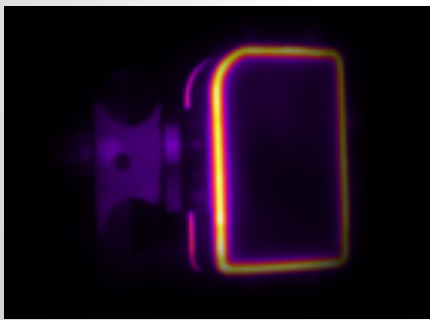


# LPKF TherMoPro

## Thermographic Quality Control System

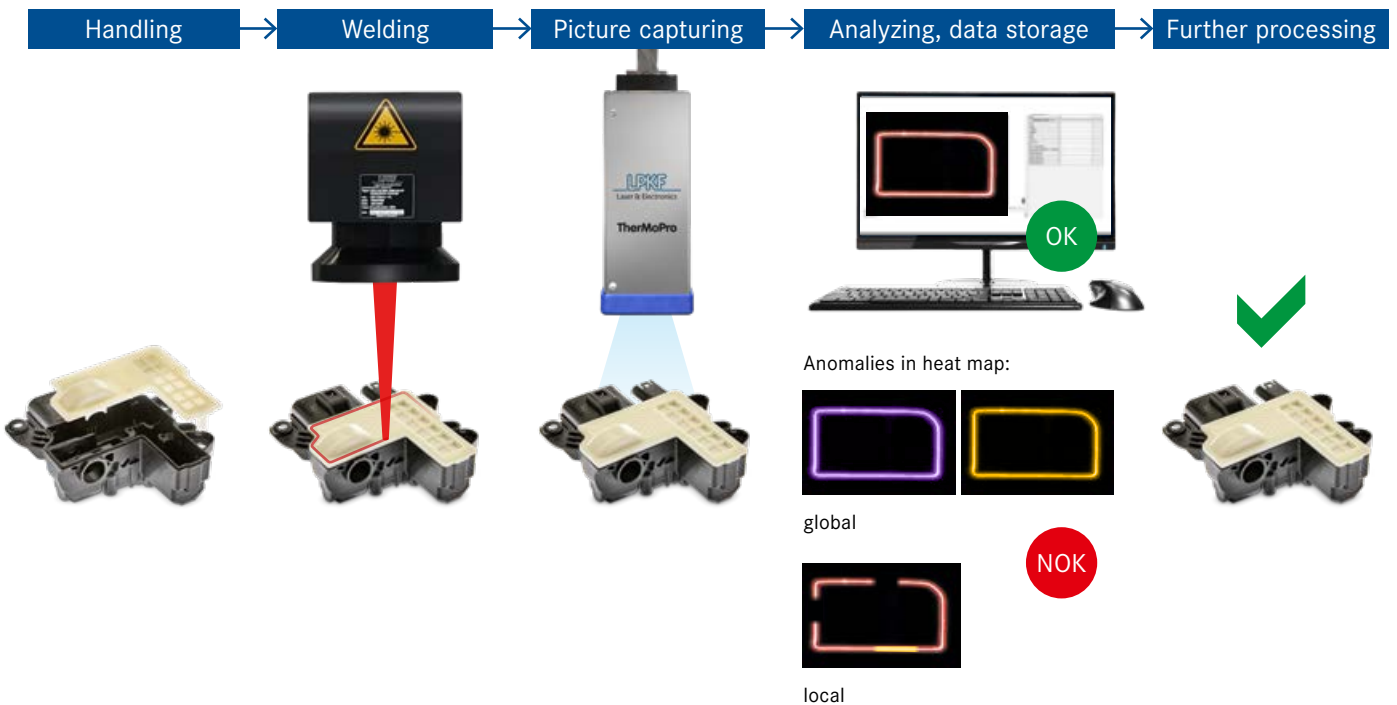
### The Benchmark for Inline Process Control and Quality Monitoring

The LPKF Thermographic Check System – TherMoPro – is the latest innovation from LPKF and can easily be integrated after the laser plastic welding process itself. The Thermographic check systems takes a heat picture of every part after the welding process and transfers it into a heat map. With an LPKF developed algorithm that heat map can be checked and compared to a defined reference standard and defined process limits. This offers a 100% and non destructive quality control for ensuring several quality standards.



### System Advantages and Customer Value

- Safety for process owners: fast setup, none destructed
- Increase product quality and detect failures: Irregularities in housing contaminations, process offsets (worse contour setup, collapse), drift of welding or part contour, irregularities in cover (molding failure, transmittance)
- Correlation to additional process influences: Workpiece carriers, material properties, hot and cold spots in the welding seam.



LPKF TherMoPro enhances the process and product quality and reduces the scrap rate by enabling immediate intervention in case of material and/or process changes.

# LPKF TherMoPro Integration into Laser Welding Systems



Integration in conveyor belt line



Integration in rotary table system



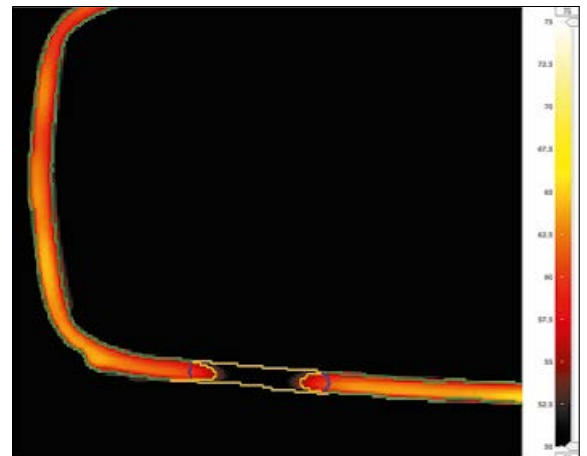
Integration in stand-alone machine

## LPKF Software Solution, including

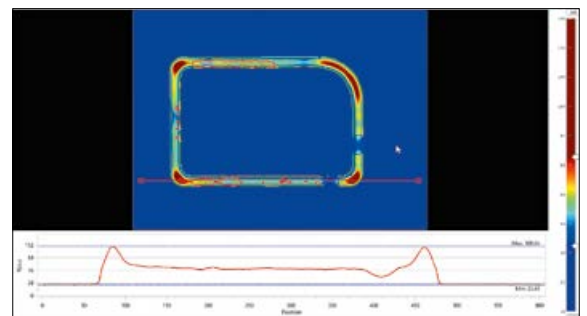
- PLC communication for trigger and traceability
- Automated Contour-finding and statistical analysis
- Export of Results (pictures, data) for each part
- OK / NOK Decision according to type-specified criteria
- Additional functionalities for analyzing particular areas of the heat map

## Why Choose an LPKF System?

- LPKF has extensive application experience in laser plastic welding, thermography systems and software solutions
- Strong collaboration between industrial partners in the context of R&D work
- The right way to analyze the data to get a reliable solution – to avoid false positives or false negatives



Possible example to detect: Interruption in welding rib contour



Support for the process set up: achieving a homogenous heat distribution and support for adjusting scan speeds to optimize the welding process

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