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The complete  
solution for  
laser welding of  
plastics.



## Laser welding of plastics: Precise and flexible.

Thermoplastic materials can be welded with the laser cleanly, flexibly and contactlessly. Thanks to transmission welding you can achieve extremely solid, tight and esthetic connections. Almost any kind of welding geometry is possible in the overlap joint. Here the energy application is so precise that your material is only minimally affected thermally or mechanically. Even weld seams in the immediate proximity of heat-sensitive components such as electronic parts can be realized.

## Fully equipped.

TRUMPF offers you a complete solution for the welding of plastics with the laser. You get the laser, the focusing optics with a sensor system, and the laser system from a single source – all of it perfectly tailored to your requirements.

## Diode lasers: Excellent beam quality and high efficiency.

For the laser welding of plastics, use the direct-diode lasers TruDiode 151 and TruDiode 301. They combine high performance, excellent beam quality, high efficiency and reliability – all of it at low investment and operating costs. The beam sources are of modular design, and their power can be easily scaled. The integrated power monitor and the real-time power control ensure power stability of < 1% throughout the entire service life of the laser. The TruDiode lasers are equipped with the intuitive TRUMPF operating software TruControl 1000. Naturally, long-distance diagnostics and maintenance via the Telepresence function are also possible.



## TruLaser Station 5005: Compact and ergonomical.

The compact laser workstation TruLaser Station 5005 is perfectly suited to laser welding of plastics. Including its built-in dedusting facility, the machine only requires a footprint of 1 m<sup>2</sup>. The workstation is available with up to five axes, and you can also integrate the scanner optics PFO 14 and PFO 20. The large working area and the available pneumatic and electrical interfaces make installation of your clamping technology easy. The ergonomic laser workstation can be operated from either a sitting or standing position. Operation is simple and intuitive via a touch screen. The camera for process monitoring is available as standard and facilitates the setup and teach process. Different user levels ensure increased process reliability for your processing tasks.



## Optimal processing results thanks to the temperature control.

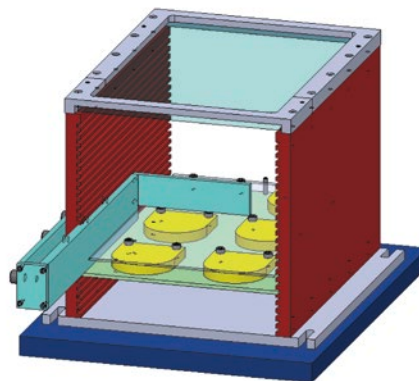
For optimal results during the welding of plastics: The pyrometer attached to the programmable focusing optics (PFO) measures the temperature at the surface of the weld seam. It registers the intensity of heat within a certain wavelength. Via an interface on the PFO, a signal is transmitted proportional to the measured temperature at the laser control, and the laser power is correspondingly regulated. The temperature in the component can thus be kept constant – for optimal results during the welding of plastics.

## Clamping technology.

The clamping technology plays an important role during the welding of plastics. For welding in the overlap joint, the clamp has to minimize the kerf between both plastic components. To do this, the parts are pressed against each other. This enables the heat to be transferred from the absorbing plastic to the transparent plastic. The plastic components melt and fuse together permanently.

## Welding of plastics with the temperature control: Your benefits at a glance.

- 1 Highly precise and reproducible.
- 2 Optimal processing quality.
- 3 Quality control in real time.



	TruDiode 151	TruDiode 301
Wavelength	920–970 nm	920–1050 nm
Laser power <sup>(1)</sup>	150 W	300 W
Beam quality	< 8 mm · mrad	< 8 mm · mrad
Min. diameter of laser light cable	150 µm	150 µm
19" version Dimensions (W x D x H)	483 x 513 x 495 mm	483 x 513 x 495 mm
Stand-alone version Dimensions (W x D x H)	600 x 800 x 1500 mm	600 x 800 x 1500 mm

TruLaser Station 5005	
<b>Working range</b>	
X Y Z axis	300 300 500 mm
Swivel axis Rotating axis	± 120° n x 360°
<b>Accuracy</b>	
Repeatability X Y Z axis	≤ 0.05 mm
<b>Dimensions of laser workstation</b>	
Width Depth Height	800 900 2000 mm <sup>3</sup>

<sup>(1)</sup> At the workpiece, independent of ambient temperature.

Subject to alteration. Only specifications in our offer and order confirmation are binding.