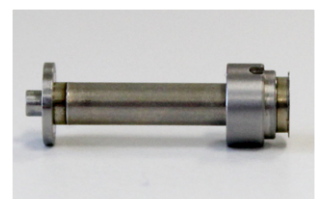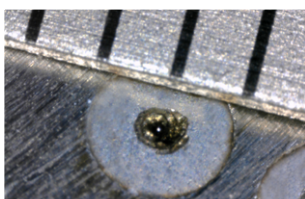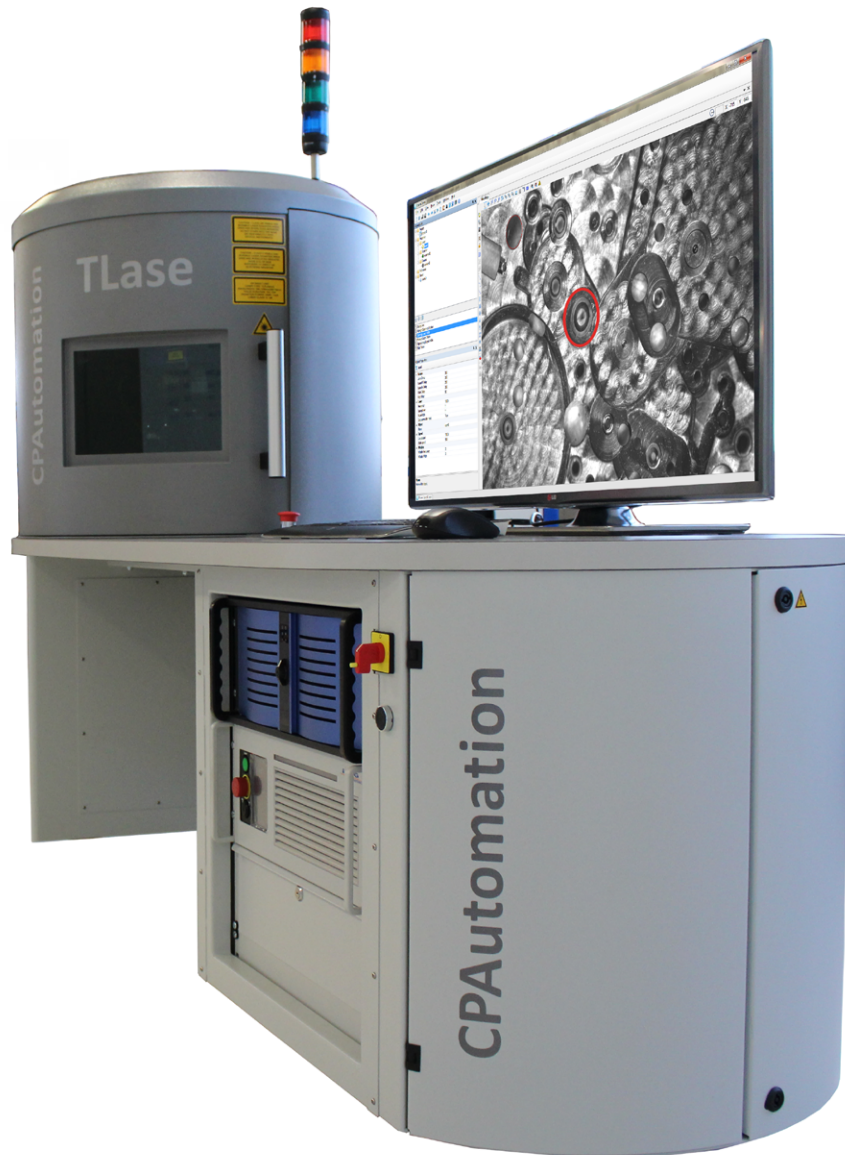# TLASE
LASER MICRO-WELDING WORKSTATION

TLASE
## A COMPACT LASER MACHINE FOR WELDING SMALL PRECISION PARTS

DESCRIPTION

The TLase is a high accuracy, user friendly, turnkey workstation, designed for laser micro-welding of small parts. It is ideal for low to mid-volume productions, piece by piece or batch / tray processing.

Its ergonomic and robust design with an all-welded structure is user-friendly in the most challenging environments. Robust casters and compact dimensions make it easy to move around within industrial workshops or laboratories.

The motorized XYZ axes and the advanced software technology for automatic repositioning of the scanning head offer the machine great flexibility for loading and positioning parts to be welded.

TLase is used for precision laser micro-welding applications in the watch and medical industry. Various metals can be welded such as stainless steel, aluminum, copper, titanium and other precious metals.
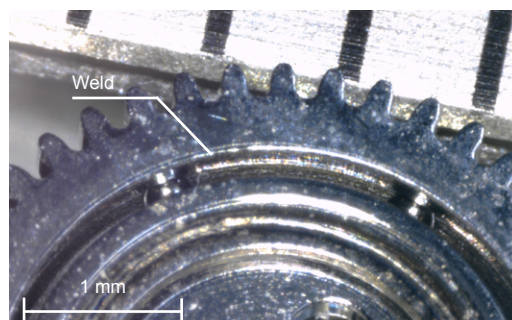
Welding of miniature bearing
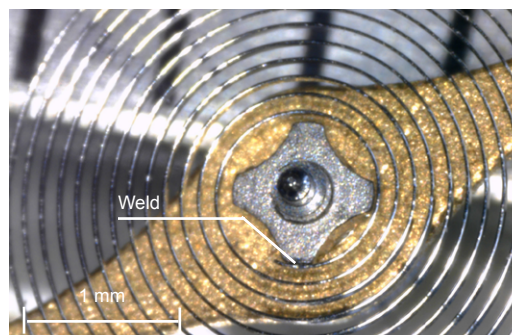
Balance spring welded to collet

YOUR BENEFITS

▶ **Accuracy:** Motorized XYZ axes with a manual precise slide for setting the angle enables a precise positioning of the parts.
▶ **Part Location:** Automatic repositioning of the scanning head for accurate localization of weld spot or seam.
▶ **Design:** Compact machine for flexible and mobile use.
▶ **Ergonomic:** Easy access to work area and very user friendly software.
▶ **Productivity:** Reduced footprint and possibility to work piece by piece or batch / tray processing.
▶ **Flexibility:** Possibility to use several different laser types, 100 W CW, 200 W CW, 300 W CW, 400 W CW and QCW 150/1500. Interchangeability of fiber diameters for different spot sizes for any type of welding.
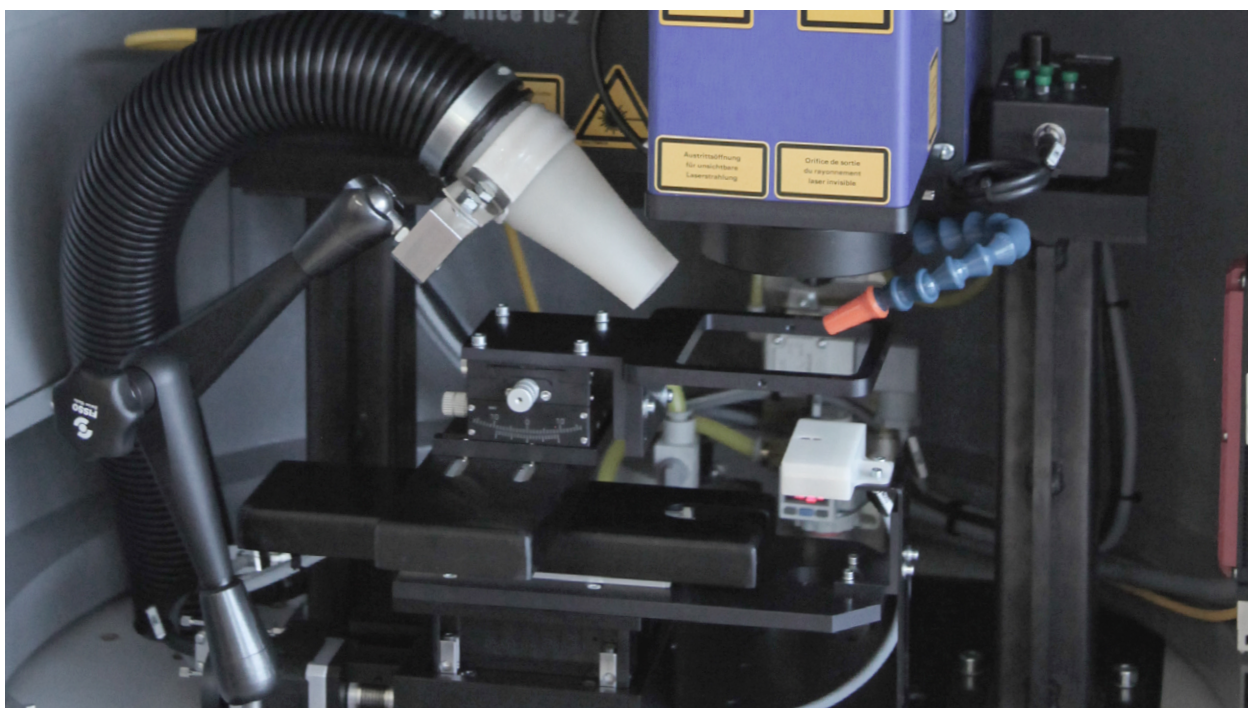

TLase

ERGONOMIC DESIGN
MOBILE WORKSTATION WITH GREAT USER COMFORT

TLase is a compact machine with optimized footprint. The full integration of all elements such as laser, optics, positioning system, electronics make the machine very user friendly and mobile. The unit is wall plugged, 230V, 10A. There are a number of additional options available which allow TLase to address a wide range of micro-welding applications. Operating the TLase is fast and easy due to an intuitive and efficient HMI (Human Machine Interface).

- **User-friendliness:** TLase is designed for comfortable use while seated. Loading and unloading of pieces or trays are done manually. The workstation layout, work area, processing area, screen, keyboard, etc. is optimal.
- **Mobility:** the compact design of TLase allows mobility.
- **Ecological:** the workstation has a low energy consumption. A single phase standard plug of 230V, 10 A is sufficient.
- **Easy Access to Process Area:** the specially shaped door with side opening, can be effortless opened and closed. High production is possible.
- **Soundless:** For quiet environments, the water-cooled laser (optional) enables noise free operations.

- **Simple loading and unloading:** once the door is opened, the process area is easily accessible.
- **Excellent visibility:** thanks to the co-axial illumination and the LED backlight, the complete process area is illuminated.
- **Easy Operation:** fast and easy due to an intuitive and efficient HMI (Human Machine Interface).
- **Guaranteed security:** TLase offers maximum safety. It is certified laser safety, class 1 and has a fume extractor (optional) for toxic gas, which is generated by laser welding of certain materials.

TLase work chamber

ACCURACY AND REPEATABILITY
ALL-WELDED WORKSTATION, HIGH PRECISION POSITIONING AXES AND INTELLIGENT VISION SYSTEM
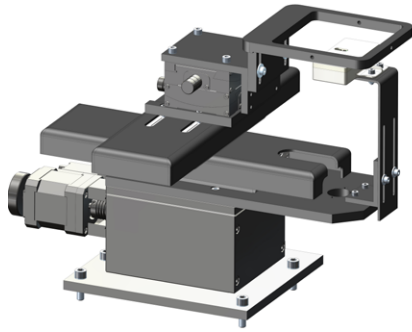

XYZ axes, goniometer and samples holder

The TLase rigid all-welded frame, its highly precise positioning axes and its scanning head equipped with an automatic repositioning of part location (ARP*) ensure an accurate and reliable welding process. The result is a repeatable and accurate laser spot / seam weld.

*Automated Repositioning of Parts (optional)

AUTOMATIC REPOSITIONING OF PARTS (ARP*)
A SMART VISION SYSTEM FOR REPEATABLE WELDS

TLase is equipped with an integrated vision system which enables automatic identification to determine part orientation and adapt the laser beam position to always weld at the desired location.
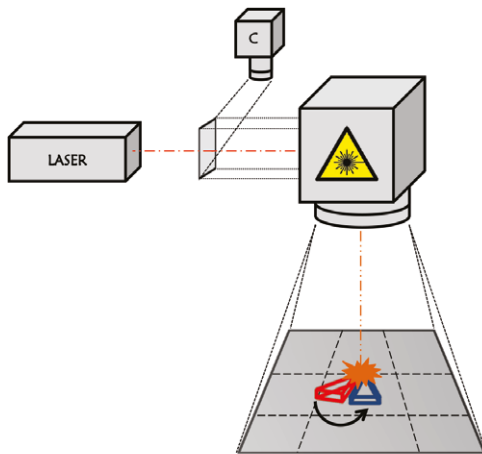
Laser, camera, scanning head with ARP*

ARP

Is an optical system for smart repositioning it detects parts position and orientation, to automatically correct the laser beam's path.

Added-values

▶ Exceptionally adapted for welding batches / lots / trays
▶ Quality improvement
▶ Increase in productivity
▶ Accuracy enhancing
▶ Repeatability enhancing
▶ Reduction of scrap rates

WELDING MONITORING WITH ARTIFICIAL INTELLIGENCE SUPPORT
QUALITY CONTROL WITH «DEEP-LEARNING» INSPECTION

The innovative and unique aesthetic inspection software enables an automatic control of welding quality (optional).

TLASE

LASER MICRO-WELDING WORKSTATION

SPECIFICATIONS

FEATURES

Available laser source	Fiber laser 100 W CW, 200 W CW, 300 W CW, 400 W CW and QCW 150/1500 (Air-cooled or water-cooled depending on power)
Process Area Door	Manual or Horizontal
Control panel	Emergency stop and reset, start and stop
Electrical cabinet and laser	Fully integrated into the workstation / Single Phase 230 V, 10 A
Mobility	Integrated casters and workstation dimensions enabling passing through doors
Galvanometric head	Advanced scanning head with dynamic active thermal drift compensation
Positioning	Motorized XYZ axes of 85 x 85 x 30 mm; precision XY of +/- 2 μm; resolution: 1 μm ; repeatability Z: 6 μm / Manual goniometer
Lighting	Coaxial illumination and LED backlight for better part identification
Camera	Coaxial camera to the laser beam / Mosaic picture of field area / ultra-high resolution image
User interface	Intuitive and user-friendly software to control the laser, the positioning axes and the scanning head / Ideal for single or batch part processing / 19" monitor

OPTIONS

Fume exhaust	Outside the machine / Filters hazardous gases
Gas-shielding	Ensures a gaseous coverage of the welding
Positioning	Pattern recognition for an automatic repositioning of the laser beam
Laser pulse shaping	Temporal modulation of the laser pulse shape (PSM) for a better welding quality
Fiber to fiber coupler	Fiber to fiber coupling module to achieve several beam sizes on a single machine
Aesthetic inspection	Aesthetic inspection of the laser weld based on artificial intelligence algorithm
Backup	Data pack: 1 Tb in RAID hard drive
Safety	Laser protection goggles / Security window / stack light
Maintenance	Cleaning set for optics / Protection glass for focusing optics of the scanning head
Laser cooling system	Soundless chiller for water-cooling lasers
User interface	42" monitor

DIMENSIONS (L x l x h)

Machine	2'014 x 764 x 1'449 mm, 300 kg / Machine: Laser Class 1
Safety window	300 x 210 mm (optional)
Work area	85 x 85 x 30 mm