



**Weil  
Technology**

**Laser technology for the  
production of metallic  
bipolar plates**

For fuel cells and  
electrolysers



## Well positioned for tomorrow

New mobility concepts require new approaches in terms of development and construction. The shift in the automotive market from exhaust components to electromobility components are supported with our solutions. This is where our forward-looking applications in the field of fuel cells and e-fuel technology come into play.

Benefit from our knowledge and experience on products with processing technologies in the field of laser cutting and laser welding, for example for the production of bipolar plates in series or for prototypes. We are at your side as an experienced technology and system partner.

Weil Technology's core competence is machines for sheet metal processing using laser welding and cutting. Here we can look back on over 30 years of experience. At the company headquarters in Müllheim, Germany, around 220 employees develop and manufacture our machines and systems.

## Facts & figures 2022

**1002**

customers worldwide

**4.266**

finished projects

**33**

years of experience

**220**

employees

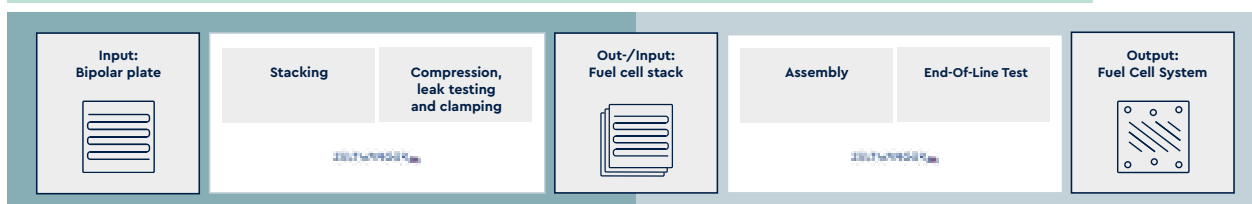
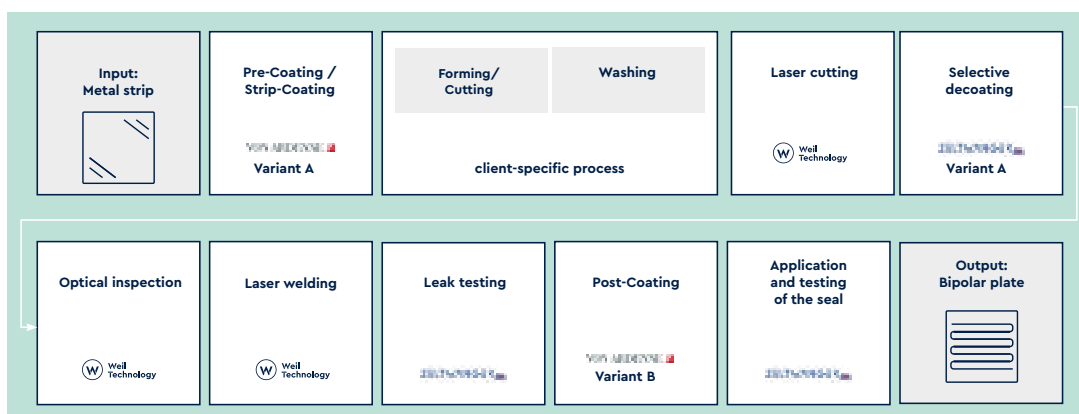
# From metal strip to fuel cell system: Bundled expertise for your production!

In addition to laser cutting and laser welding, coating and final testing technology are important factors in the production of bipolar plates. In the GERMAN FUEL CELL COOPERATION, together with VON ARDENNE and ZELTWANGER, we offer you the knowledge and expertise of the three companies for every step in the process chain. This is how you get your fuel cell of the future. VON ARDENNE specializes, among other things, in coating technologies based on physical vapor deposition (PVD). They produce coatings with reliable adhesion and improved electrical properties. ZELTWANGER is a leader in leak testing procedures with specially developed measuring systems and test circuits.

Benefit from the knowledge and expertise of the three companies for each step in the process chain and get the solution tailored to your application, with proven results through efficiency in terms of raw material use and costs during production.

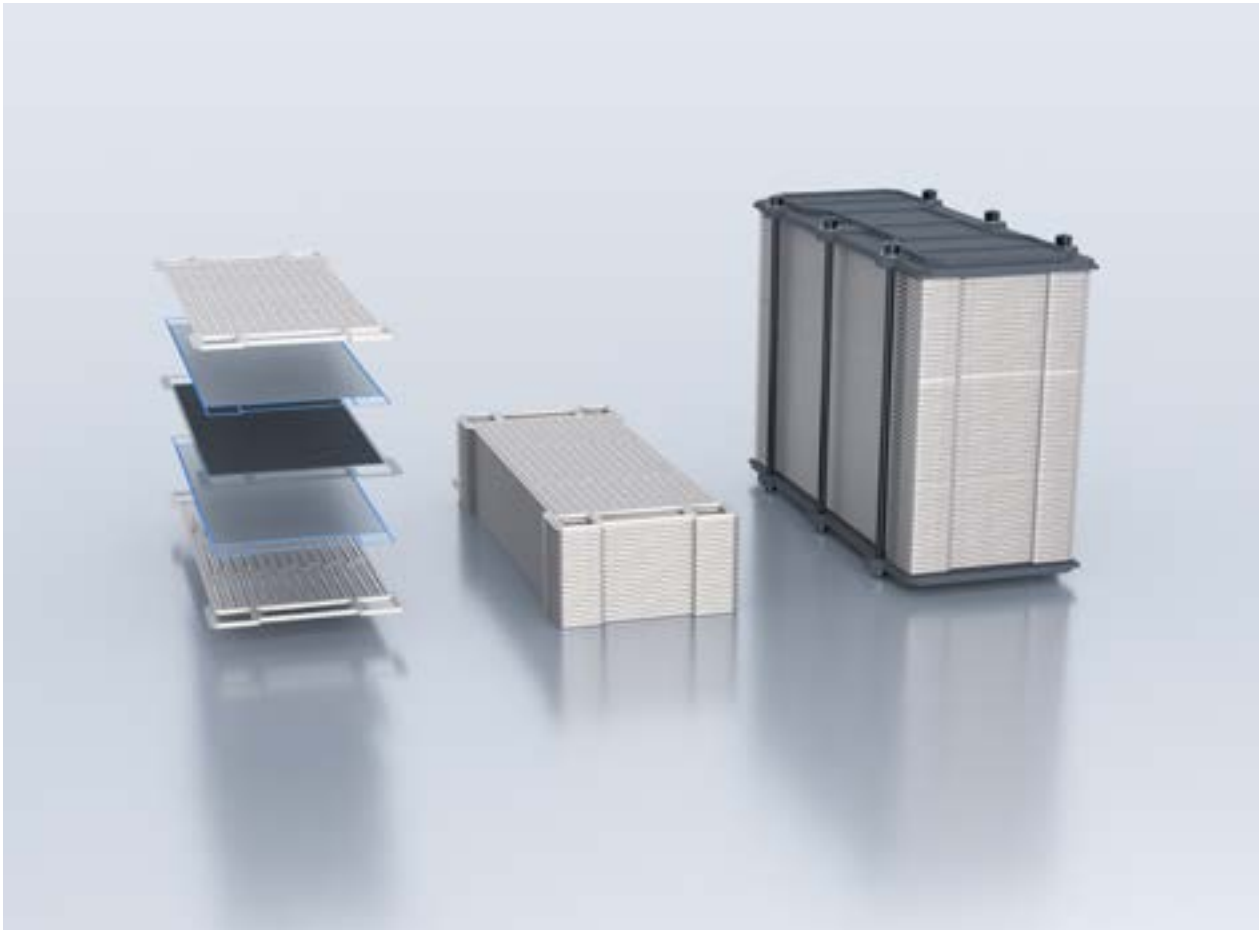


Partial process bipolar plate



Partial process fuel cell stack

Partial process fuel cell system



## Laser cutting and welding of bipolar plates

Next to the MEA (membrane electrolyte unit), the bipolar plate is the most complex and cost-intensive assembly in a fuel cell stack. It consists of thin-walled stainless steel or titanium sheets with embossed distribution structures. These complex structures of flow channels and lines place high demands on laser processing in terms of tightness, process time and reproducibility. Whether in the hydrogen-based electric propulsion of ships, airplanes and trucks or in the stationary operation of fuel cells in electrolyzers, we support your fuel cell application with innovative equipment technology for the production of bipolar plates.



# Our solution for highest demands in series

## Laser welding of metallic bipolar plates

In our manufacturing solution for PEMFC, PEMEC, SOFC and SOEC, we rely on innovative laser scanner technology. The patent-pending welding module achieves process-reliable welding speeds of 1000 mm/s, for high output in a compact installation space. The system is equipped with tool holders for interchangeable tools and offers you a high degree of flexibility.

### Your benefits

- Large usable working range of 500 mm x 350 mm
- High absolute welding speed of 1000 mm/s
- „Butterfly-Weld“: Symmetrical heat input due to intelligent welding sequence
- Static overall system for high contour accuracy and reproducibility
- Welding of stainless steel and titanium
- Very good integration into a line concept



## Automated clamping technology

Another challenge in mastering the welding process lies in the suitable clamping technology: Here we have developed our own automated clamping technology.

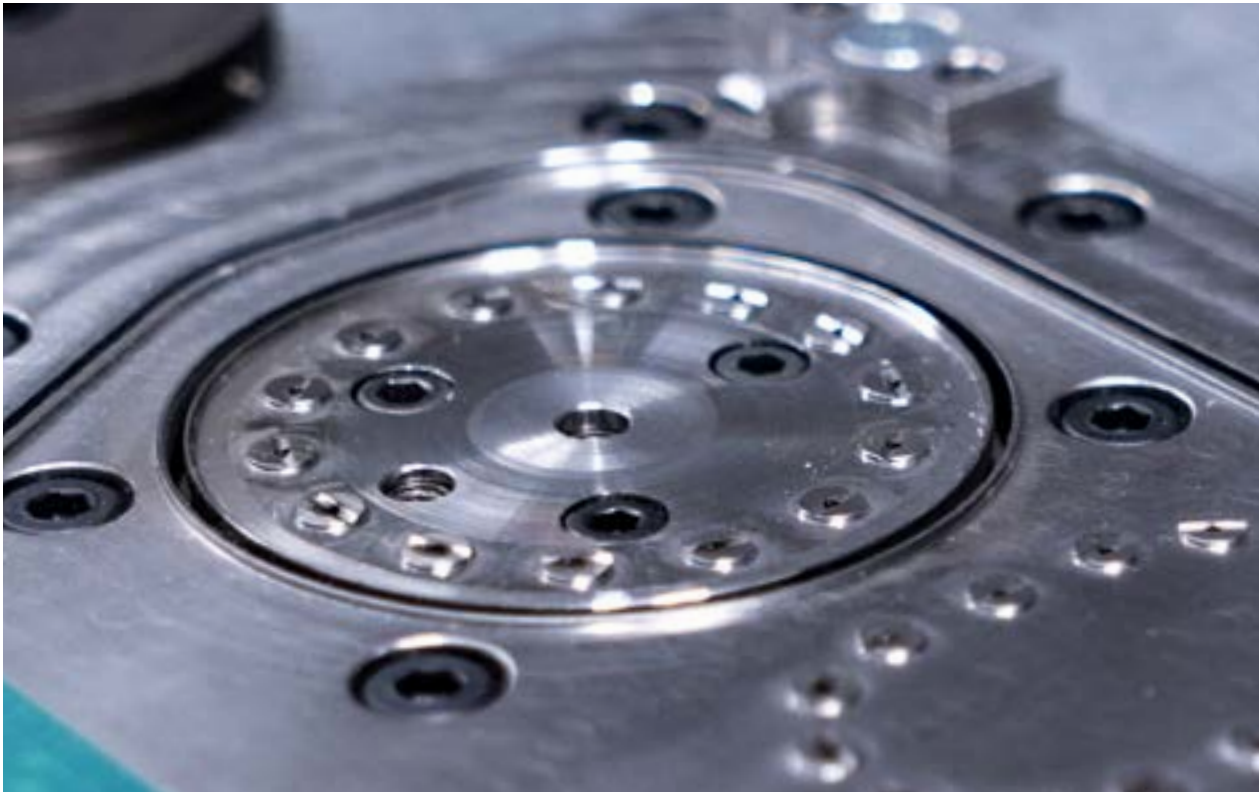
### It ensures

- A reproducible clamping process for laser welding
- Uniform pressure distribution in the mold
- Positioning and high reproducibility with innovative centering
- Short closing times
- Fast setup changes









## Your prototypes – manufactured by us

In our TechCenter we manufacture your special bipolar plates for you in our prototyping department. We weld using the technology of our series module, which creates the best conditions for the validation of your series process.

### **Our services in prototype production**

- Contour cutting of the individual plates by laser
- Laser welding of the bipolar plates (PEM, SOEC, SOFC)
- Laser welding of balance of plant (BoP) components
- Leak testing via our technology partner
- Design and manufacture of the clamping device

In addition our TechCenter offers advice concerning welding-compatible component design, investigations into process stability, the development of laser-compatible clamping technology, the validation of components and the manufacturing of prototypes / pilot series production.

## Contact

Would you like a personal consultation with our experts or information about our products and services?

We will be happy to advise you individually and free of charge on your manufacturing potential. Please contact us!



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