

# THE BEST POSSIBLE COMBINATION?

# A COMBINATION OF ALL BENEFITS FOR THE CUSTOMER!

## 2-STEP LASER WELDING - K3722 LasIR - TURN2WELD

### Process

- With a laser scan, the components are heated on the surface of the welding seam. As with infrared welding, the heat flow moves from the heated surface into the depth of the material, thereby creating a melt cushion. In the separate joining phase the components are then pressure-welded.
- Combination of the process benefits of both focused laser energy input, and of the well-known two-step infrared welding technology. The process is divided into 4 phases: heating/changing/joining/cooling.
- The welding system is equipped with electric drives. Refined kinematics without the need of moving a heating element (like for example required for HP, IR, GAS) allows for rapid change over times between heating and joining (less than two seconds).
- Welding seam lengths from 500 up to 2000 mm are possible, depending on basis material. By adjusting the optical system accordingly, seam widths of 1,5 – 6 mm are possible.
- The range of materials includes standard thermoplastics (e.g., PP, PE, ABS, PMMA) and technical thermoplastics (e.g., PC, PA6, PA66). To extend the weld seam length, use of additional lasers is possible.
- Minimal heat-affected zone thanks to the focused laser energy. This facilitates the placement of component sides, as well as temperature-sensitive components (Electronics, filter fleece, membranes, glued components, laminated leather) close to the weld seam.
- Component variants and/or changes in the weld seam contour are easily adjusted via software – no mechanical changes or reworking, as is necessary with hot plates, IR radiators or hot gas tools is required!
- Fast tool change is possible because no heating elements have to be replaced or pre-heated. Installed are two diode lasers, 450 Watt each. For faster cycle times and automation the machine is equipped with a turn table.



### Monitoring quality

- All designs of concepts for quality assurance and parameter documentation available.
- Depending on machine equipment, the following welding parameters can be adjusted and monitored:
  - Laser power, scan speed, heat-up time, changeover time, joining distance, joining pressure, joining speed, joining- and cooling time.
- Inline monitoring of the entire heating process is possible. Thermovision, the special monitoring solution developed by bielomatik, saves a snapshot at the end of each heating phase.

### Prospects

The new and unique process offers unsurpassed flexibility and variability for plastic welding tasks of all kinds. From experience gained in series production, bielomatik develops the Turn2Weld 2-step laser welding machine, applicable for all relevant plastic materials, and will consistently advance. Thus, we create for our customers the foundation for the widest possible range of applications, with our bielomatik added value and expertise of more comprehensive consulting and service.



### Technical details of further developed K3722 LasIR Turn2 Weld

- Laser scan area: 200x200 mm (1 laser on each side)
- Welding force: 3000 N

