INOCON Technologie GmbH

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Inocon Technologie GmbH is located in Attnang-Puchheim, Upper Austria and is part of the INO-group with 240 employees. The company was founded in 1994 with a focus on plasma technologies, welding and customer based engineering. We see us as One-Stop-Shop beginning at first customer trials to the final machine.

Welding and brazing

Audi, Renault, GM

Plasma surface treatment

Miba, PI Plasma Innovations

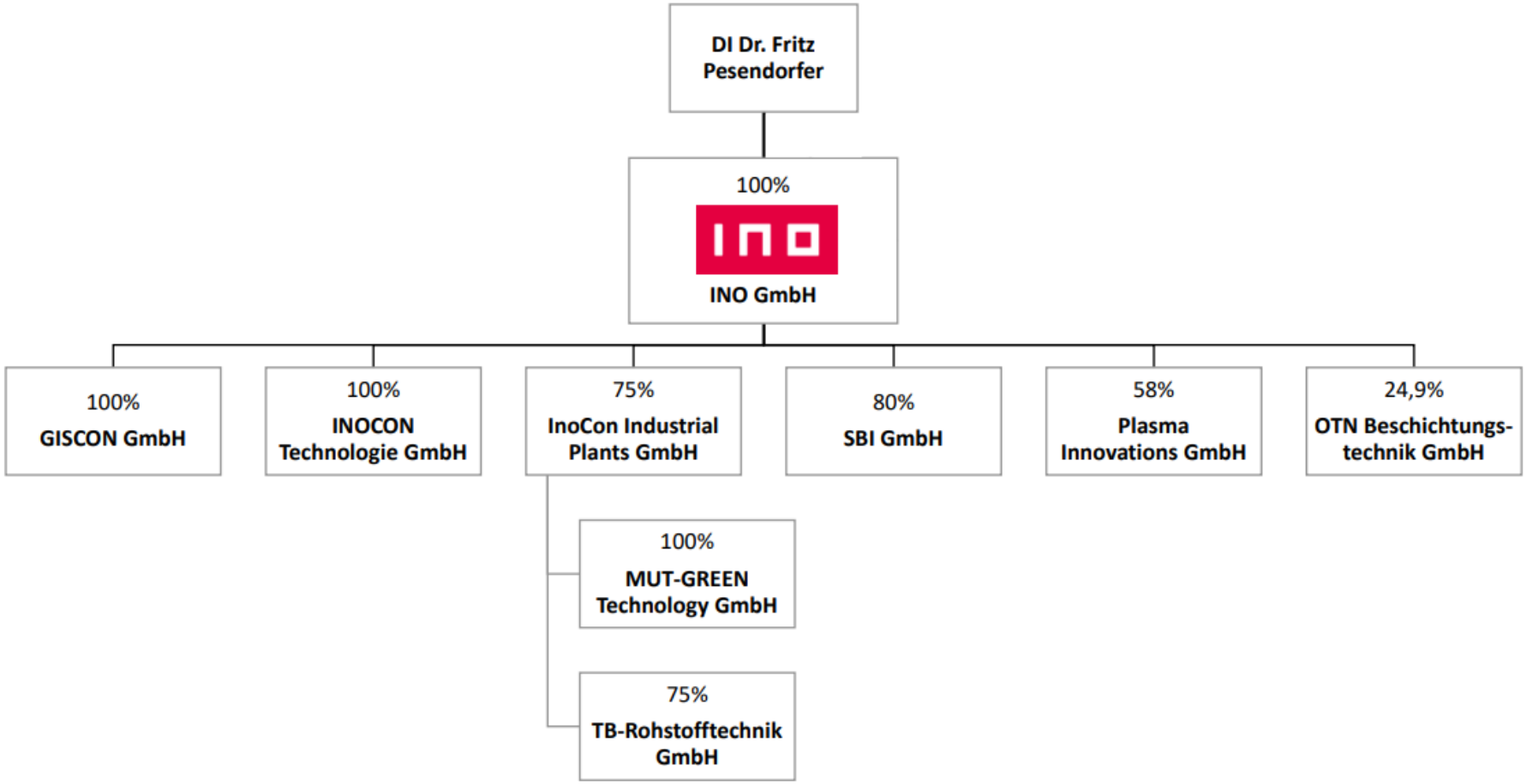
Customer based engineering

Miele, Mont Blanc

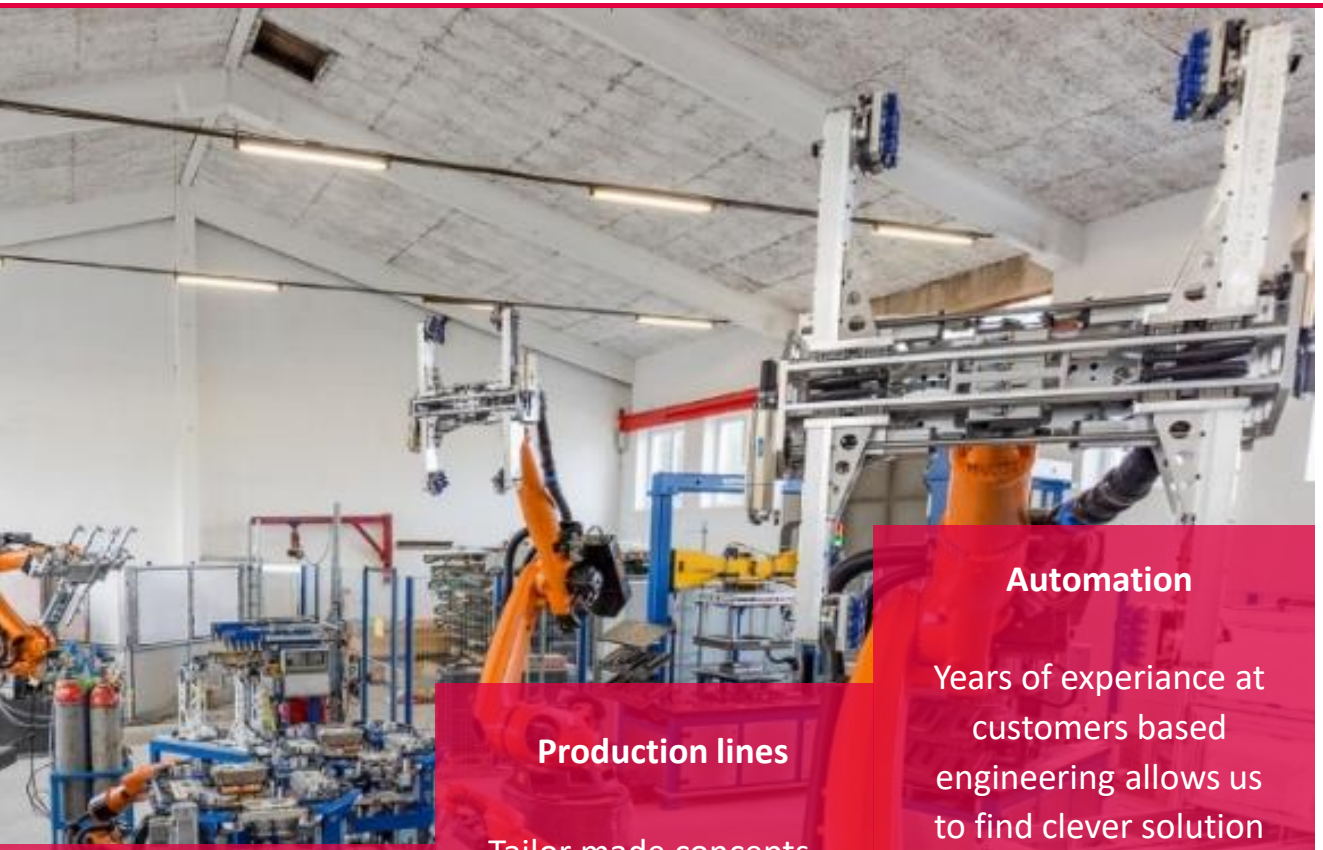
Core competences

- R&D
- Mechanical design
- Automation
- Manufacturing
- Assembly
- Start up and installation

INO GmbH organisation chart



Customer based engineering as perfect addition



Welding- and Coating cells

Individual solutions for all industrial sectors

Production lines

Tailor made concepts

With different grades of automation. Compatible for new product lines

Automation

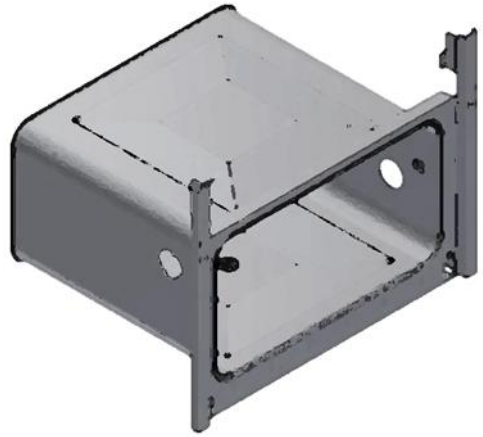
Years of experiance at customers based engineering allows us to find clever solution for every challenge.

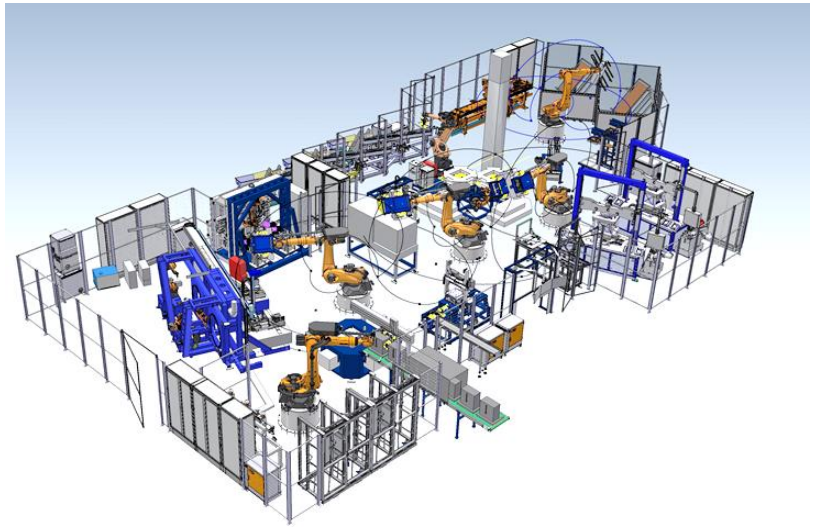
For years now, INOCON is partner in the field of special machine building and system engineering, beginning with small special solutions up to huge production lines - using economical aspects and serial components – for a big variety of industrial partners.

Steamer production line inner life

- 10 working stations
- 11 Robots (6 handling, 5 welding)
- 30s clock cycle
- 1,5 operator production
- 0,4 mm sheet thickness

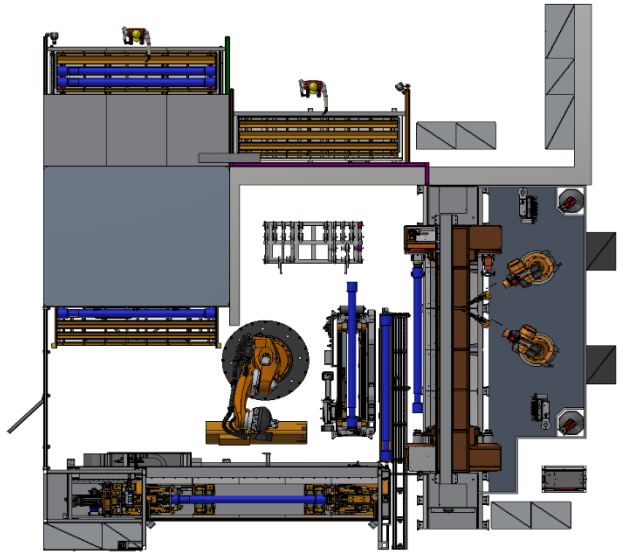
- 15 types
- Set-up time below 15 minutes
- Joining of all add-on parts: body sheet metal, back sheet, front, drain pipe
- Combination of bending process, punching process and welding process

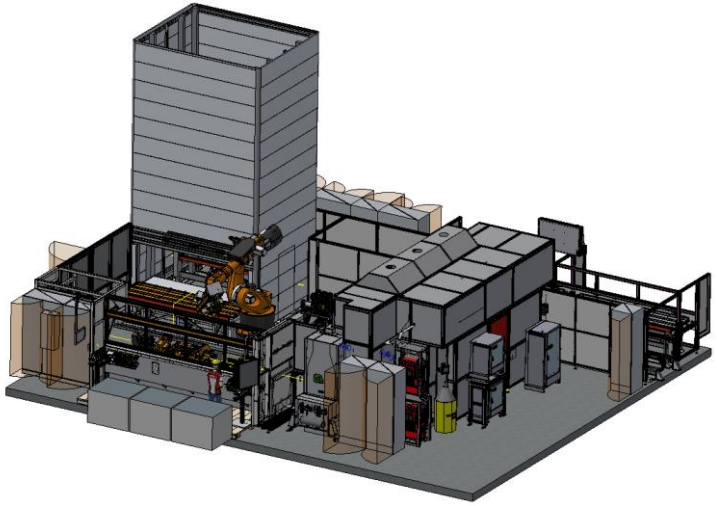


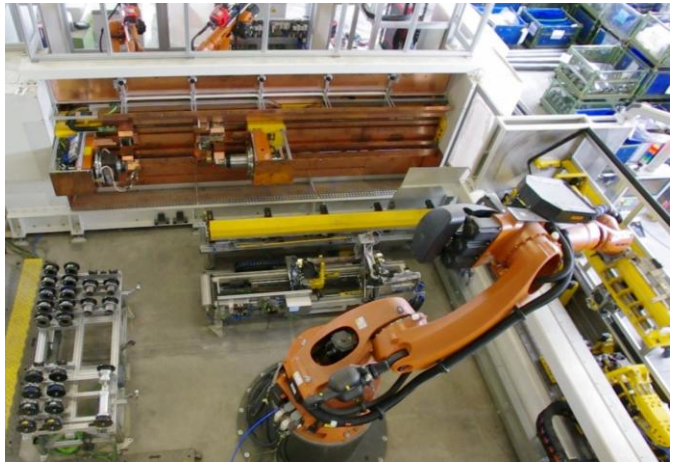


Cardan shaft production

- Flange Ø120-200mm
- Material thickness 2,5 - 7mm
- Seam finding
- Automated torch change
- Tube Ø 90-144mm
- Tube length 56-2740mm
- Torch TCP correction
- Cycle time 104s
- Batch size 1, adapter change of several 100 models in cycle time

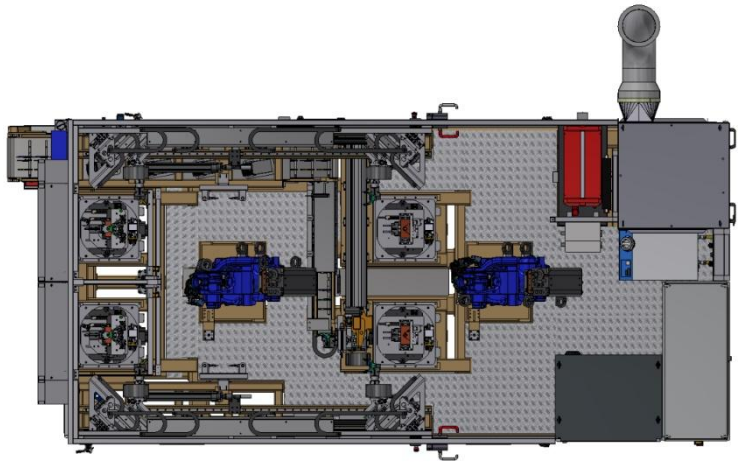






Shift fork welding machine

- Welding of tripping pin with fork
- 2 welding robots
- Gripper system for transportation
- Clock cycle 18s
- 4 welding stations
- Cooling conveyor belt



Plasma welding/brazing

No welding spatter

Even when using filler wire, Plasmatron is spatter-free.

Excellent seam appearance

Due to the clean and smooth surface of the weld seam, Plasmatron is mainly used for visible seams.

High degree of automation

By using a pneumatic collet, the electrode can also be replaced automatically within a few seconds without operator intervention.

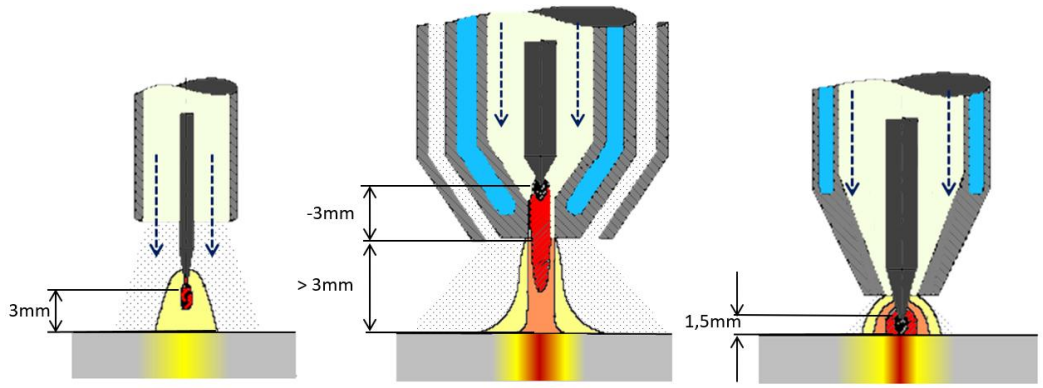
Plasmatron technology

Unlike conventional plasma processes, the Plasmatron® process generates the electric arc in front of the nozzle. This significantly reduces the thermal load on the nozzle. The plasma jet is no longer focused by a long, straight nozzle, but by the gas flow, which forms an effective focus at a defined angle away from the nozzle.

WIG
6k°C

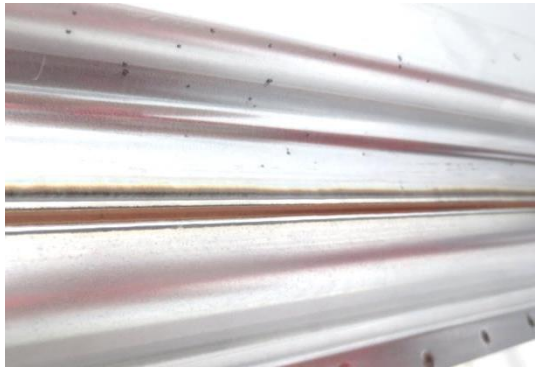
Plasma
12K-17K°C

Plasmatron®
20K-50K°C

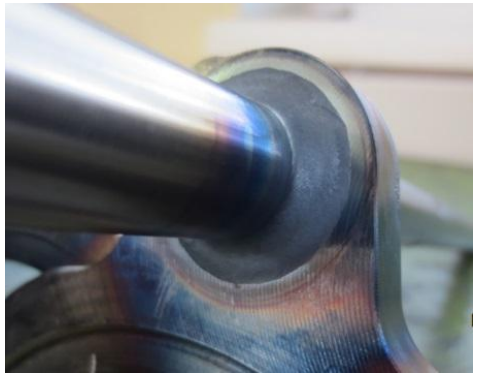


Practical Plasmatron applications

Brazing of galvanized sheets

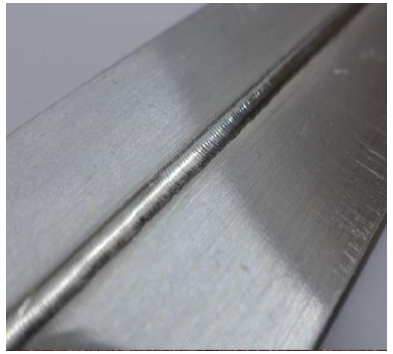


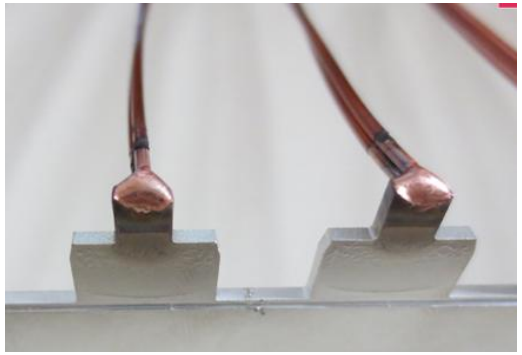
Steel welding applications



Stainless steel applications

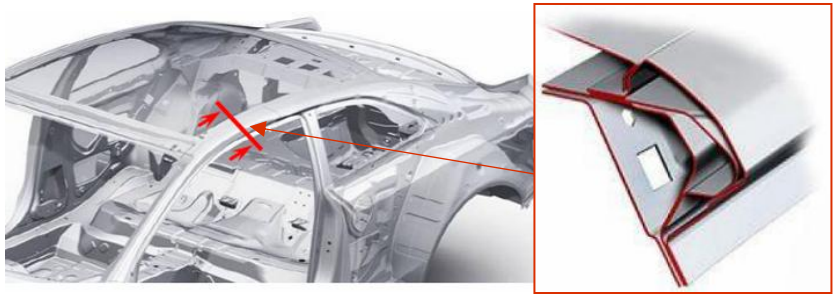
Aluminum & copper welding





Plasmatron - Brazing of galvanized sheets

Roof seam



Water drain

Door step seam

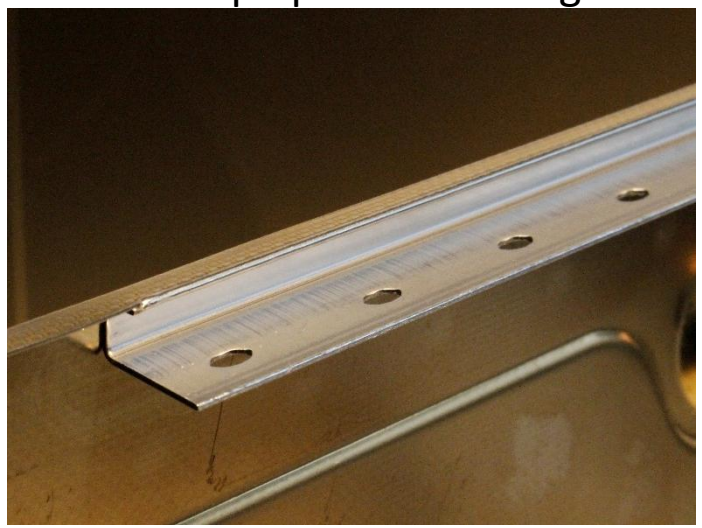
Plasmatron - Stainless steel welding

Steamer

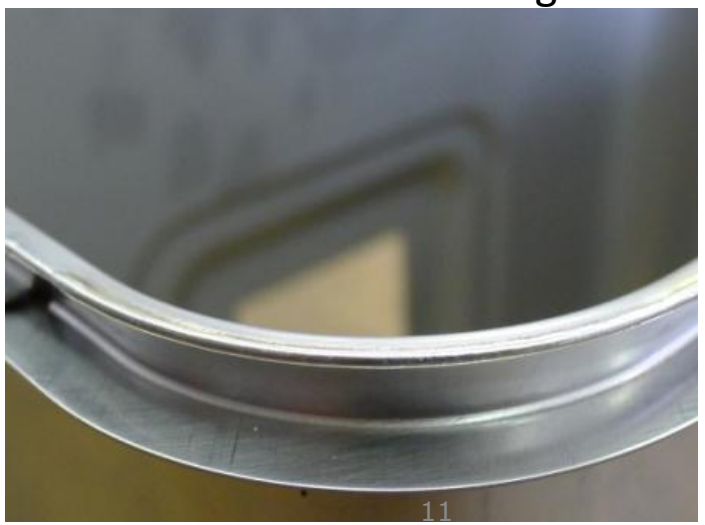
Steamer material 1.4301
Material thickness 0.5 – 0.8mm

Linear welding

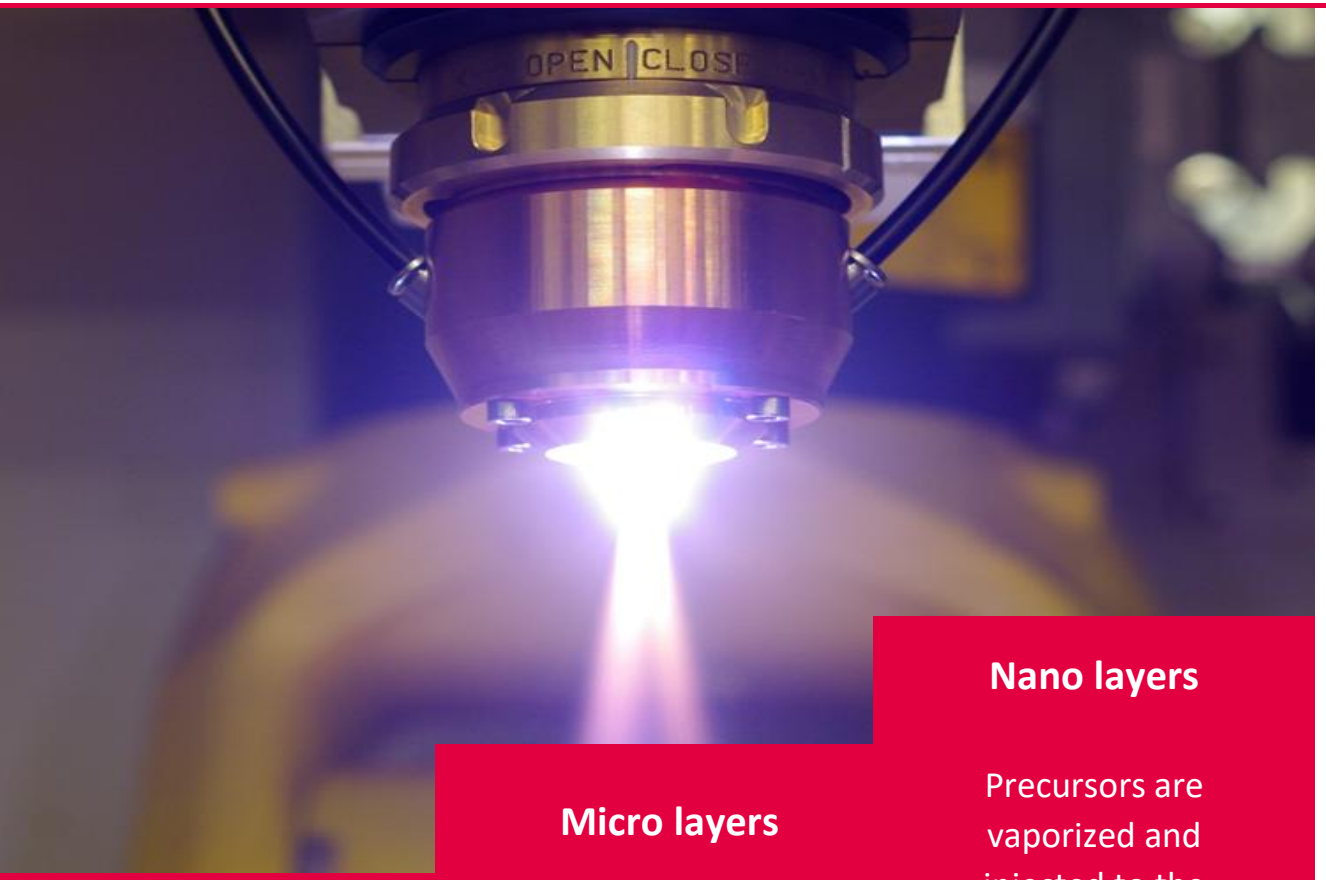
U-shape profile welding



Corner seam welding



InoCoat - Multi-functional coating tool



Plasma cleaning

Cleaning and pre-treatment of the substrate with plasma

Micro layers

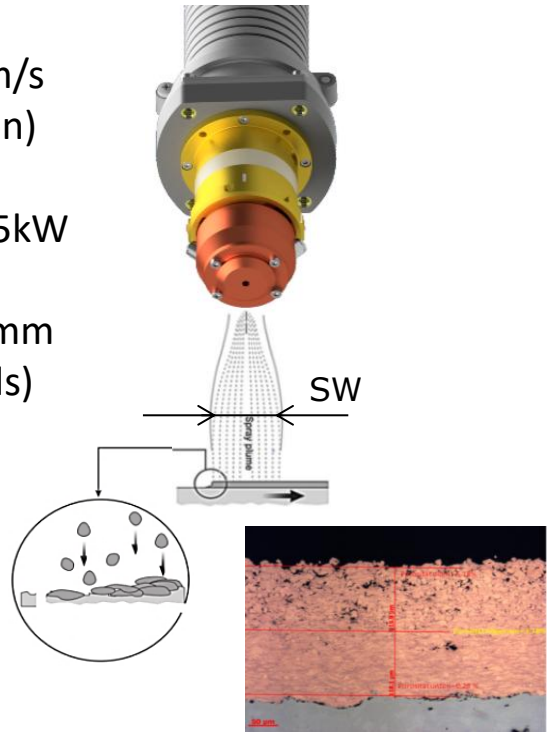
Several powders as.: zinc, tin, copper, ceramics,… can be applied in layer thicknesses of 10 - 500µm.

Nano layers

Precursors are vaporized and injected to the plasma column resulting in layer thicknesses of 10 - 300nm

The plasma-technology is an **atmospheric process** for the treatment and/or coating of 2D to 3D surfaces.
Therefore materials such as powders or precursors are fed into a spatial temperature field and accelerated towards the substrate.

- Coating speed up to 1000mm/s (depending on the application)
- Power range from 2kW to 15kW
- Coating width (CW) from 10mm (powder) up to 80mm (liquids)



Heimann, Plasma Spray coating, 2008

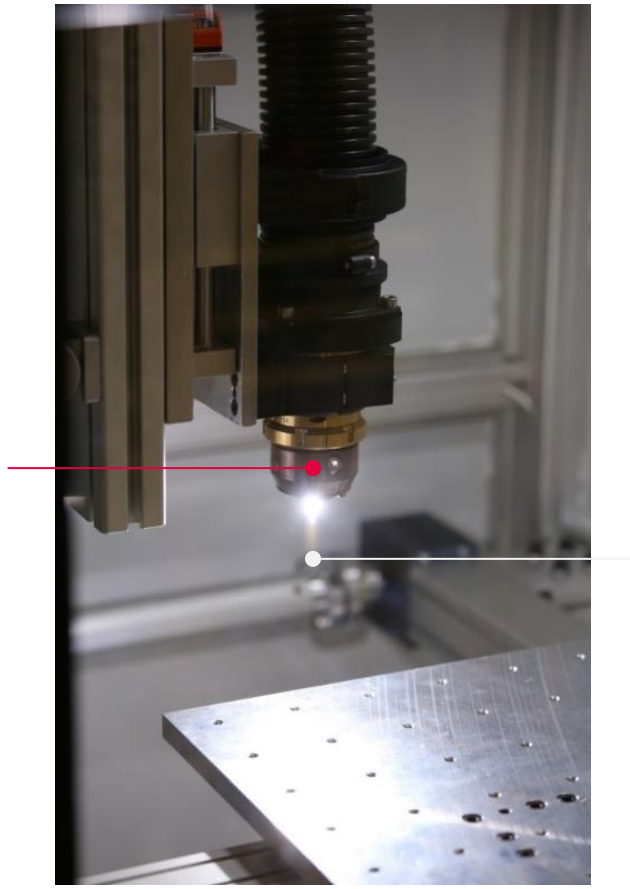
Coating materials

Additional material for micro- and nano layers

Micro powder

- Copper, copper alloys (Cu)
- Special alloys (Core-Shell,…)
- Zinc (Zn)
- Silver (Ag)
- Titanium dioxide (TiO_2)
- Aluminum oxide (Al_2O_3)
- Hydroxylapatit (HAP)
- etc.

Powders with **melting points < 2000°C** can be processed



Precursors

- HMDSO (injection of Si-vapour)
- Other precursors in the course of R&D activities in use (e.g. sealing)
- Aerosol (with / without particle-loading)
- etc.

Universally useable Precursors for different applications

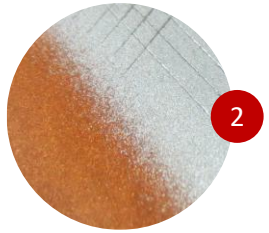
Summary of applications

Micro-layers

1

Conductive layers

- Intelligent surfaces
- Substitute wiring harness



2

Corrosion protective layers

- Local protection (passive, active)
- Transparent nano-layers

3

Tribological layers

- Force transmission
- Changing the friction coefficient

4

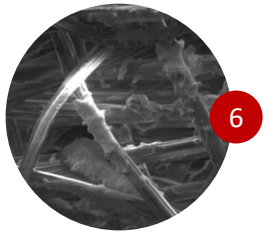
Thermal / mechanical barrier layers

- Cost reduction
- Weight reduction

5

Functionalization of polymers

- Low friction coatings
- Local tribological coatings



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Biocidal layers

- Germicidal layers

7

Adhesion promoting layers

- Gluing processes
- Painting processes
- Printing processes

8

Non-stick layers

- Injection molding, improve lifetime
- Friction reducing characteristics

Nano-layers

Overview about patents and research projects 2025

5 patents in plasma- and coating technology

- 3 EU-projects
- 2 CAS-projects
- 12 national FFG-research projects

  → **17 research projects** (functional coatings, joining and AM)

- Implementation of R&D projects with industrial partners and potential end-users
- Long-term cooperation with industry partners → customer enquiries outside of research projects
- 4 journal publications
- Participation in various trade fairs and conferences

Excerpt from research partners