



LASER PLASTIC WELDING

Compact, efficient
and economical:

NOVOLAS TTS Table Top System



NOVOLAS™

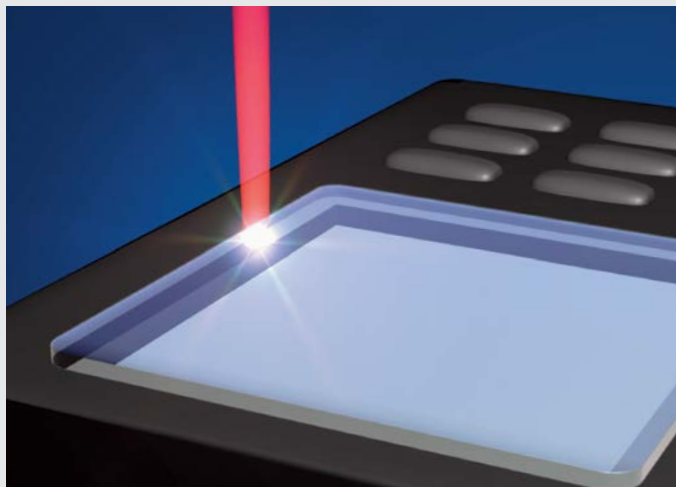
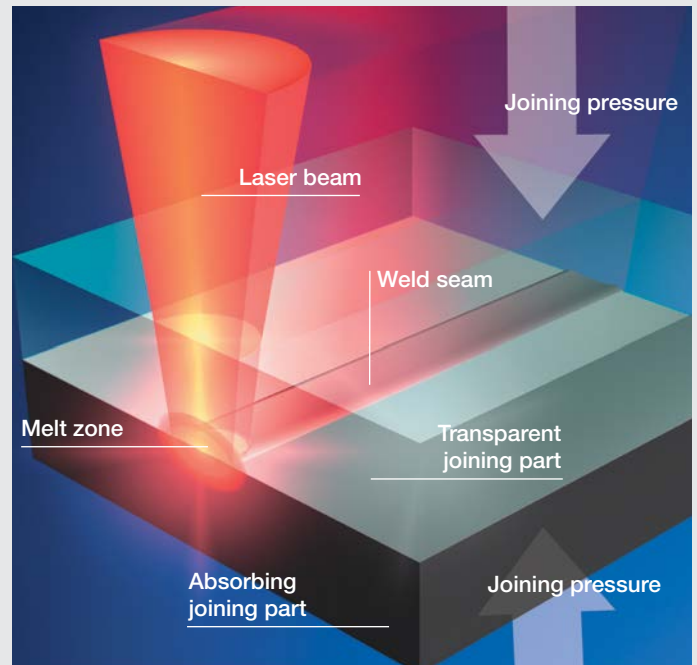
Laser Plastic Welding

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 pre-determined 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.

- Swiss made
- Compact and efficient laser welding system
- Economical solution for production
- Flexible application range focused on production
- Comprehensive and intuitive HMI
- Laser safety class 1 compliant

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	200
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 500 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

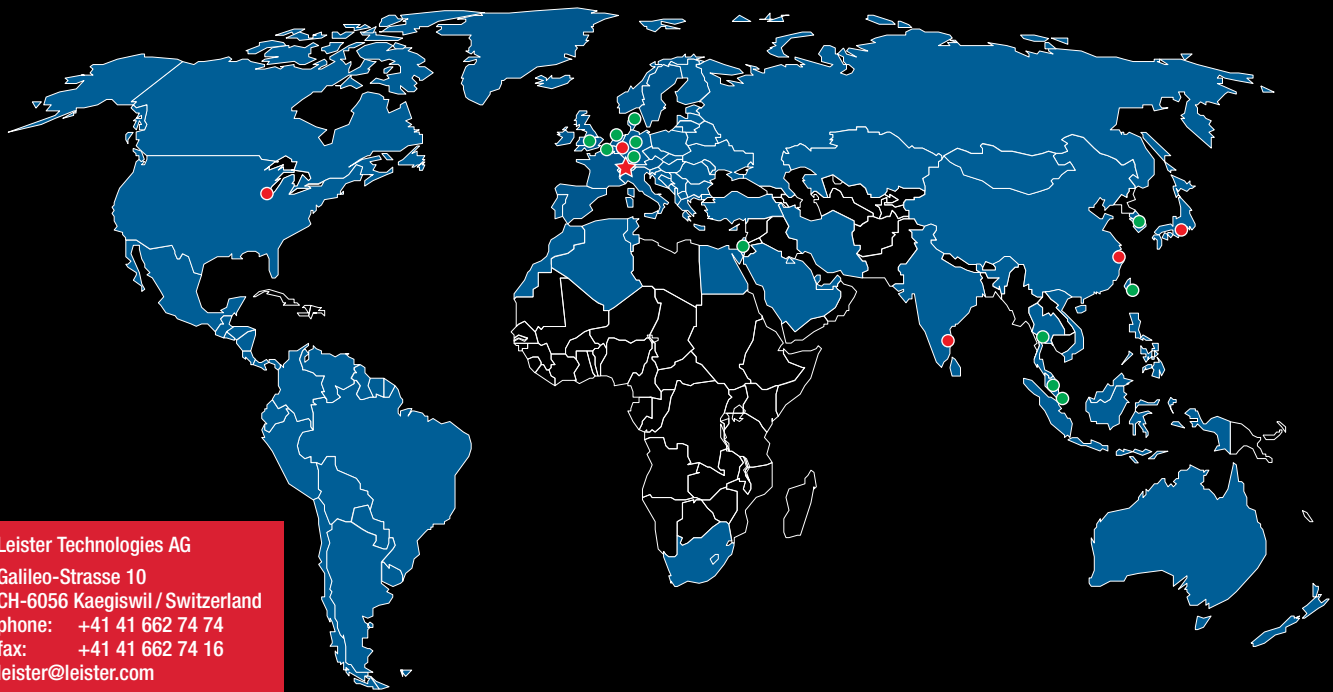
Small und efficient



Basic AT Compact

Compact and cost-effective diode laser system





Leister Technologies AG
Galileo-Strasse 10
CH-6056 Kaegiswil / Switzerland
phone: +41 41 662 74 74
fax: +41 41 662 74 16
leister@leister.com

Leister Technologies GmbH
Steinbachstrasse 15
52074 Aachen / Germany
phone: +49 241 8906 152
fax: +49 241 8906 558
info@leister-technologies.de

Leister Technologies LLC
Itasca, IL 60143 / USA
phone: +1 630 760 1000
fax: +1 630 760 1001
info@leisterusa.com

Leister Technologies Ltd.
Shanghai 201 109 / PRC
phone: +86 21 6442 2398
fax: +86 21 6442 2338
leister@leister.cn

Leister Technologis KK
Yokohama 222-0033 / Japan
phone: +81 45 477 36 37
fax: +81 45 477 36 38
info@leister.co.jp

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