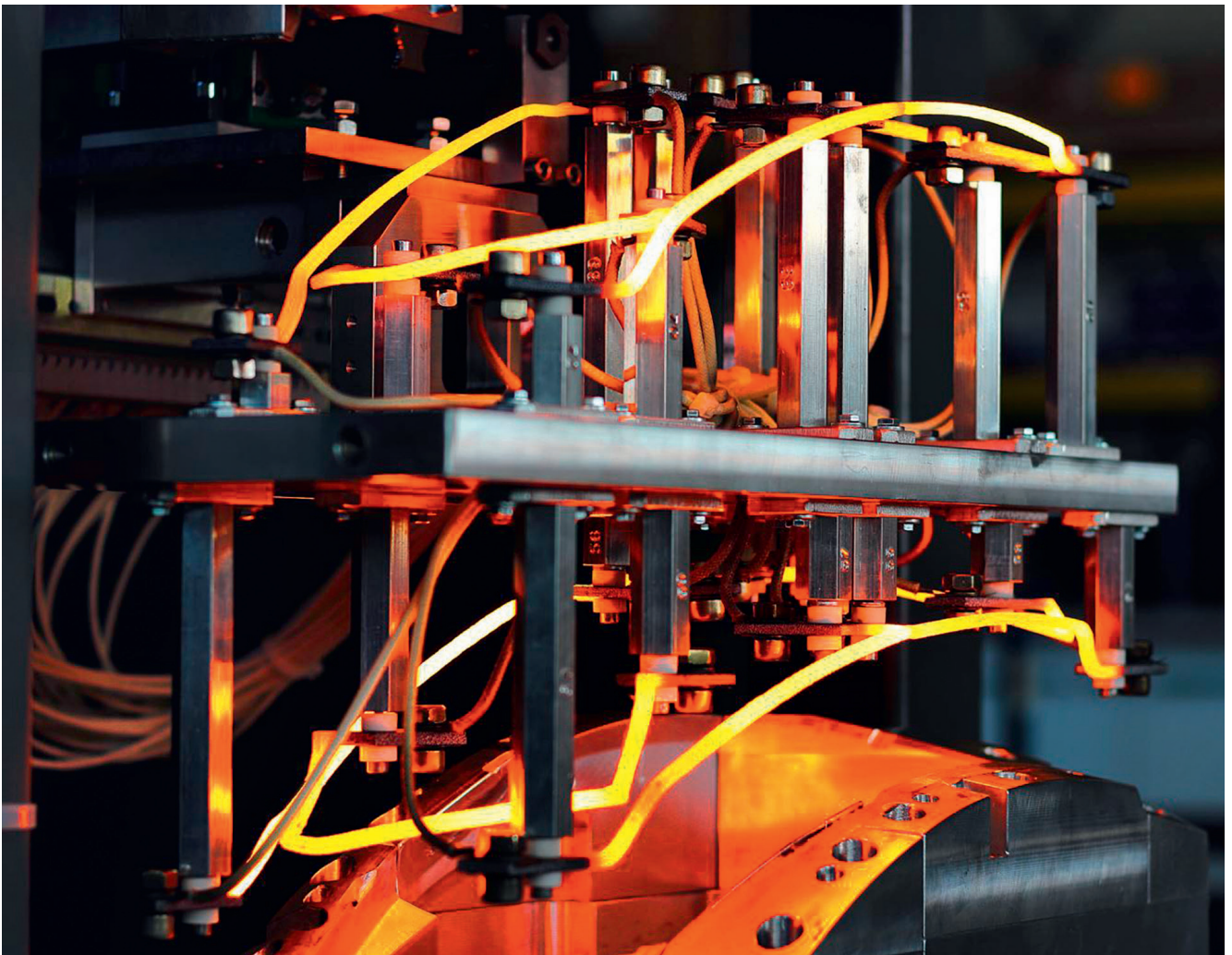


Infrared Welding, Ultrasonic Welding, and Heat Staking

Good Joining Solutions

Suppliers in the joining technology sector exhibited their wide variety of options at K 2022. These ranged from mobile high-tech devices in a case to individually automated machine concepts suitable for high-volume production.



Contactless heat transfer with 3D-printed ceramic emitter. New concept for infrared welding from Polymerge – here used for an automotive tail light. © Polymerge

Many of the manufacturers do not just offer a single technology but provide solutions across the entire process chain. In addition to the actual joining process itself, these solutions also include assembly, testing, and packaging. In this article, **Kunststoffe international** reports on some of the product highlights at K show.

Emitter with High Contour Accuracy

As a contactless process, infrared welding offers undoubted advantages over vibration and hot plate welding. The contactless heat transfer allows particle-free, non-stick welding of plastics.

With its new, patented "InfraMerge" process, Polymerge has launched a revol-

utionary development in infrared welding. For the first time, a 3D printing process is used to produce the InfraMerge emitter. This makes it possible to produce a ceramic emitter in virtually any geometry, which simplifies adaptation to the particular component contours. With operating temperatures up to above 1400 °C, these are very high-performance emitters.

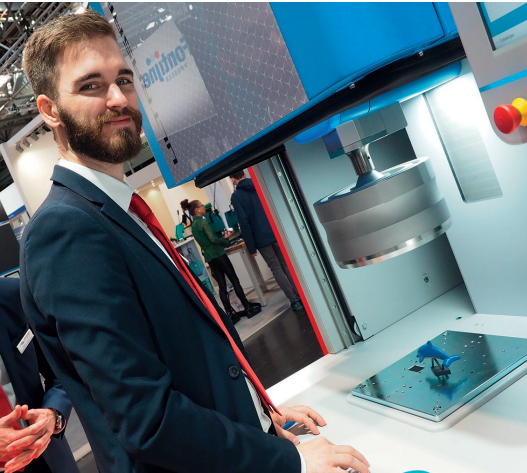


Fig. 1. The ergonomic design of the Ultrasafe offers a larger operating area and greater flexibility. © Hanser/Schröder

With its latest generation of Ultrasafe soundproofed welding machines, Herrmann Ultraschalltechnik offers an ergonomic workstation with a larger operating area and flexibly adjustable lifting door. The unit provides a protected work environment in which components can be welded safely in the shortest possible time (**Fig. 1**).

Ergonomic Workstation

Instead of having a narrow viewing window, the entire front side of the Ultrasafe with a very large viewing window lifts up to provide a significantly larger working area. This affords new flexibility for operation and loading, and for changing the tools and cleaning. An electrically height-adjustable work table can be optionally ordered. This allows the workstation to be adapted quickly and individually to the body size of the user.

All-in-One Machine for Punching, Embossing and Joining

Frimo offers a wide range of technologies. It is always exciting when several processes are combined in a single unit. A good example of this is the CombiCut, which is used for the production of exterior components.

The part, such as a bumper, is loaded by the operator onto an ergonomically designed sliding carriage. After the cycle is started, the part is moved into the punching position. During the punching

and radius embossing operation, the CombiCut can be loaded with attachments, such as parking assistants, fog lamps or tow hitch openings. These can then be attached to the punched part in a separate joining station by adhesive bonding or ultrasonic welding. If necessary, the part can be repositioned before joining.

Joining Electronic Components to PC Boards

One of the highlights on the Emerson stand was a Branson GPX PulseStaking platform for heat staking (**Fig. 2**). The GPX range, which consists of three standard machines and a handheld unit, permits greater design freedom. This makes it possible to join more complex, delicate components to plastic moldings. The unique, instantaneous heating/cooling process is designed to meet today's increasingly challenging applications. These include parts made of dissimilar materials with complex 3D geometries, closely spaced features, and fragile or heat-sensitive components. Examples of such parts include soldered components or sensors, as well as parts incorporating a number of blended, glass-reinforced, chrome-plated or metallized plastics.



Fig. 2. For low energy consumption – the Branson heat staking platform. © Emerson

The advantages of the PulseStaking process come into their own particularly for applications such as medical devices, motor vehicle interiors and exteriors, electronics, and PC boards, as well as many other uses.

Laser Welding System for Large Components

The new Maxi laser welding system from Leister is universally suitable for laser welding large components such as headlights or bumpers. The system can



Fig. 3. View of the laser welding workstation from Leister – equipped with a 6-axis robot at K show. © Hanser/Schröder

also be used in the textile industry to weld waterproof outdoor clothing. Its modular design allows it to be adapted to individual customer requirements. At K, the workstation was equipped with a 6-axis robot (**Fig. 3**). In addition to the drawer version, the system is available with a rotary indexing table or for transfer belt applications. ■

Susanne Schröder, editor

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