

Temperature control

## Laser hardening made easy



01

**Hardening of  
complex surfaces**

02

**Easy to  
integrate**

03

**Flexible  
application**

04

**Monitored  
quality**

01

## Hardening of complex surfaces

The innovative temperature control for laser case hardening controls the laser power on a location basis. In this way, there is no build-up of heat along part edges, around holes or in corners, and you can achieve an even hardness depth at a defined degree of hardness.

02

## Easy to integrate

The temperature control sensor system is integrated directly into the scanner head. This makes the system compact and reduces the number of components needed. You can configure the controller very easily using the central laser control. The nominal temperature and track parameters can be easily assigned using common interfaces such as Profibus, for example.

03

## Flexible application

Using the scanner optics, the most diverse of geometries can be hardened. You can even vary the track width with the oscillating laser beam.

04

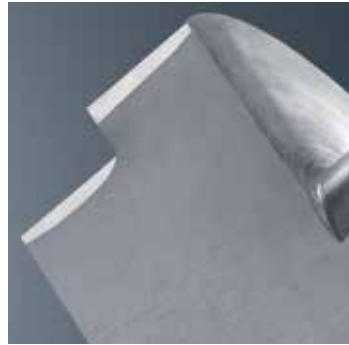
## Monitored quality

The entire process is visualized online on a panel PC with multi-touch operation. Process deviations are reported immediately, which enables quick corrective intervention. The temperature-related data is available to the user through an external interface. This is linked to the identity number of the component for traceability.



**TRUMPF temperature control for the same hardness in every corner**

With laser hardening, the skin of carbon-containing materials like steel or cast iron is raised to just under their melting temperature. During the subsequent cooling phase, a hard metal case develops. A typical application is the laser hardening of tools subject to high loads and strains.



### TRUMPF temperature control

Available lasers	TruDisk up to 6 kW
Available optics	PFO 20-2 post-objective
Available lens focal lengths	560 mm, other on request
Available focal lengths of collimation	80 mm
Measurement range	650–1600°C (with emission factor $\epsilon = 1$ )
Pyrometer measurement rate	6 kHz (167 $\mu$ s)
Temperature controller clock rate	12.5 kHz (80 $\mu$ s)

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