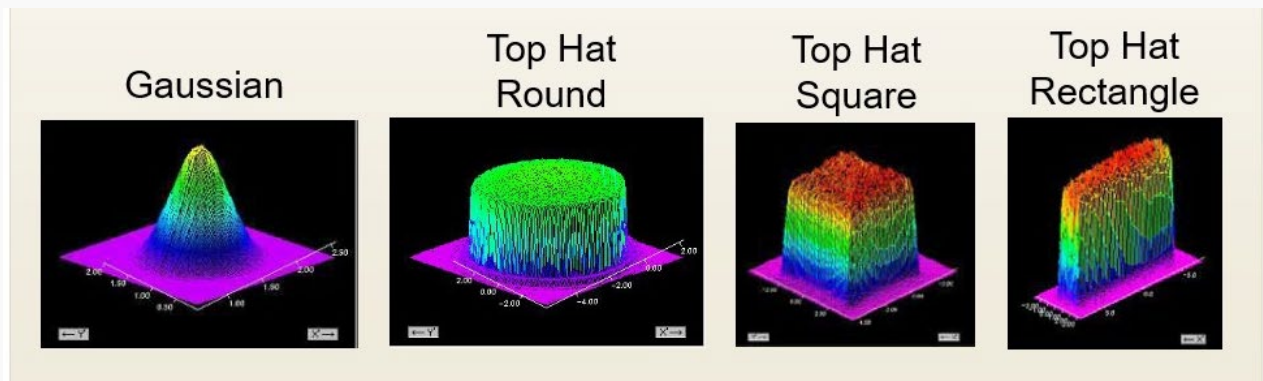


SPOLD for precise, thermal laser sintering

Hamamatsu Photonics offers the compact SPOLD[®] diode laser system for industrial electronic printing processes. With an output power of max. 360W, it heats metal nano inks extremely quickly and herewith activates the conductivity of printed circuits.

Using an infrared laser in the wavelength range of 808nm and 940nm, smallest silver (Ag) or copper (Cu) particles in nano inks are melting at high speed without thermally affecting the substrate material (e.g. glass, plastic, paper, etc.), as it does not absorb the laser radiation.

A special technology optimizes the shape of the laser beam and achieves a top-hat beam profile both on a variable spot diameter of 0.1 to 6.4 mm and via line optics. This generates a homogeneous heat input on the processed material and guarantees the best possible conductivity of printed conductor paths.



SPOLD - Laser sintering with real-time temperature measurement

The laser processing system SPOLD[®] with integrated temperature measurement from Hamamatsu Photonics enables precise and fast melting of copper (Cu) or silver (Ag) nanoparticles in metallic inks by using a diode laser. The real time temperature measurement thereby occurs directly in the focus area of the laser spot.

An InGaAs photodiode measures the photocurrent in the near-infrared spectrum via coaxial fiber feedback loop. If the signal from the photodiode changes, this is equivalent to a temperature variation on the work piece, which can lead to a reduction in conductivity. The method allows the real time monitoring of the emitting process heat in order to detect and adjust possible process errors at an early stage.



T-SMILS - Laser-heat system with temperature control function

Our new semiconductor laser T-SMILS® is a laser-heat processing system with an effective temperature measurement function.

The T-SMILS® series is equipped with PID (proportional-Integral-differential) control function that uses temperature as a target. Based on real-time temperature measurements directly at the operation point, the laser automatically reacts to overheating e.g. caused by scanning speed changes or deviation in the absorption material.

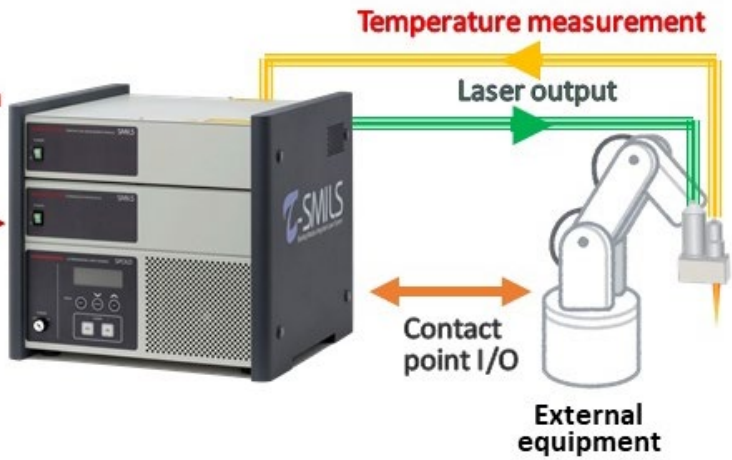
This means in the field of electronic printing, that small changes in the absorption ratio or the ink layer thickness are automatically adjusted by changing laser power during the process. This guarantees a stable conductivity in flexible printed circuit boards.

Laser sintering with the two-color thermometry method using of Hamamatsu Photonics' high-precision and low-noise infrared detectors, enables temperature measurements from 200°C. The laser process itself reaches temperatures of more than 400°C. These high temperatures lower the electrical resistivity significantly without damaging of the ink substrate.

LAN
(Wireless communication
is possible when Wi-Fi
router* is available.)
*Not included
in this system



PC



Best suited for *Industry 4.0*

