otherwise stated.

These mechanical property test data have been developed using injection molded specimens tested under standardized conditions; furthermore, many of the mechanical properties of thermoplastic materials can be influenced by changes in processing conditions, environmental factors such as temperature and humidity, and rate of application of stress. Therefore, these test results, which characterize typical production material, should not be used either to establish specification limits or alone as the basis for engineering design.

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N60125(L) and N60125HS(L)
Processing Guidelines

Drying

Nylon compounds from MDE are shipped in moisture-resistant packaging, dried and ready to be processed. If drying is required after, for example, exposure of virgin resin to humid air for more than one hour, or for reground material, the use of dehumidifying dryers is strongly preferred.

The dew point of the drying air stream should be no more than -20°F, and preferably lower. The drying air temperature should normally be no more than 175°F. Higher temperatures risk discoloration of natural color material, degradation and loss of properties, especially toughness. Only if residence times are short (maximum 2 hours) should temperatures to 200°F be considered.

Nylon compounds usually demonstrate visual evidence of unacceptably high moisture levels, such as uncontrollable nozzle drool, or splay or silver streaks on the molded part. Additional drying time is indicated if these characteristics are observed.

If moisture analysis equipment is available, an acceptable moisture content range for processing is 0.1% to 0.25% maximum.

Temperature Guidelines

The following temperature guidelines are suggested for general use **if a machine can be selected where shot size is 40-70% of nominal machine capacity.**

Tool Surface	Melt Temperatures (°F)			Typical Cylinder Temperatures(°F)		
Temperature (°F)	Max..	Preferred	Min	Front	Center	Rear
140-180	530	490-510	480	480	490	500

- A “reverse” temperature profile helps ensure a homogeneous melt and improves screw recovery by accelerating the transition from solid pellets to a melt.
- A mold surface temperature in the suggested range improves surface appearance, helps consistency of mold fill and therefore consistency of dimensions, minimizes the effect of weld lines and also helps realize best molded part performance.
- A fast injection speed maximizes weld line strength and minimizes molded in stress, and also contributes to achievement of best surface gloss. Good venting of cavities is essential to allow fast fill without burning.

Screw Forward Time

Adequate screw forward time under follow-up pressure is important to ensure proper packing before gate freeze, during which time it is essential to maintain a "cushion" of 1/8"-1/4". Optimum screw forward time can be judged by a part weight vs. forward time plot. Avoid over packing, which can generate molded-in stresses.

Screw Recovery

Low back pressures - nominal 50 p.s.i. gauge - are normally sufficient to help development of a homogeneous melt, and ensure consistent shot volume. Screw rotation should also be as slow as possible consistent with cycle time goals, usually 40-80 r.p.m.

Mold Shrinkage

Standard ASTM test specimens are used to develop shrinkage guidelines. Test specimens are end-gated, 1/8 inch thickness, and molded at conditions recommended for this formulation.

Actual shrinkage in molded parts will depend on several variables, including processing conditions, part configuration and gate location, both of which influence material flow direction, and wall section thickness.