Compact, efficient and economical:

NOVOLAS TTS
Table Top System

Swiss made
Laser Plastic Welding

Established in 1998, the Leister business unit has many years of experience in laser welding of plastics. Leister is the owner of a number of patents such as Mask or GLOBO welding and the only company with expertise in all standard laser plastic welding techniques.

The principle of laser welding

A transparent and absorbent mating partner are joined when laser welding thermoplastic plastics. The laser beam penetrates the transparent plastic to encounter the absorbent one, which means the process is referred to as “laser transmission welding”. Due to the laser energy, the absorbent mating partner melts and conducts heat to the transparent mating partner, until this also melts. This requires physical contact in the joining zone, which is applied by mechanical clamping. An inner joining force results through local heating and expansion. Internal and external joining forces ensure a firm weld of the two parts.

Almost all thermoplastic plastics and thermoplastic elastomers can be welded with the laser beam – including ABS, PA, PC, PP, PMMA, PS, PBT as well as fiberglass reinforced plastic types. The weld seam strength remains within the area of basic material strength.

Contour welding

In contour welding, a laser spot is guided sequentially along a predetermined welding pattern, melting it locally. The welding volume remains comparatively small as a result of the geometric conditions, and extrusion of the melt is avoided. Relative motion is achieved by moving the component, the laser, or a combination of both.

Characteristics and application

- Laser beam focused to a spot
- Ability to change weld width by varying focal distance
- Arbitrary two dimensional joining line
- Ideal for frequently changing workpieces

Welding application samples

- Optical sensor
- Expansion housing
- Foot pad

NOVOLAS TTS (Table Top System)

The system provides outstanding functionality integrated in a small footprint. The compact turnkey system offers all advantages of laser welding of plastics in an affordable and easily programmable system.

NOVOLAS TTS

The NOVOLAS TTS is an all-in-one integrated system for laser welding of plastics. The laser unit and the processing cell are separated from each other and can be set up in a space optimized manner at the production site. Despite the small processing cell the operation or welding plane has dimensions of 100 x 100 mm.

The NOVOLAS TTS is controlled by a Mini PLC and programmed by a Leister developed HMI (Human Machine Interface) Software. The HMI handles transfer of process relevant parameters to the system and storage within a project structure.

The welding contour is programmed in a CNC-code while other parameters such as laser power and welding speed can easily be set within the HMI.

Once implemented, the system runs autonomously. Input components like mouse and keyboard can be removed from the system in production. If necessary external access is possible via remote desktop.

Technical Data

- Laser type: Diode laser, air cooled
- Beam shape: Spot
- Laser power: W 40 (max.)
- Pilot laser/aiming beam: LED
- Working area: mm 100 x 100
- Max. workpiece height: mm 90
- Max. movement speed: mm/s 290
- Max. clamping force: N 2350
- Compressed air: bar 6
- Controller: Embedded PLC for laser axis and process control
- Data interface: Leister HMI
- Dimensions (l x w x h):
  - operation cell: mm 575 x 585 x 579
  - Basic AT Compact: mm 555 x 560 x 322
- Weight:
  - operation cell: kg ~ 65
  - Basic AT Compact: kg ~ 35
- Line voltage: V~ 110 – 240
- Max. current consumption: A 10
- Frequency: Hz 50 / 60
- Cable length between the modules: mm 2000
- Environmental conditions: °C 15 – 35

Operation cell

Small und efficient

Basic AT Compact

Compact and cost-effective diode laser system
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Operation cell

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*Your Leister Sales and Service Center:

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- Leister branches
- Leister distributors and partners

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