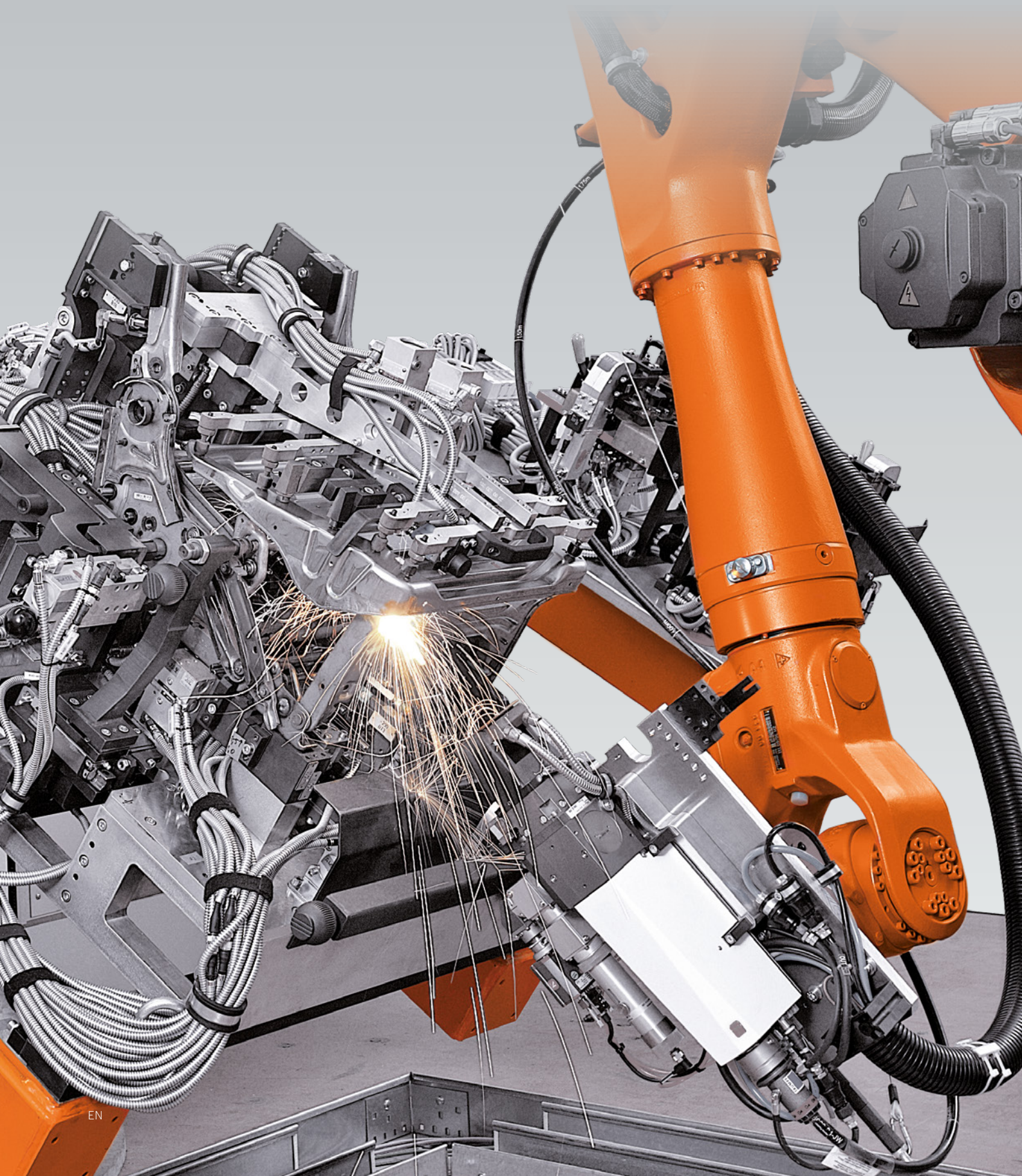
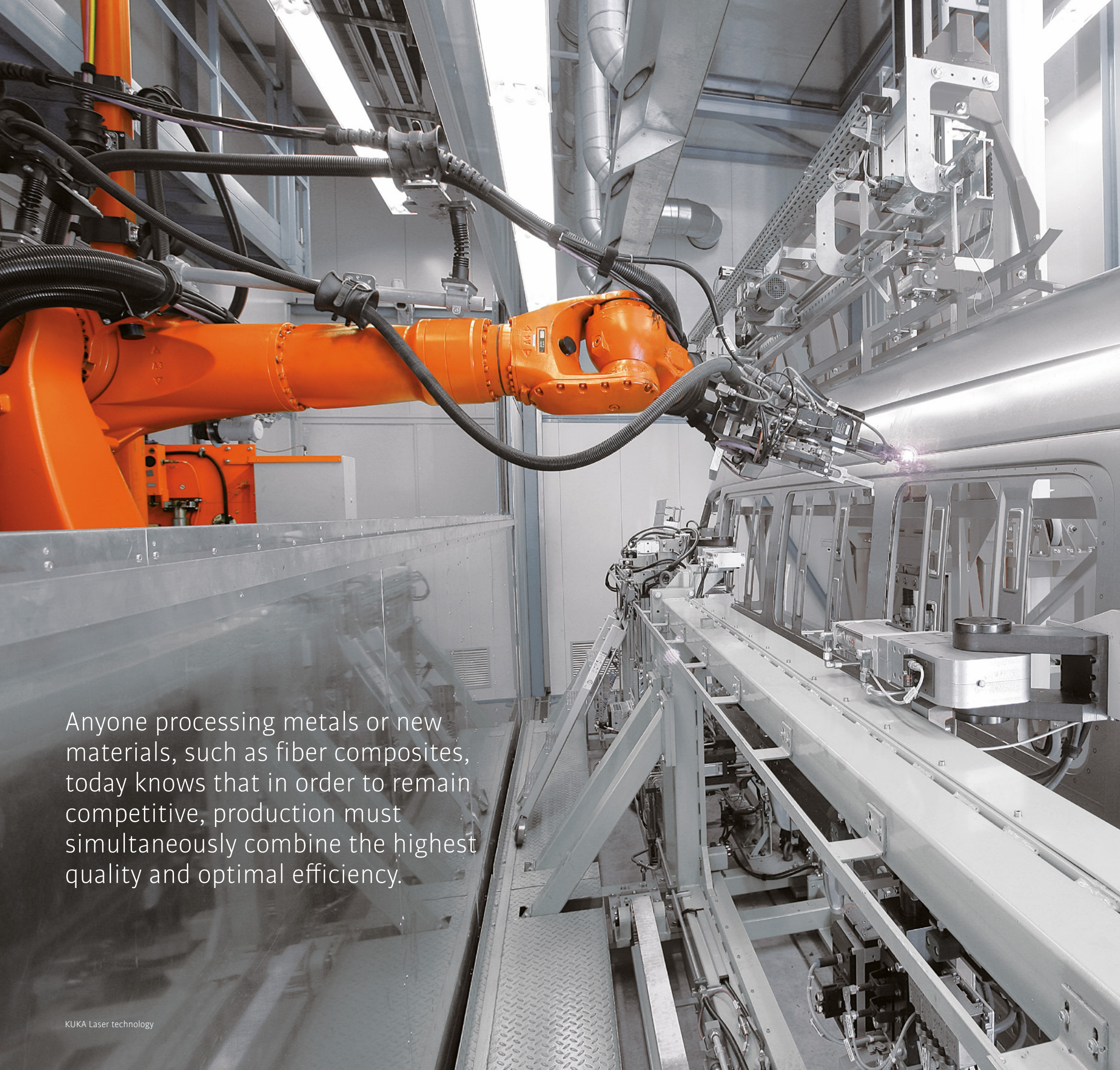


KUKA



Joining Solutions_Laser technology





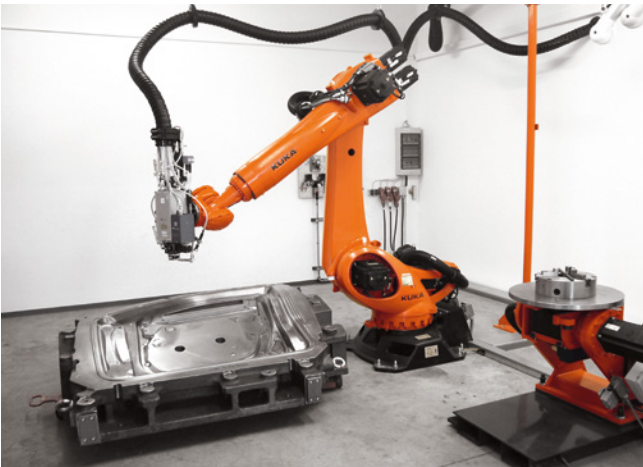
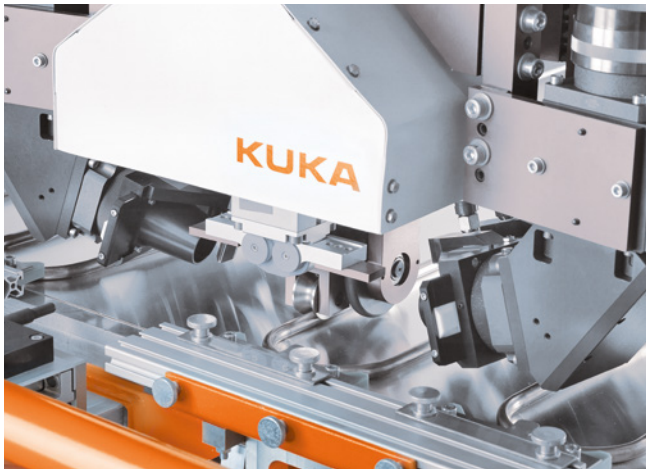
Anyone processing metals or new materials, such as fiber composites, today knows that in order to remain competitive, production must simultaneously combine the highest quality and optimal efficiency.

Components, compact cell, modular robotic cell or fully automated laser machining system? KUKA Industries offers you every kind of production technology. Also in combination with other joining technologies such as gluing and sealing or spot welding. Precisely tailored to your requirements and seamlessly integrated into your manufacturing process. At KUKA Industries, the primary focus is on your product – from the outset. This is why KUKA Industries not only provides you with just the right laser beam source, optics and fixture you require to achieve maximum product quality, but also everything else, from consulting and design right up to the complete turnkey system. With our comprehensive expertise in the field of automation, we also take logistics, ergonomic requirements and building constraints into consideration, for example, as well as any other framework conditions that are important to you.

In order to reduce development times and safeguard investments, we plan virtually first of all. For this purpose we map models of products and system in the digital factory in 3D. So the integration of new components and their interplay with already existing systems can be checked. This way, even a part of the real commissioning can be brought forward to the digital model world. Due to the offline programming every layout idea can be checked immediately. The steps of the production planning are simulated, evaluated, and safeguarded, long before installation. Offline programming offers a high saving potential since the system has to be interrupted for a short time only for teaching the new programs and for fine adjustment, even in day-to-day production. Thus, the setting time can be reduced and non-productive standstill times are minimized.

KUKA Industries is your supplier for robotic laser machining.

There is only one measure of the quality of a laser system: the quality of the products it manufactures.



That is why questions regarding the product, batch size and framework conditions are of central importance to KUKA Industries. From process validation and prototype construction to contract manufacturing, KUKA Industries supports you in the development and production of components and assemblies. We use our in-depth understanding of processes, accompanied and supported by testing, to choose the most appropriate process for your applications from a technological and economical point of view. This way, you can be certain that your requirements are incorporated into the system right from the outset and that the best solution will be created for you from a wide range of technologies and components.

Laser welding

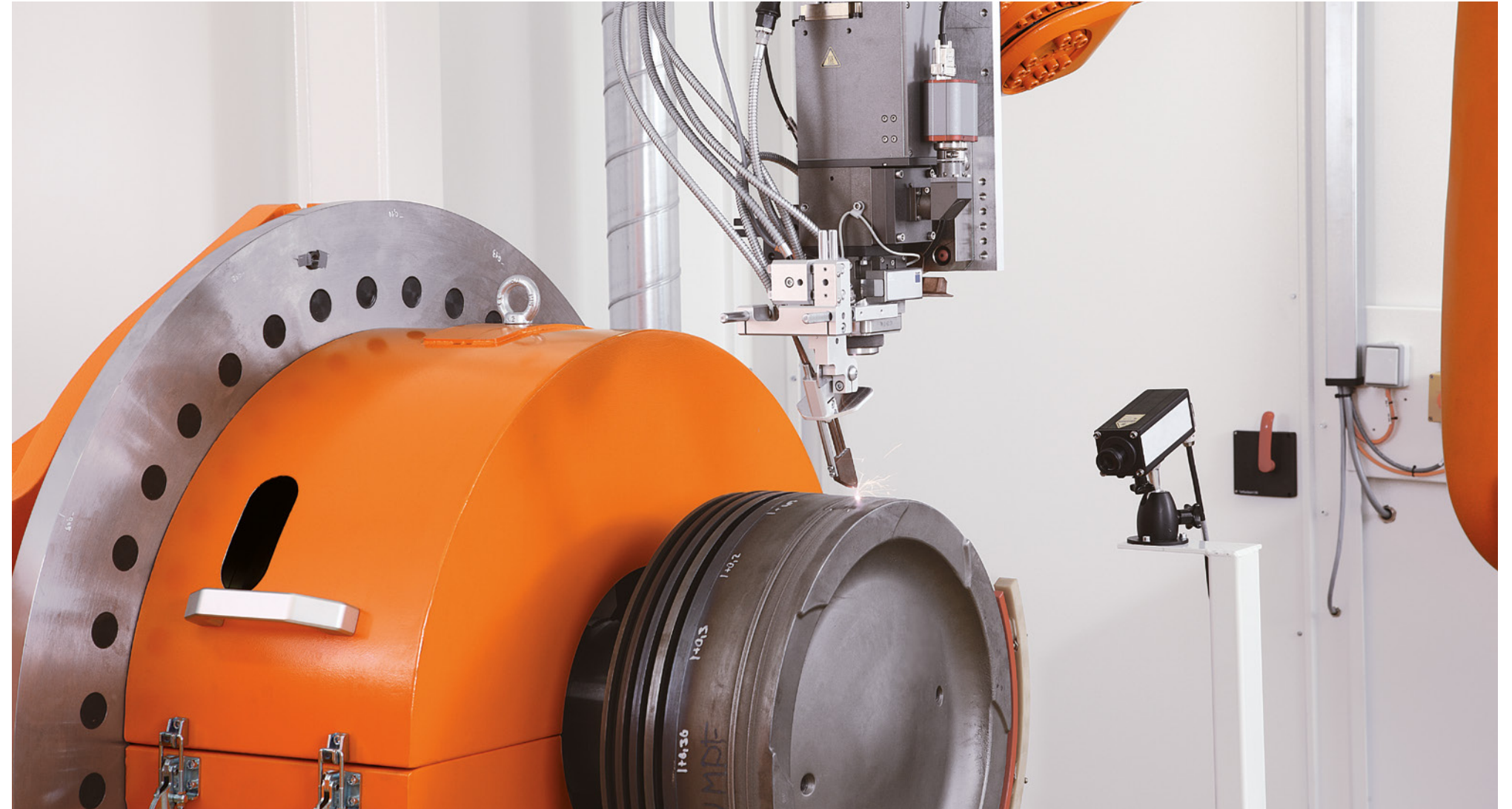
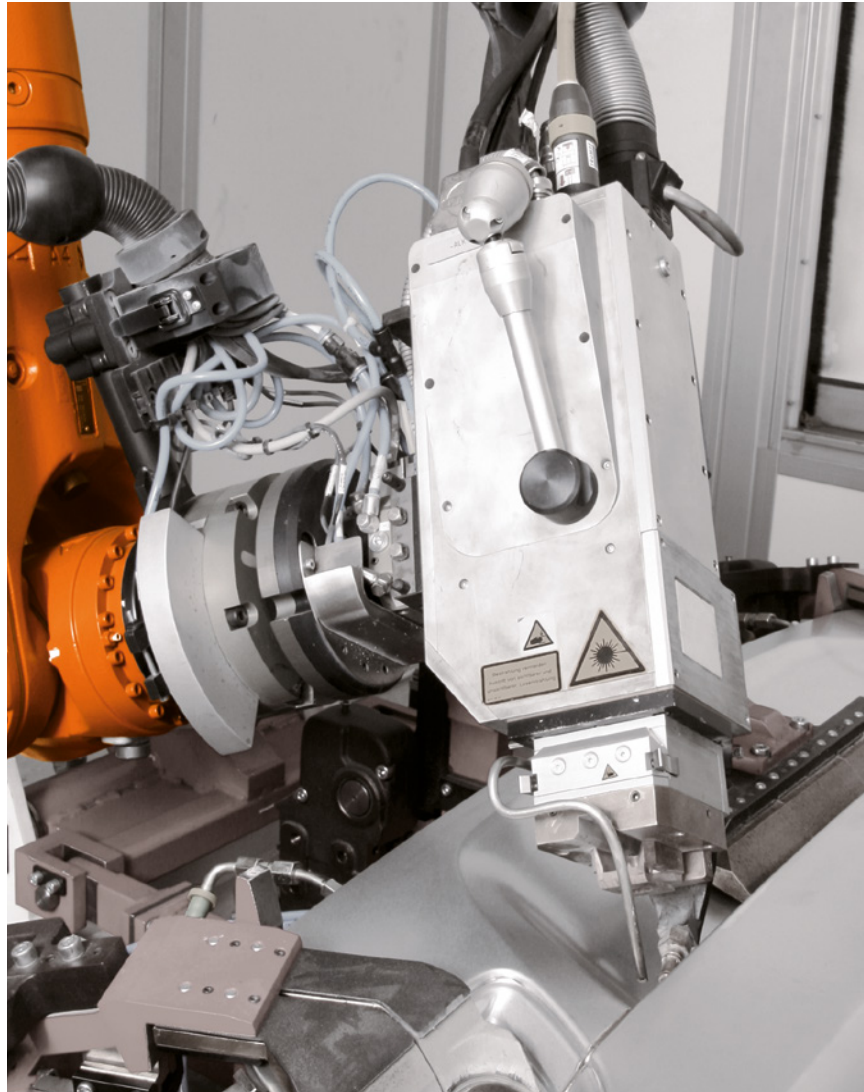
- High-quality, visually appealing weld seams
- Large welding depths
- Low heat input and thus low component distortion
- High process speed
- One-sided seam access possible
- Wide range of design options
- Fast and efficient

Remote welding

- Low production costs in mass production
- Shorter cycle times due to extremely fast repositioning
- Simple programming via a single system
- Variable working distance with a focal length of up to 1.5 m
- Simple machining of large-size parts thanks to the large workspace
- High utilization ("on" time) of the laser source
- Complex seam geometries possible

Laser hybrid welding

- Combined advantages of laser and arc welding technology
- Higher process speeds than with arc welding
- Lower heat input, reduced distortion
- Improved tolerance compatibility and gap bridging
- Simplified weld preparation
- Improved weldability of aluminum
- Improved mechanical properties of the weld

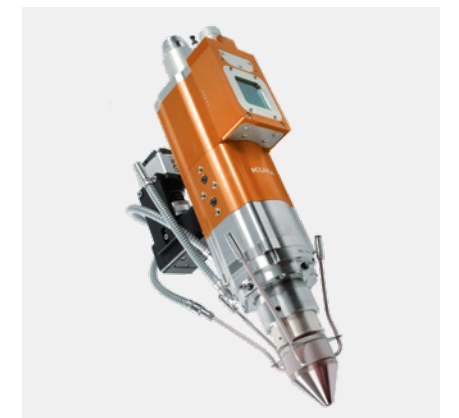


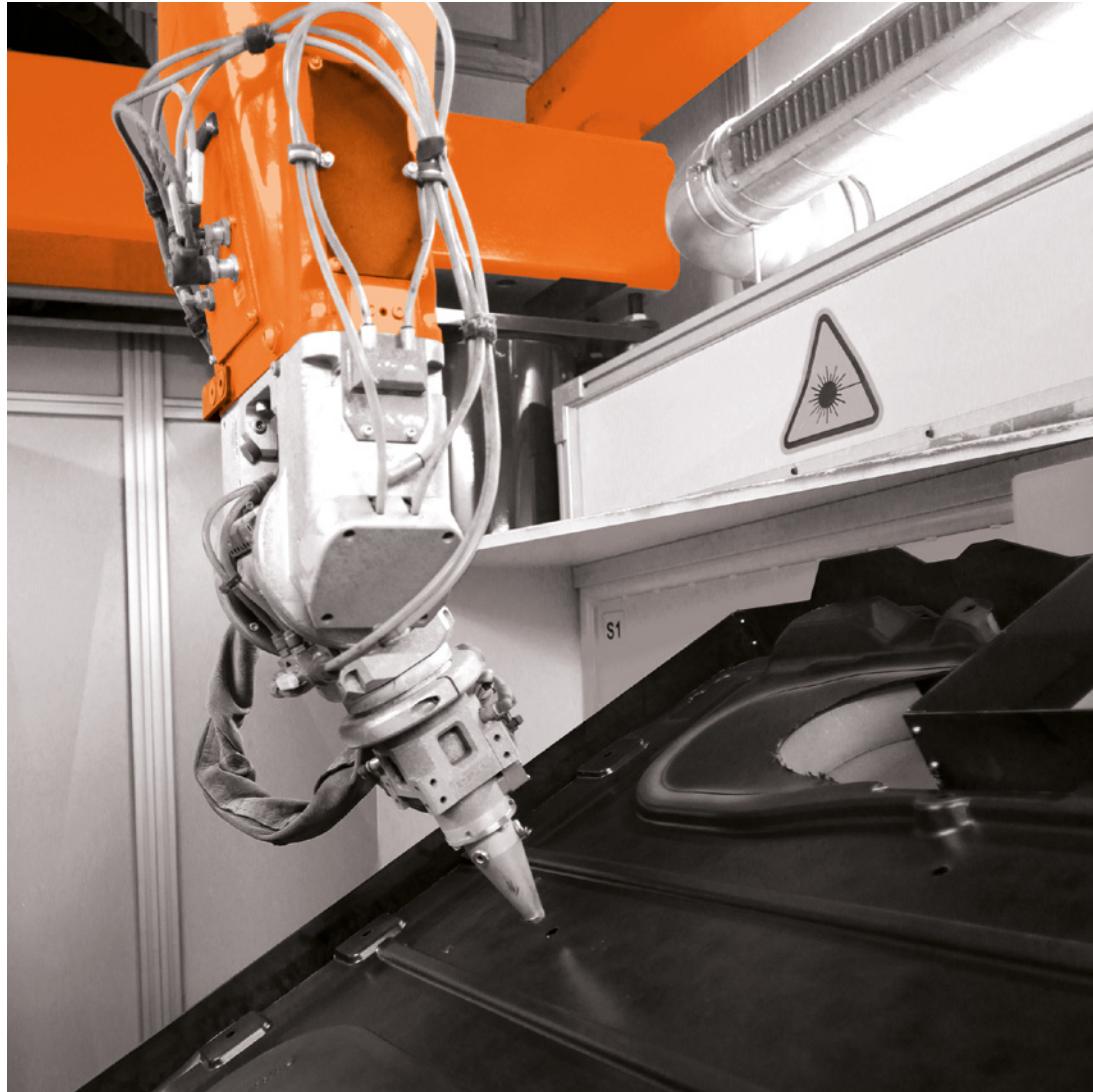
Laser brazing

- High process speed and low heat input
- Paintable welds, without reworking
- Fewer limitations caused by zinc coating
- Seal welding possible
- Harmonious workpiece transitions with visible welds possible
- Good gap-bridging qualities
- No microstructural change

Laser deposition welding

- Flexibility and new manufacturing options
- Repairs in the fields of turbomachinery and tooling
- Targeted application of wearing and functional layers
- Generative manufacture of machine elements
- New combinations of materials possible
- Inner and outer coating possible





Laser and Automation = KUKA



Vehicle bodies, aircraft components, facade elements, stainless steel housings ... Whatever you want to join or cut, KUKA Industries has the technology you need. For welding, brazing (with cold/hot wire), laser hybrid welding or cutting: KUKA Industries plans and implements systems with all laser machining processes for you according to your specific requirements. We also offer far more on request: for example, automatic component handling, camera-assisted weld seam inspection, logging of weld parameters – all the way up to fully integrated manufacturing systems in which the laser application represents just one part of our comprehensive manufacturing expertise. We look forward to hearing about your application requirements.

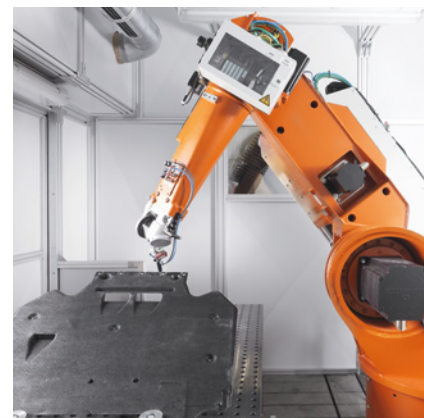


When it comes to customized complete solutions: only the best will do

A manufacturing system for laser machining consists primarily of the following process components: laser beam source, optics (including beam guidance system), robot, laser-compatible component fixture, cell and safety controllers, and a safety booth. Additional modules e.g. tool changing systems, multiple-axis positioning devices, external axes, seam tracking and process sensors, or various loading and maintenance doors, can be simply integrated into the system.

Laser cutting of metals and plastics

- Flexible and fast 3D machining
- High flexibility resulting from free programming
- Simple variant production
- High cutting speed
- Narrow kerf
- Clean cut edges
- Little reworking necessary
- Wear-free
- No reaction forces on the component and fixture
- Available for CO lasers and fiber-guided lasers



From the component to the system KUKA Industries is prepared for Industry 4.0

Even higher productivity can be reached by complete integration of all components in your production network. This will require open interfaces and an intelligent control. As manufacturer of flexible systems for automatic production KUKA Industries has the experience and competence to develop and realize process-safe and economically successful complete solutions. In order to design new working worlds both highly productive and to the benefit of the employees KUKA develops central key technologies: collaborative robots, mobile assistance systems, autonomously controlled vehicles and intelligently linked automation solutions supporting people in their work environment and relieving them in numerous ways.

Laser equipment from KUKA

The solution for your requirements

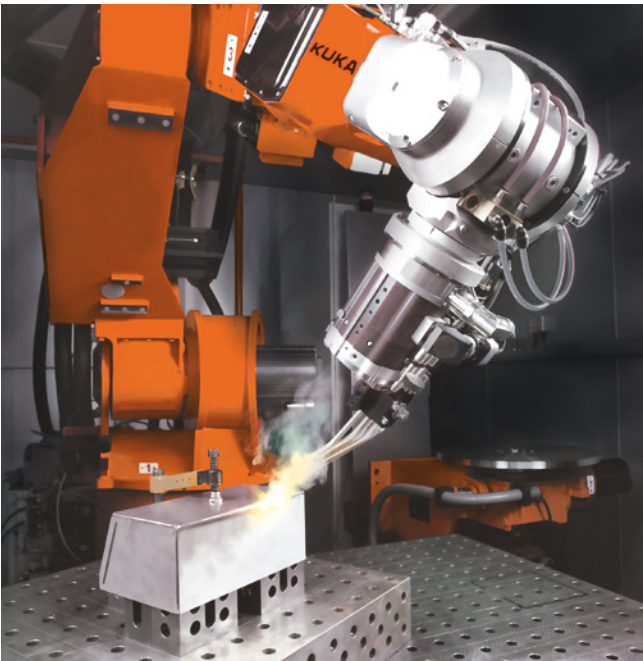
KUKA Industries offers laser optics developed and manufactured in-house. They are optimally adapted to the application in conjunction with our kinematic systems.



Laser safety
In addition to our own optics, we also offer safety components for the laser equipment, e.g. the LaserSpy© for safe monitoring of double-walled laser safety panels.



Optics for industrial laser machining



KUKA Industries – Your global partner from engineering to service

Long before the first workpiece passes through your application, we support you with our know-how.

Consultation, planning, engineering, implementation ... all the way through to complete customer service – all around the globe. We know what you need and have the right solution ready for you. One of the ways we ensure this is through our unique KUKA TechCenter. Our engineers carry out feasibility investigations and test the practicability of innovative concepts.

Of course, the best kind of service is the kind you don't need to waste any words about because everything functions perfectly. KUKA Industries offers you exactly this kind of service – and it doesn't just start with maintenance and end with spare parts: from process and system training to comprehensive concepts for supplying and stocking spare and wearing parts, not forgetting maintenance, servicing, telediagnosics and hotline support.



We can be found locally all over the world:

Argentina	Malaysia
Australia	Mexico
Austria	New Zealand
Belgium	Norway
Brazil	Poland
Canada	Portugal
Chile	Russia
China	Sweden
Czech Republic	Switzerland
Germany	Singapore
Hungary	Slovakia
France	Spain
Great Britain	South Africa
India	Taiwan, China
Italy	Thailand
Japan	Turkey
Korea	USA

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