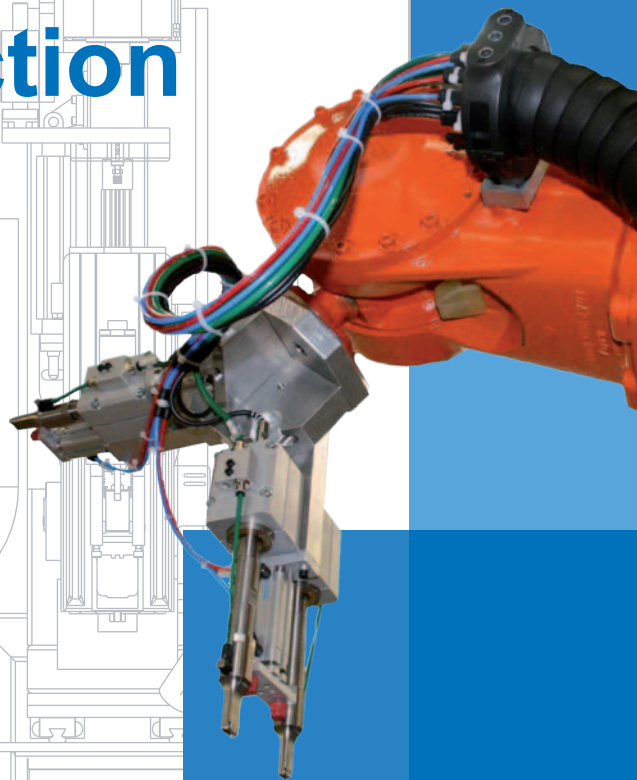


Flexible Production

Ultrasonic Technology

Robot Cells



Flexibility in production

Robot cells combined with ultrasonic technology

Flexibility in production is achieved by state-of-the-art robot technology in conjunction with highly developed ultrasonic equipment. Using its experience from projects already successfully completed, SONOTRONIC has the know-how to develop advanced robot solutions for small series runs as well as flexible production solutions on a large industrial scale. There are different ways efficiently to combine robot technology and ultrasonic processing.

Robots as means of transport

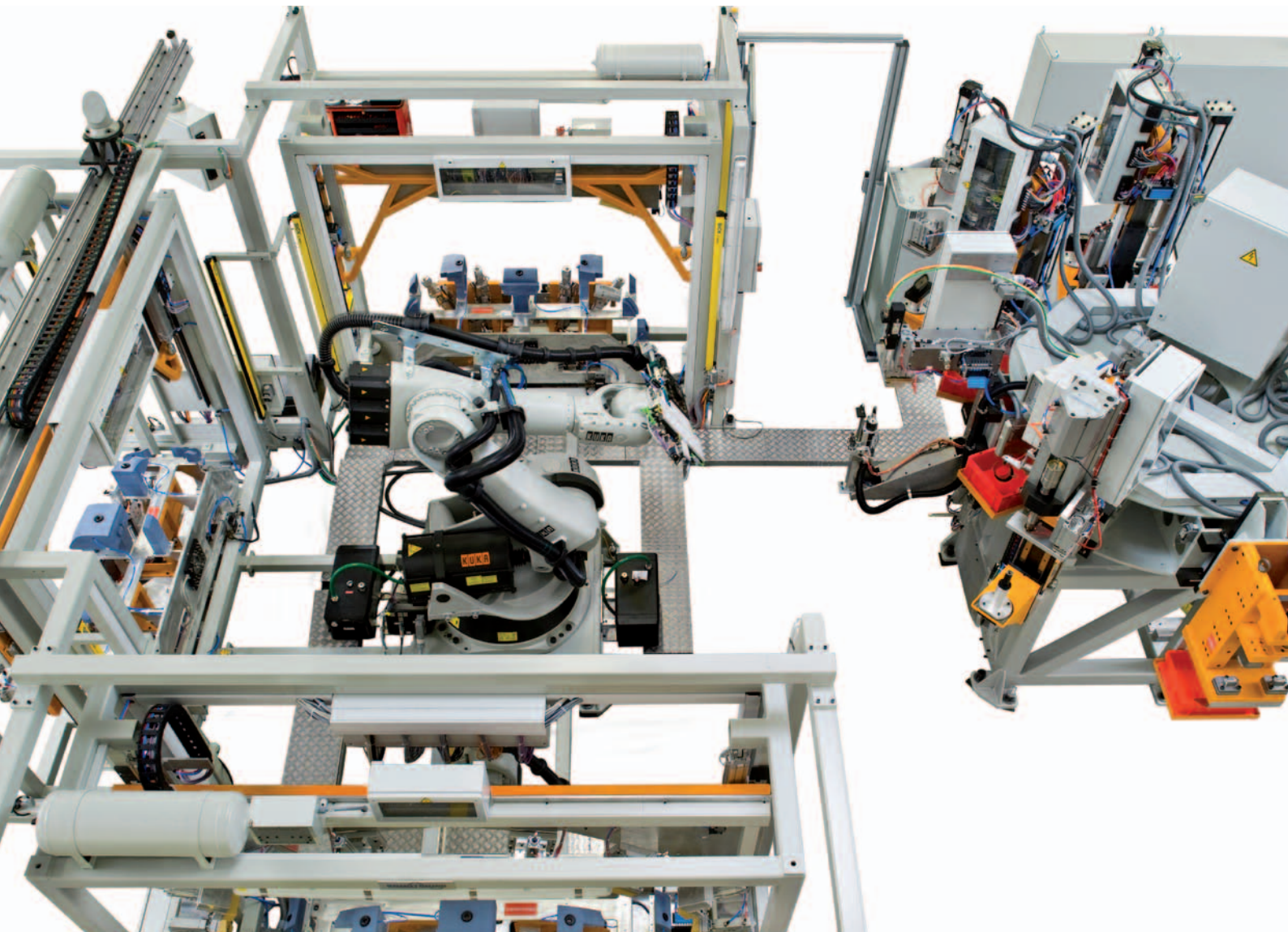
One possibility is to load and discharge the work pieces automatically, using robots. In this particular case the robots transport the work pieces to the processing areas where they are welded or punched by ul-

“Unbeatable flexibility: ultrasonic technology and robotic cells.”

trasound. A special coupling system on the robots, rapid tool changing and individual programming therefore make for flexible production: different applications can be executed on different work pieces on one single system.

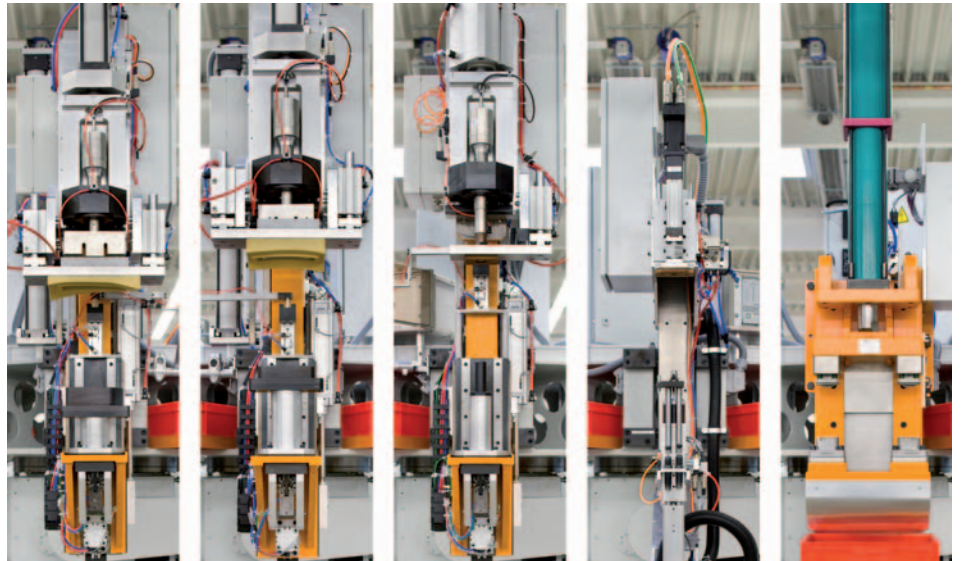
Robots as tools

On the other hand, robots can also be used to process work pieces directly using ultrasonic technology. In this case, the ultrasonic welding or punching tools are fixed directly to the robot arms, whilst the work pieces are positioned in the holders provided. A variable holder design coupled with rapid tool change and individual software programming also provide production flexibility.



Ultrasonic applications in robot systems

Almost all fixed ultrasonic applications, such as surface welding, ultrasonic riveting, cutting or punching, can be flexibly reproduced in robot systems. When there is a production change the individual ultrasonic work stations and tools can simply be replaced or adapted. It is also possible to achieve application combinations with identical ultrasonic technology.



Different tools for machining different types of bumper. If there is a change in series production, only the tools need to be changed in the case of flexible production using robotic cells.

Ultrasonic technology

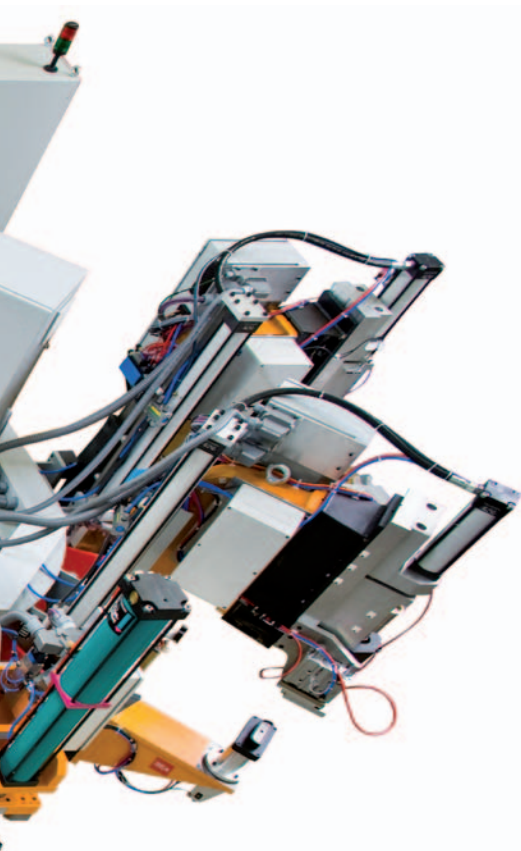
Ultrasonic is an innovative technology with many different applications in various areas. Because of its technical advantages, ultrasound is replacing many established technologies. Ultrasonic technologies are not only quick and efficient but also extremely eco-friendly for processing thermoplastics, films and fabrics. The principle of the technologies is based on the generation of internal heat

by ultrasound in the join or separation zones of thermoplastics. With untrasonic, thermoplasts can be welded, punched or riveted.

“Innovative technology – SONOTRONIC sets standards”

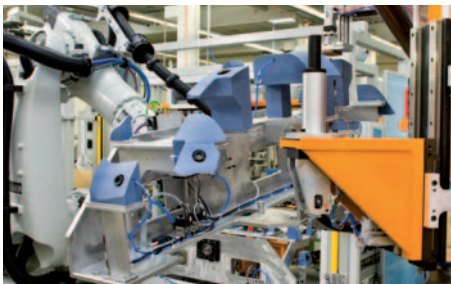
Shorter process times with ultrasonic technology

For joining and riveting applications, up to 50% shorter process times can be achieved with ultrasound, compared with purely thermal methods. Also, machines based on ultrasonic technology require no heating up time.



Applications

Convincing machine concepts



More and more customers specifically from the automotive industry rely on flexible manufacturing and SONOTRONIC's ultrasonic technology.

Applications

- Ultrasonic welding, ultrasonic roll seam welding, ultrasonic cutting, ultrasonic punching, ultrasonic riveting and ultrasonic embossing
- Thermoplastics
- Applications in all sectors

Characteristics and advantages

- Processing flexibility
- Economic, automated production even

of small batches (for example, spare part production)

- Different variants of robot installations, for example:
 - Robots for loading and unloading the work pieces automatically
 - Robots equipped with special fast coupling systems for loading and unloading different work pieces automatically
 - Robots equipped with ultrasonic tools for processing work pieces, which are already in holders
 - Flexible production solutions on a large industrial scale

SONOTRONIC

Linked with success.

Since the company was established in 1974, SONOTRONIC has successfully designed and produced systems and components for joining plastics, based on ultrasonic, heating element and laser technology. Over and above this, we use the advantages of these forward-looking technologies to find optimum solutions for other applications as well.

With a powerful team of qualified employees, we implement new ideas reliability and consistently. In so doing, we work closely with universities, research institutions, institutes and associations.

Today, our products are used in many different areas, i.e.:

- Automotive industry
- Packaging industry
- Food industry
- Textile industry
- Environmental technology
- White goods industry
- Electronic and electrical engineering
- Medical technology
- Special applications

Through our branches and partners, we are internationally represented and offer a worldwide service.



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