





Sound, pragmatic and flexible

Our Motivation: The optimal solution for your joining problem

Through new joining processes, innovative products are made possible in the first place. Optimizing existing joining processes to improve quality, reduce throughput times and cut costs: This is what we aim for in our daily work.

Hands-on consulting based on science

The basis for our hands-on consulting is rooted in solid scientific expertise. Thanks to our close cooperation with the Institute for Welding and Joining Technology at the RWTH Aachen University, we not only have access to joining expertise and a state-of-the-art joining technology laboratory but also remain very close to cutting-edge research and developments in welding and joining technology.

Overview for selection, expertise for depth

As a team of specialists with a focus on various welding and joining processes, we maintain an objective overview of the big picture right from the start. Once the optimal joining process has been found, our specialised know-how is applied: Specific knowledge that our experts have built up and continuously refined in many projects.

Objectivity needs independence

As a joining technology consulting company, we operate independently of all system suppliers. Only in this way can we ensure the absolute objectivity to which we are committed.

Non-bureaucratic and fast

We are also independent in other respects. In our cooperation with the Institute for Welding and Joining Technology at the RWTH Aachen University, we remain economically independent. This allows us to act flexibly and entrepreneurially – without any applications or approval procedures. Show us your problem and we will work on the solution. That's how simple joining expertise can be.



FEF
Besser fügen.



Finding the best solution

The optimal joining process for your application

As an expert in your domain, you develop sophisticated products and components. The further you drive progress in your field, the higher the demands on your joining technology.

Selecting the optimal joining process

As specialists for joining processes, we work with you to analyse the requirements arising from your products or components. In doing so, we take into account internal company restrictions as well as upstream and downstream production steps. Our diverse and far-reaching experience, as well as our long-standing contacts to manufacturers of joining systems, enable us to evaluate technologies and machines in a well-founded manner.

Test series instead of dull theory

We don't rely solely on the theory, technical specifications and promises of the manufacturers. We have well-equipped laboratories at our disposal. Here we test the selected joining process and adapt it to your requirements, if necessary.

Development of new joining processes

An "off-the-shelf" joining process doesn't always meet all the requirements arising from your task. In this case, basic work is required first. Together with our research partner, the Institute for Welding and Joining Technology at the RWTH Aachen University, we are working on developing new joining processes from the ground up and bringing them into operation together with you.

Partnership-based support until production is up and running

We see ourselves as your partner for joining technology and don't leave you alone after process selection or development. We contribute many years of hands-on experience to the preparation of investment decisions as well as to the implementation of joining processes or the training of your employees.



Fitness for joining processes

Better, faster, lower-cost: We optimize your joining processes

Many joining processes have been running for many years and have proven themselves in daily operation. However, technological development hasn't stopped there, and even established processes can be improved. Changes in general conditions and requirements can lead to the fact that formerly good joining processes no longer deliver satisfactory results.

Small changes, big effects

Even small changes to your joining processes can have a big impact on your results: Better quality, fewer rejects, faster throughput times or lower costs give you valuable advantages in an increasingly tough competitive environment.

Addressing the right issues

In order to develop the right fitness program for your joining process, we discuss goals, framework conditions and restrictions with you. Considering the current situation, we can quickly identify where we need to leverage in order to achieve rapid and sustainable improvements.

Experiments without touching your running operation

For optimizations, experiments are sometimes necessary first. In order to not interfere with your production, our experts carry out these experiments in our laboratories. It offers a realistic environment for almost all joining processes. In this way, we can verify the planned actions before we make changes to your important production processes with you.

Implementing recommendations until everything runs smoothly

Together with your experts for your components and production processes, we implement the developed and tested actions. We support you until your joining process works in the optimum of quality, throughput time and costs. Because we only regard our work as completed when the optimised joining processes in your production run smoothly.



Ensuring that everything runs smoothly right from the start

From laboratory to production: Implementing joining processes

When you introduce a new joining process, in most cases this cannot be done without affecting your production. In order to keep your production downtime as short as possible, we put your new joining process and its parameters through their paces in the laboratory before introducing it.

Because of our cooperation with our research partner, the Institute for Welding and Joining Technology at the RWTH Aachen University, we have access to modern equipment for almost all current welding processes and joining techniques. In individual cases, we even have set up and adjusted new welding systems for our customers in our laboratory before they were finally delivered. Because we want everything in your production to run smoothly right from the start.

Independent support until the joining process runs like a clockwork

As independent experts without manufacturer commitment, we support you during the entire introduction. Because a new joining process rarely can be integrated into your production at the push of a button, even with extensive previous tests.

Our employees have many years of experience, so they can quickly and reliably identify the causes of any problems that may arise. In most cases, such start-up difficulties can be overcome by making targeted adjustments to the parameters. Sometimes, however, modifications to the hardware are necessary. Then we are in a position to communicate with your system manufacturer at eye level. Our good contacts to almost all leading manufacturers help us to quickly arrive at technically sensible solutions.

What really matters: The whole package of man, machine and technology

A new joining process usually leads to new demands on the people who work with it. That's why we involve your employees in the implementation right from the start. If required, we train them in background knowledge of the process, its parameterization and its future application possibilities.

Today, modern joining processes only work perfectly with the right automation. With our experience in handling complex joining process data, we support you in setting up the right automation environment. With the right digital perspective, you can ensure transparent processes and thus create real added value for the control of your production.

We are convinced: Stable and efficient production ultimately depends on the complete package of man, machine and technology.



Deciding for profit

Preparing and supporting joining technology investments

Investments in new joining technologies are decisions of enormous importance for your future competitiveness. Joining technology investments have a long depreciation period and must therefore not only meet current requirements but also be prepared for future developments. As specialists in all common joining processes, we support you in this important decision.

Determining requirements

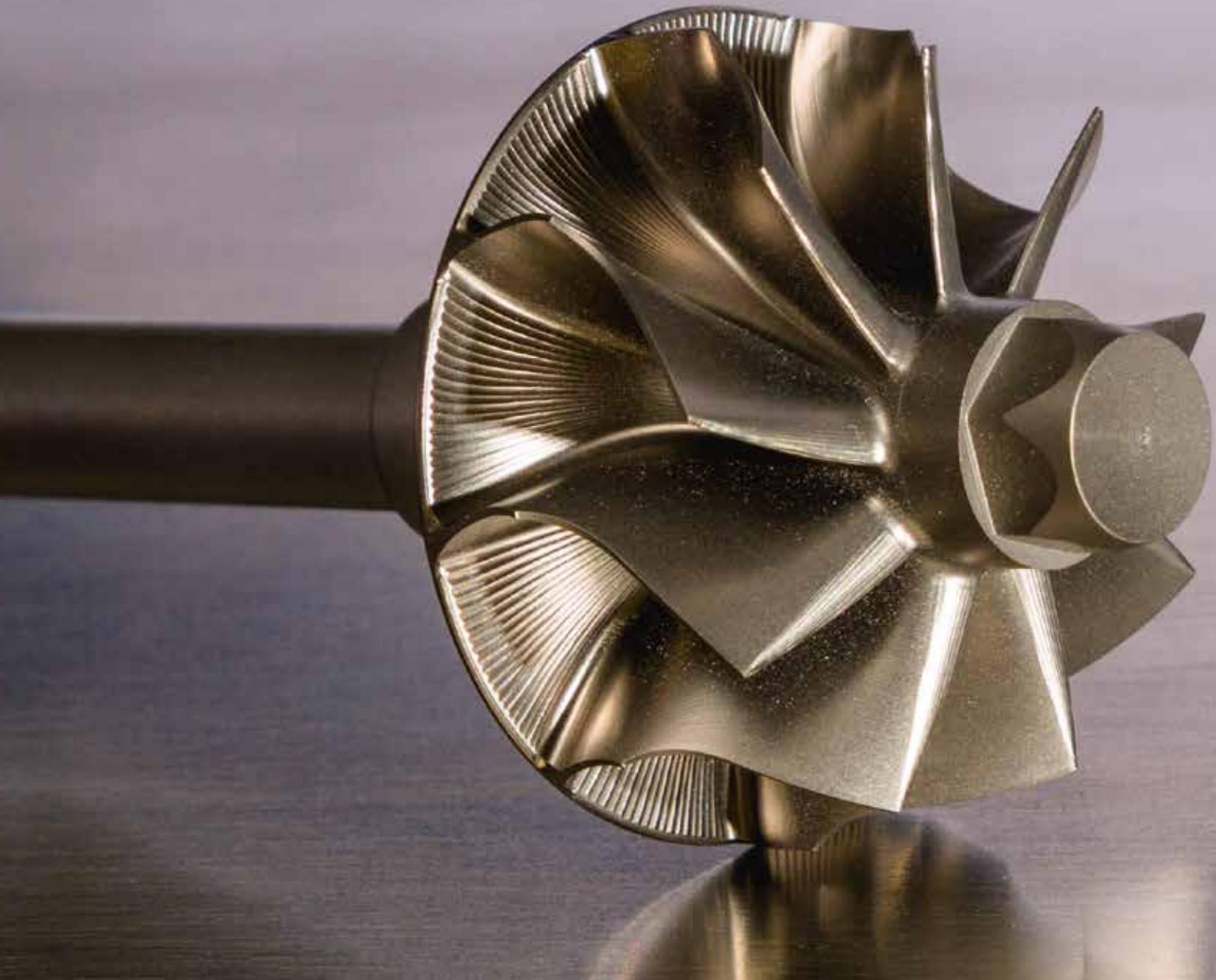
In order to evaluate your investment alternatives, the requirements for the new plant equipment must be clearly formulated. Demands of today must be considered as well as demands of the future. Together with you, we examine the joining requirements of your products and components and examine the interfaces to upstream and downstream production steps. We always keep an eye on technological trends and developments so that your investment is prepared for the future. The result of this process is a clearly formulated specification that serves as the basis for enquiries to system manufacturers.

Comparing in detail

Offers from system manufacturers in welding and joining technology often differ only in small details. However, often these fine differences determine the technical suitability for your specific requirements. Our many years of experience help us to compare the offers of different plant manufacturers on a technical level. If necessary, we communicate with the suppliers and obtain missing information. Moreover, we are 100 percent manufacturer-independent and solely committed to your success. As a result, we provide you with a decision template that takes into account all aspects of the previously drawn up specifications, takes follow-up costs into account and considers opportunities and risks for future developments.

Supporting the introduction

With a decision template, we don't consider our work done. During the implementation of joining processes, we support you until the plant has been put into operation and is running faultlessly. With workshops and individually designed training courses, we ensure that your employees make optimum use of the system. We accompany the running operation during the first time after the introduction and make minor adjustments. With regular check-ups, we can ensure that you can permanently exploit the full potential of your new plant.



Tangible proof

Proof of Concept with prototypes

When joining processes are introduced or revised for the first time with new designs, a residual risk can never be completely ruled out. With our prototype production, we prove the feasibility and quality of the joining process so that you don't experience any nasty surprises at the start of production.

Close to the welding process

In our test field, we are very close to the welding process during prototype production. We transfer the parameters determined during process development to your prototypes with the greatest care and under constant supervision of experienced engineers. With the wide range of analysis options on our test facilities, we identify any weak points at an early stage and continue to optimise the process.

Scientifically sound results with practical relevance

In prototype production, we leave nothing to chance. We define the parameters of the joining process in advance in a structured manner and check the results for each relevant setting according to scientifically sound principles. If required, we analyse every weld seam down to the last detail in our well-equipped materials testing department. Only through this diligent procedure, we can ensure that the results of our prototype production can be transferred to series production in your company.

Producing without interruption

New developments usually arise parallel to ongoing production. Prototype production in our joining laboratory ensures that your production remains untouched – until the joining processes for your new products or components run smoothly and error-free.

Thanks to our extensive equipment, we work under realistic conditions. In this way, the results of our prototype production can be quickly transferred to your production facilities.

Valuable feedback

Joining processes in prototype production don't always run smoothly right from the start. Sometimes it is necessary to make adjustments to the test system, which have to be included in the specifications of a new system to be procured.

Sometimes the solution doesn't lie in the joining process itself. Then we support you in optimising the design under joining technology aspects and also look beyond the edge of the joining process in your production. The result of the development project is more than a handful of prototypes. It is the certainty that the developed joining technology can be reproduced reliably in your production environment.



When, all of a sudden, nothing works anymore

Production emergencies: Acting fast, flexible, structured and humane

If a joining process no longer runs smoothly, produces defective joints or too much scrap, it often affects your entire production and causes, in the worst case, a complete shutdown.

Flexible, fast and experienced

In situations like these, you need the right partner. Someone with experience who can step in quickly and flexibly to bring the situation under control. As a relatively small and independent company, we are at the time of need capable to take rapid action that is free of red tape. At the same time, our experienced employees have access to the entire know-how of our research partner, the Institute for Welding and Joining Technology at RWTH Aachen University. Based on experience, we often succeed beforehand in the quick identification of the cause of errors.

Cool-headed and structured analysis

Together with your employees, we analyse the previous troubleshooting attempts sensibly and collect all potential causes for the errors. Together with your team, we design a catalogue of measurements and tests in order to narrow down the cause and get to the root of the error. From this, we derive actions that permanently eliminate the error and not just relieve the symptoms for a short time. If required, we also involve your plant manufacturer. Our technical expertise and good contacts to almost all leading manufacturers enable us to communicate in a technically focused manner.

Considering the human factor

Technology isn't always the only cause. Operating errors or incorrectly selected parameters can cause faulty joining processes, too. And in the heat of the moment, even in troubleshooting, one overlooks the obvious. We all make mistakes. Each of us had to learn from own mistakes. This was only possible because our working climate doesn't include blame attribution or know-it-all attitude. In this way, we deal with the employees and teams of our customers. Because only with this kind of cooperation we can transfer the know-how necessary to avoid similar mistakes in the future during the solution process.

Electron Beam Welding – Application of fast Beam Deflection (multiple-capillary technique)



Deflected beam



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As individual as your joining process

Joining workshops, seminars and training courses

Today, joining processes must be highly tailored to the task-specific requirements. The best practice in one application can be completely wrong in another. That's why we tailor our seminars individually to the needs of your production and your product.

As much practice as possible, as much theory as necessary

Those who work with modern joining technologies on a daily basis won't get far without a basic understanding of their joining process. At the same time, theoretical knowledge alone is by no means enough to ensure that a modern joining technology production plant can be operated safely and error-free.

That's why our workshops focus on finding the right mix of practical know-how and theoretical background knowledge – individually tailored to your plant and the knowledge level of your employees.

Exploiting the plant potential with know-how

Many modern joining systems run far below their capabilities in daily operation. Because the operators found a setting with a large safety buffer with which they can carry out all tasks. Thereby, higher welding speeds and better seam qualities would be possible without any problems. We want you to get the most out of your equipment and therefore not only teach how to operate your plant safely but also how your employees can optimize joining processes independently.

Learning without returning to the classroom

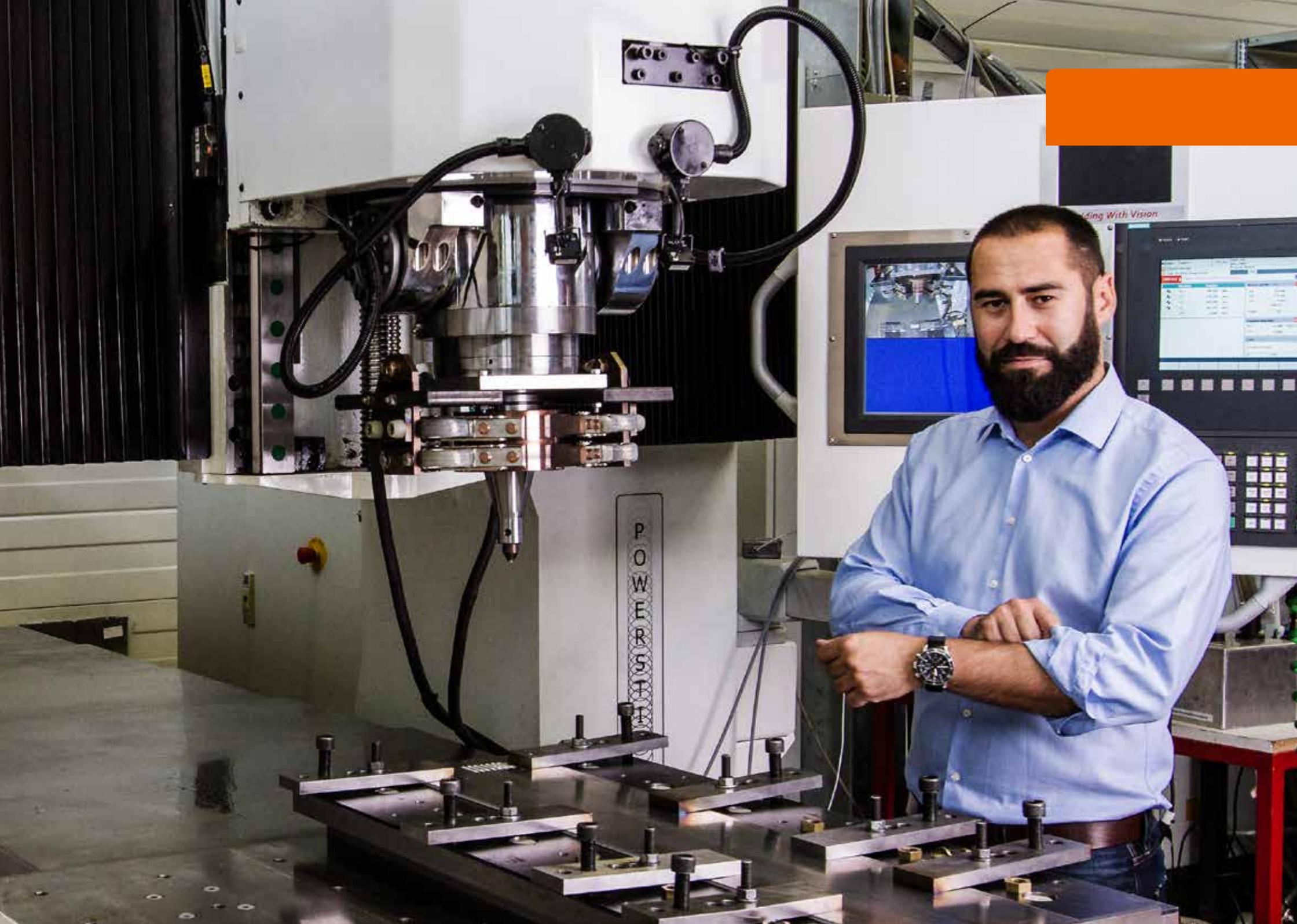
Many people associate school and university with theoretical knowledge that is far removed from practice. Even today in many seminars knowledge is taught in a teacher-centred approach.

We are convinced that the more practice-oriented and active you learn, the better you can apply your knowledge. That's why we tailor our workshops and seminars to your production and teach know-how where it's needed: Right at the machine.

Know-how: an investment that pays off

Modern joining technologies usually require large investments in the plant and its introduction. However, this isn't enough. The results depend on the know-how of the operators. However, this factor is neglected too often.

We are convinced: With individually tailored workshops and seminars you have the greatest leverage at this important parameter. The investment in the know-how of your employees, therefore, pays off quickly.



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Always the right joining process

Choosing the right tool

Each joining task has its own special requirements. That's why there isn't one superior joining process, but always the best process for a particular task. This process can only be identified by those who not only know all processes but have also mastered them.

Experts in all established processes

If one wants to identify the best process for a joining task, he has to be familiar with all processes. His process knowledge has to reach far beyond theoretical strengths and weaknesses. He must have real experience originating from the process application and also know how to fine-tune joining processes if necessary. This is why we employ experienced experts who are not only familiar with the processes from books but also have practical experience.

Specialists without blinders

Anyone who has been dealing with the same subject for too long will quickly get a blinkered eye. That's why our experts are constantly exchanging information with each other and thus know the strengths and weaknesses of the processes that are not in their direct focus. For you as our customer, this means that every recommendation is based on a view of the big picture. We don't sell joining processes but recommend the best solution for you.

Practical success instead of an ivory tower

Determining which tool is the right one theoretically is one thing. Another thing is to get this tool up and running in production. The road from concept to practical success is often long and winding. That's why our experts bring a lot of practical know-how to your project. And they stay with you until your new joining process runs smoothly and reliably.

We feel at home in these processes

- Arc processes
 - GMA welding
 - TIG and plasma welding
 - SA-, EG- and ES-welding
- Beam processes
 - Laser beam welding
 - Laser beam welding in vacuum
 - Electron beam welding
 - Electron beam welding in atmosphere
- Low heat welding processes
 - Resistance spot welding
 - Ultrasonic welding
 - Friction stir welding (FSW)
- Brazing and high temperature brazing
- Adhesive bonding
- Hybrid processes
- Special processes



We join everything

Materials and Industries

New materials are constantly being developed and combined for effective and efficient production. That's why we don't limit our know-how to individual materials. And because exciting developments are taking place in many industries, we contribute our know-how irrespective of the sector and thus look beyond the horizon in every task.

Variety in material-mix

Increasingly higher strengths with ever lower weight: Technical progress places high demands on materials and their connections. High-strength steels, light-weight aluminium construction and mixed joints are just a few of the keywords here.

Our claim is to always offer the right solution in regards to material-mix. This is why we are working hard to keep advancing the current state of the art in all relevant joining processes.

We have already developed solutions for many demanding joining tasks and brought them to market maturity. These include steel-aluminium mixed joints as well as the thermal direct joining of metal-plastic joints and the secure joining of aluminium and copper.

Looking beyond the horizons of individual industries

It doesn't matter in which industry we work for you. We are used to quickly grasping and taking into account industry-specific customs and requirements. In some industries, however, we have built up a special wealth of experience: In the automotive industry, we have already supported many well-known manufacturers and suppliers in mastering new and old joining challenges, such as those arising in lightweight construction or complex sheet metal constructions. In order to meet the challenges of electromobility, we have developed adhesive-fixed friction stir welding together with the Institute for Welding and Joining Technology at RWTH Aachen University and were also significantly involved in the development of the StreetScooter. We optimize joining processes not only in the area of body construction of electric vehicles but also in the sectors of vehicle electrics and battery construction. In shipbuilding, we have pushed the automation of welding processes and co-developed and introduced laser-GMA hybrid welding, which is now established in the industry, from the very beginning.

Even if you don't find your industry here yet:

Talk to us! We even crack the hardest nuts and join everything.



Our joining technology experts

Our team for your joining task

Our joining technology experts work together to solve your joining problem. Theoretically sound, down-to-earth and flexible.



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