# PHOTOMACHINING CHALLENGE

## Introduction Script

Modern medicine relies on a variety of miniaturized precision devices for the diagnosis, monitoring and treatment of disease. For example, an arterial stent used to strengthen weakened or clogged blood vessels is a tiny metal tube just a few millimeters in diameter. Each tube is carved with intricate filigree designs requiring exacting manufacturing processes and extremely tight tolerances. Production of some medical devices requires the micro machining of tough, fragile or exotic materials, such as glass, ceramic or thin polymer films. In many cases, the required processes can only be done by a laser!

In order to manufacture a given piece, the laser needs to interact with the material- cutting, drilling, etching, welding, marking- without causing damage to the part itself. But how is the laser chosen for a particular application? The type of laser used is characterized by its wavelength, pulse length and frequency, and output power. Laser wavelengths for manufacturing range from ultraviolet through visible to infrared with pulses as short as femtoseconds and power ranging from milliwatts to tens of kilowatts. For many micromachining applications, the laser must be focused to a spot much smaller than the diameter of a human hair!

PhotoMachining in Pelham, New Hampshire, has expertise and proprietary technologies for micromachining difficult materials. How do the engineers and technicians of PhotoMachining work with customers to solve difficult machining challenges? Let's go to NH and find out.