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Press Release

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Laser Cutting Nylon Plastic

Nylon plastic, in its fibre form, is most commonly used to replace traditional organic fibres used in products such as fabrics or ropes. However, in solid form, its abrasion resistance, durability, and light weight also make it an attractive option for manufacturing mechanical parts such as screws and gears. In addition, nylon provides corrosion resistance and electrical insulation that metal parts may lack.



Nylon plastics are thermo-polymers composed of simple linear polymer chains that are easily melted without breaking their bonds. As a result, the laser cutting process is very efficient with no chemical degradation and provides a clean cut with no charring.

In applications where increased strength and heat resistance is desired, a glass fill can be added to the nylon formulation. However, the polymer structure becomes more rigid and can chemically degrade when melted. As a result, cutting glass-filled nylon may result in charred cut edges.

This 0.125" thick Nylon 6,6 sample was cleanly cut using 400W of power at a speed of 200 inches per minute.

For this particular nylon cutting application, a Synrad 400W laser was used in conjunction with an X-Y table and a cutting head outfitted with a 2.5" (63.5 mm) focal length lens that provides a 100-micron (0.004") focused spot size. The 0.125" (3.2 mm) thick plain Nylon 6,6 material was cut at a rate of 200 inches per minute (5.1 meters/minute). Clean, dry air at 50 PSI (3.5 bar) was used to shield the focusing lens and eject melt droplets. As seen in the photograph, the cut edge is cleanly cut with no signs of charring or dross.

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