Laser Welding

By Josh Riverside

A laser can be defined as an optical source, which emits photons in a coherent beam. Lasers were first discovered in the year 1960 and were proposed as a variation of the 'maser' principle at that time. Laser technology has improved greatly since that time and has found applications in a variety of disciplines such as science, industry, medicine, and consumer electronics.

Laser welding is used extensively in job shops for welding miniature components used in aerospace, medical, automotive, instrumentation and sensor, and electrical/electronics industries, among others. It is very often used for encapsulating electrical components, such as switching devices that need to be protected and hermetically sealed.

Laser welding is used in the manufacturing of hypodermic needles and tube assemblies, welding razor components, and welding tungsten filaments used in halogen bulbs. Laser welding machines are used in conjunction with computer numeric control (CNC), which makes it ideal for use with thin walled tubing, boasting beam widths down to .0005. In this process, the machining operator uses computers to control laser-welding equipment for handling complex and intricate welding jobs. Laser welding process involves the use of conventional as well as fiber optic beam delivery systems, which allow precision positioning while welding metals or other materials.

Laser welding machines are fast replacing electron beam welding equipment that costs in the range of eight to fifteen hundred thousand dollars. As compared to these, a laser-welding machine is available in the range of two to three hundred thousand dollars. Laser welding process is fast as the absence of vacuum chamber eliminates the time required for pumping down the chamber. This however reduces its power and limits its usage to welding of light penetration materials with a maximum thickness of 1/8 inch.

Research is underway to develop advanced laser welding techniques that will allow the production of microscopic devices for use in medical industry. This will help in fighting deadly diseases such as cancer in the near future.

Welding provides detailed information on Welding, Welding Projects, Welding Supplies, Welding Jobs and more. Welding is affiliated with Maple Work Benches. http://www.i-workbenches.com/