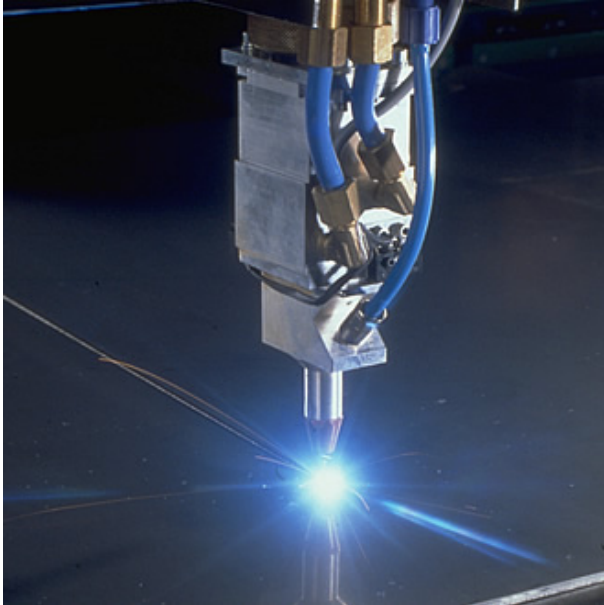


▶▶ LASER-BASED WELDING OF THIN SHEET METAL



Welding of metal assemblies using continuous wave laser radiation is a tried and tested method, ensuring productivity with a high degree of accuracy.

Applications range from fine welding of electronic components, sensors, pressure switches or valves over to assemblies such as compensators, surgical instruments, pipes and membranes. Especially when welding assemblies with a wall thickness of up to 0.8mm, diode lasers offer marked advantages when compared to continuous wave flash-lamp-pumped solid-state lasers.

Diode lasers are compact, efficient and virtually maintenance free.

Overview of process advantages

- high welding quality with little or non-required reworking
- no tool wear, contactless process
- highest reliability with a maximum degree of flexibility
- high welding speeds
- comparatively low running- and investment costs
- locally defined thermal input and small thermal stress/warping of assemblies



Longitudinal seam welding
of thin walled pipes



High optical weld quality



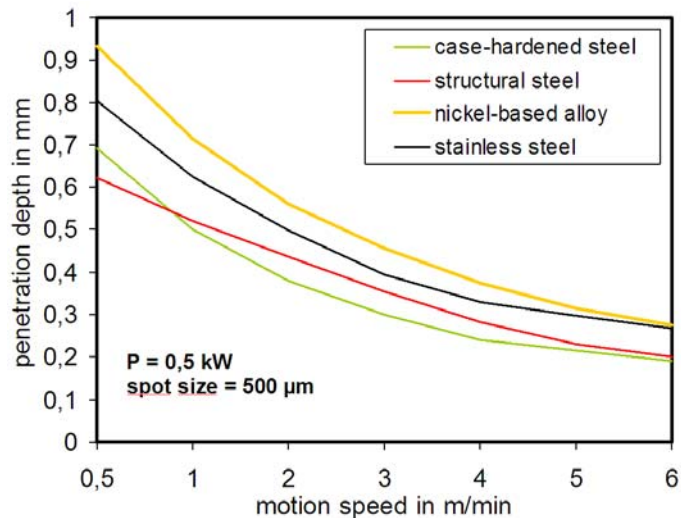
Welding of thin metal
assemblies



Spot welding

▶▶ LASER-BASED WELDING OF THIN SHEET METAL

Diode lasers make welding of thin metal assemblies more economical



Diode lasers are the most efficient laser radiation sources. The electro-optical conversion efficiency is around 10 times better than that of flash-lamp-pumped solid-state lasers. This, in turn, has positive effects on both the running costs and the physical size of the laser system. Compact, 19-inch rack mounted units enable simple and uncomplicated integration into existing production lines. The need for service and repair is greatly reduced due to the high degree of reliability of diode lasers.

High-quality welding seams also reduce cost and time requirements for reworking of parts. Depending on the application, reworking may be completely eliminated. Assemblies and parts with metal thicknesses below 1mm allow for the use of diode lasers with only a few 100W.

Typical spot sizes of around 400µm to 800µm can be achieved with diode lasers due to beam qualities comparable to flash-lamp-pumped Nd:YAG lasers.

Products



COMPACT
Diode Laser System

The COMPACT is a diode laser system in a standard 19-inch format. The modular concept enables the integration of various diode laser modules with output powers of up to 500W with a standardized interface and footprint.

Tailored accessories, such as processing optics at various focal lengths, homogenous beam profiles and scanner heads, complete the product range, making this system the perfect tool for laser-based welding of thin sheet metal.