

AIRBAG

AUTOMOTIVE





Do you know our competences in aviation?



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*"Because the future needs a partner with ideas and commitment!" Dipl.-Ing. Kurt Stricker, Managing Director*

## FICHTNER & SCHICHT GMBH – THE NEXT GENERATION FORM

Uniquely designed surfaces based on sophisticated tool moulds which make allowances for the complex geometry of the part guarantee high precision moulding and regarding durability and profitability make an impression. We can reflect on more than 4 decades of sound and demanding workmanship in tool mould making. At the same time our indefatigable commitment ensures that we get the balance of innovation and progress right in our workmanship. Besides nickel based tool moulds for renowned companies from the automotive branch we also make erosion protection profiles for well-known companies in the aviation industry.

### TECHNICAL PERFECTION WITH AN HOLISTIC APPROACH

The core element and technological platform in this context is our electroforming with 30 nickel high performance baths for a total capacity of over 100 tool moulds of various dimensions. Every enquiry undergoes a feasibility study and the whole process from the

start until delivery is checked in minute detail.

We achieve real savings potential through our holistic service: model making according to customer specific CAD data record, electroforming, manual machining right through to the delivery of the finished tool or the complete tool system for direct use in the production process. And an additional benefit: we accompany the fitting of the tool in your production facility so that a smooth start of the series is guaranteed.

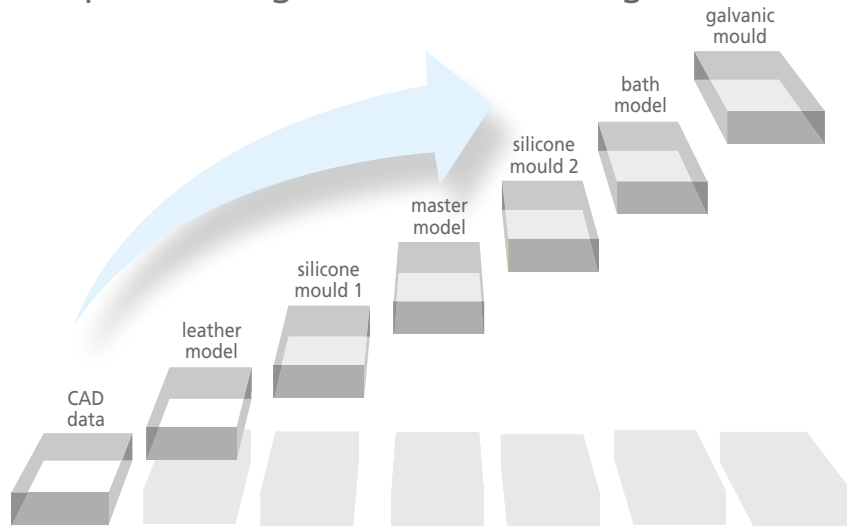
### ON THE WAY TO AN ALL-IN-ONE SOLUTION TO EVERY PURPOSE

The sign of good co-operation is when heads stay cool at crucial moments, when solutions are found and swift decisions are reached. According to our company's philosophy we cultivate a partnership approach with our customers – characterised by trust, reliability and absolute loyalty.

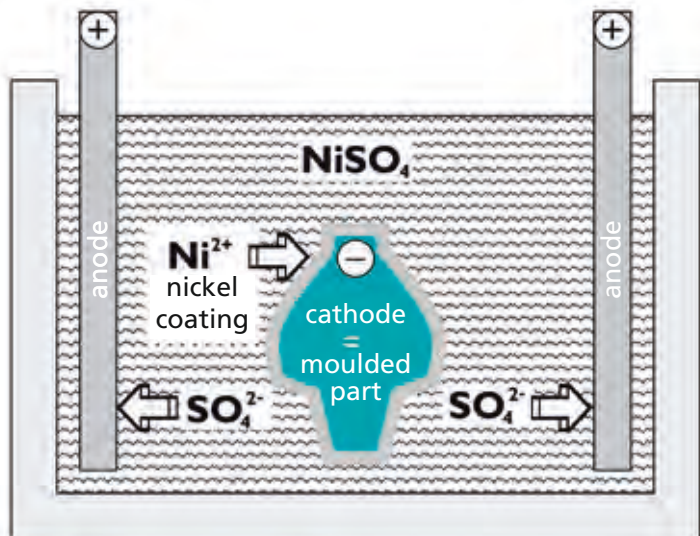


*"The requirement profiles of our customers are the engine that drives us to the highest performance." Markus Tack, Sales Manager*

## The process stages in electroforming



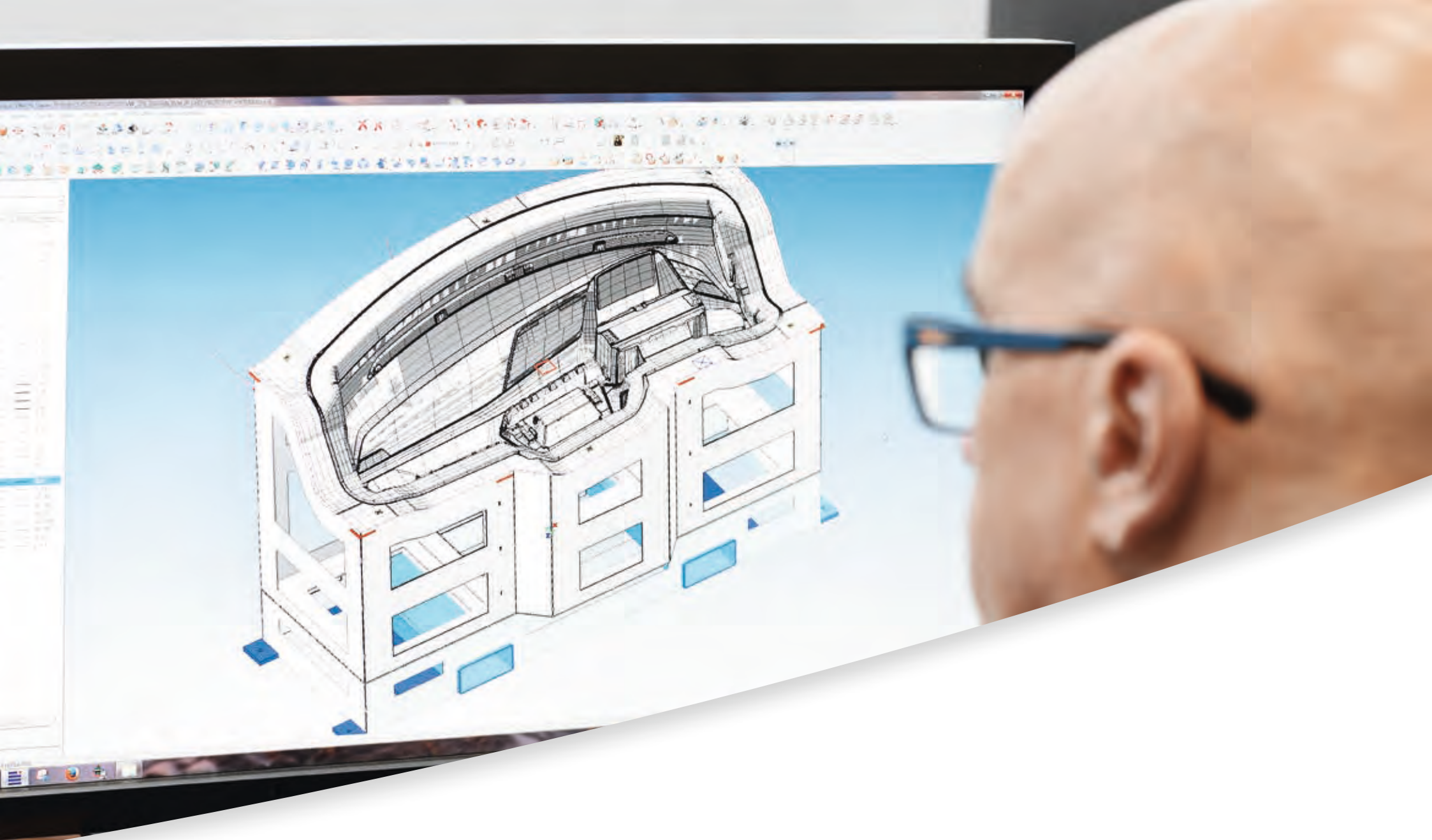
## The principle of electroforming



## ELECTROFORMING – THE TECHNOLOGICAL BASIS

We give unique product designs a reproducible face – without any ifs or buts. Our commitment, even to render the most demanding of surface structures reproducible and profitable, is the crucial characteristic that distinguishes our performance.

With our nickel high performance baths we mould nickel electrolytically on previously manufactured bath models. The resulting nickel shells possess an extremely high moulding accuracy and achieve coating thicknesses of 0.1 mm to many millimetres as well as a separation efficiency of 25 bis 50  $\mu\text{m}/\text{h}$  up to 1 mm/h. The catalog of requirements for our tool moulds are varied and are a combination of complex geometries and unique graining (surface structures without separating edges) simultaneously with defined wall thicknesses with maximum high durability.



*"Our thinking and actions are controlled by absolute precision without compromise." Thomas Döpel, Chief Designer*





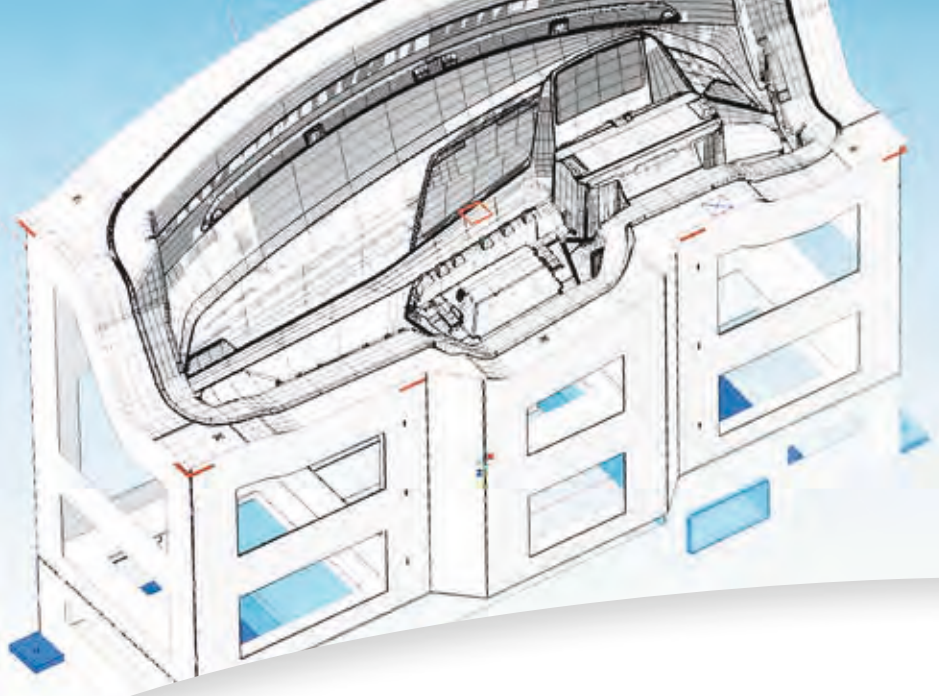
## ENGINEERING AND MODEL MAKING – GIVING SHAPE TO IDEAS

Every impulse and every idea becomes captivating when realized precisely and professionally. This is a crucial aspect for the field of engineering and model making that we pursue with every consequence. We already collaborate with renowned model makers during the manufacturing of our engineered and milled original models that we make according to customer specific CAD data. Our in-house model making facility takes over the custom-fit moulding and also the necessary manual rework of the models. Our CAD system guarantees a smooth interchange of data which is compatible with all standard interfaces.

All manufactured models undergo our strict quality control. Here we check the bath models optically and tactilely before electroforming and synchronize the measurement data with the CAD data supplied by the customer. All results are documented and handed to the customer as a log.



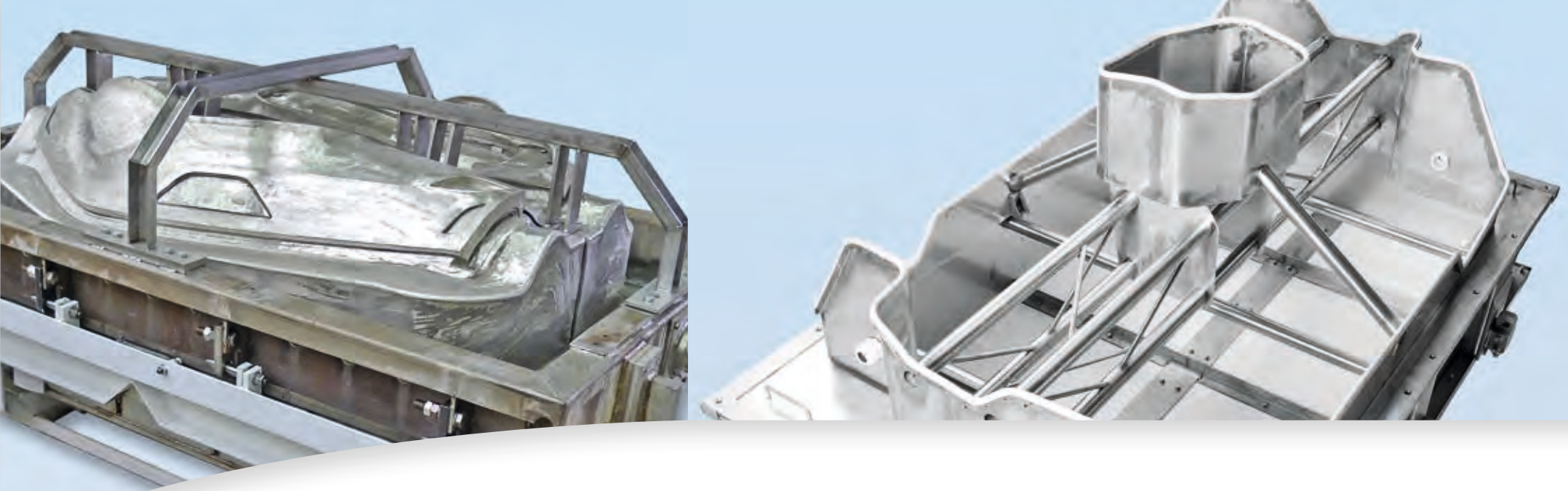
*PU spray tools – Independent tool system with integrated heating technology*



## Spray tools

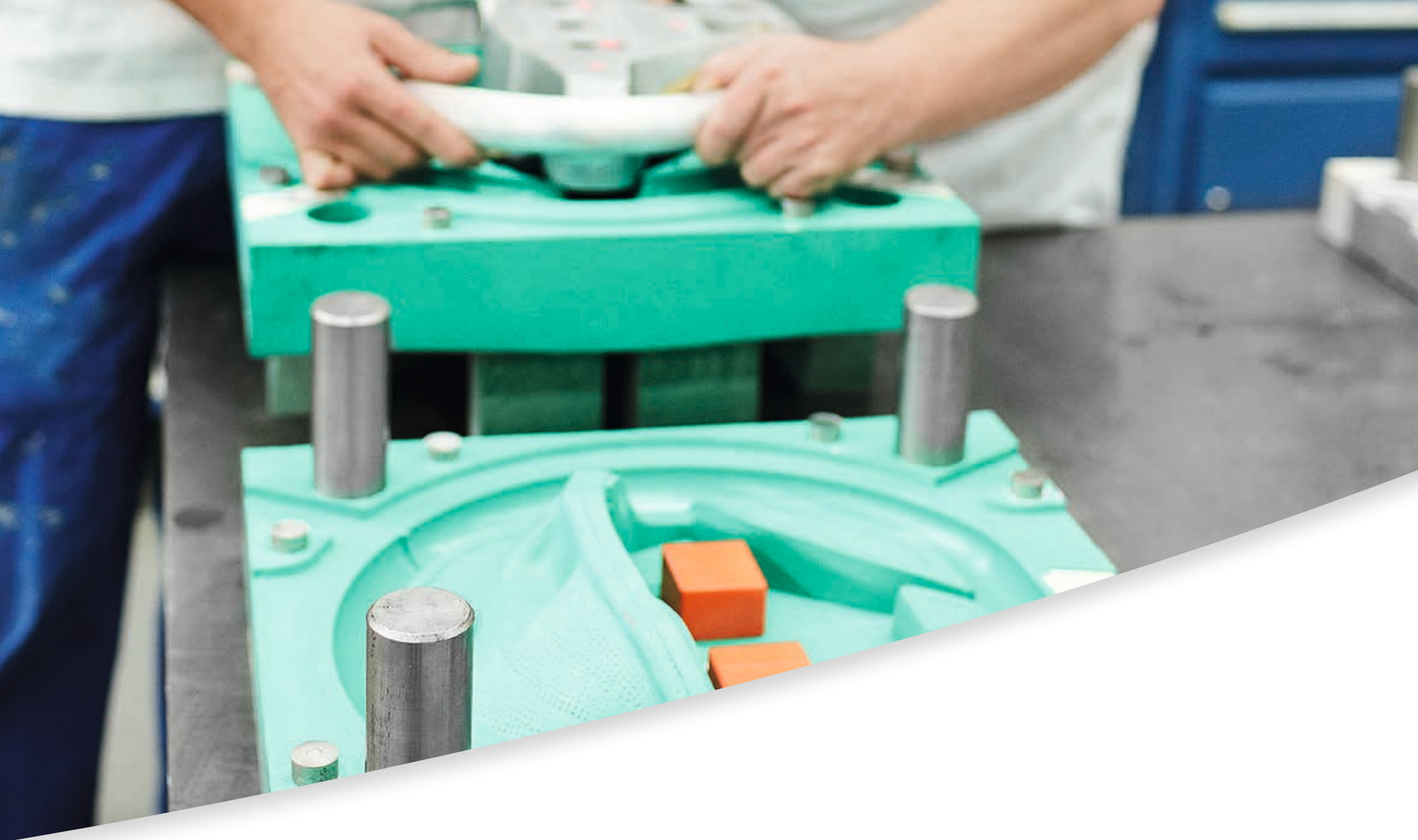
With our spray tool moulds we can manufacture PU spray skins for the demanding surface designs of high quality parts for automobile interiors. Special technical finesse is required for manufacturing spraying tool moulds for dashboards with integrated heating systems and backing. They are made with a double coat of nickel – consisting of sulphamate nickel and solid nickel – and delivered on the customer's request with backing as a complete tool system. With our composition of alloys we can dispense with a third, additional coat of metal and therefore enable our customers to achieve significant savings in materials at the same level of quality and also the same high durability with excellent thermal stability.





## Slush tools with peripheral equipment

To increase the variety of applications we are developing slush tool moulds for the manufacture of exclusive PVC slush skins for automobile interiors which excel in freedom of design, weldability and soldering ability. Contrary to spraying tools these tool moulds are exposed to extreme stresses in the series process, for example alternating heating up to temperatures of around 300°C and subsequent cooling. Therefore our team of engineers attaches great importance to maximum durability with minimum wear. Our holistic approach includes the coordination of the CAD data, the engineering and the making of customised models, the electroforming and the subsequent manual machining right through to delivering a complete tool system (tool frame, powder box, seal plate, multi-colour masking). To ensure a smooth start we coordinate the start up of the tool with our customers on their own premises.



*"At the beginning was the idea - today we are the market leader for galvanically manufactured steering wheel foam moulds." Manfred Klein, Technical Manager*



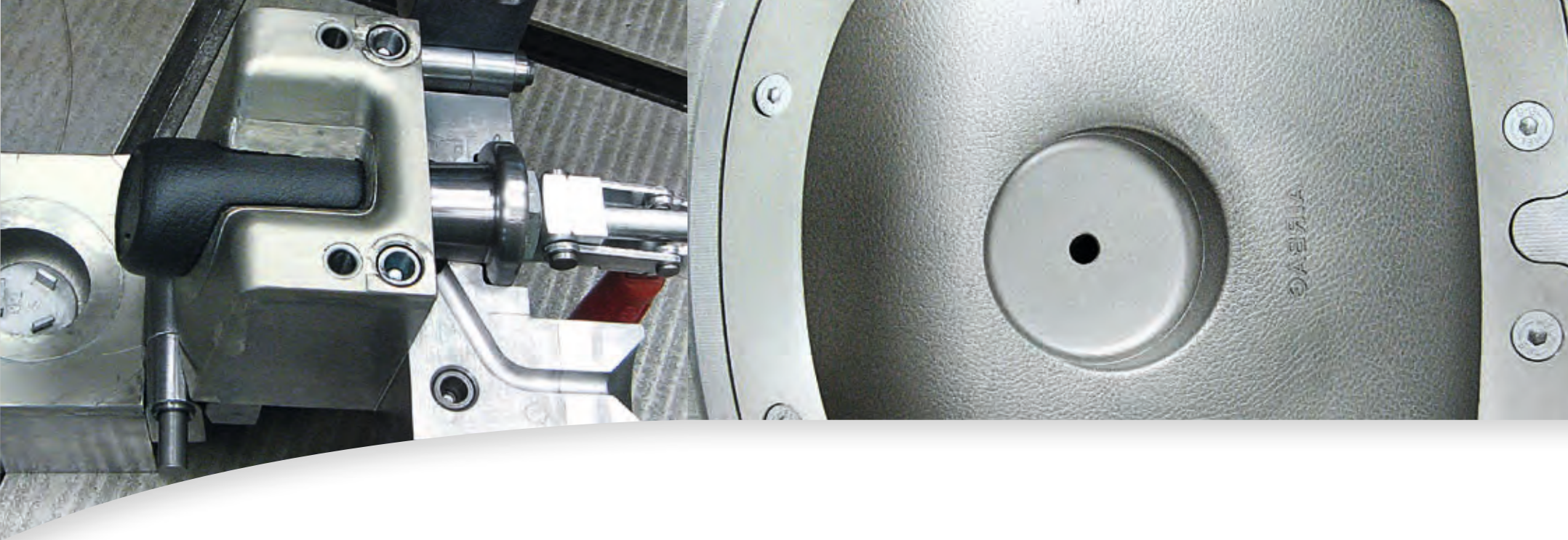
## Steering wheel foam moulds

As a manufacturer of foam moulds for steering wheels and gear lever knobs we have developed into one of the technologically leading companies in the last 30 years. As well as offering our customers comprehensive expertise we also offer innovative ideas to realize individual and demanding design grains. We manufacture the model from customized CAD data and take over the electroforming which results in a nickel shell which is joined to a rear frame optionally made out of steel or aluminium and has an integrated heating system. Our composition of alloys guarantees high dimensional tolerance, long durability and excellent demouldability of the tools.



*Precision in perfection: Manual grain engraving*

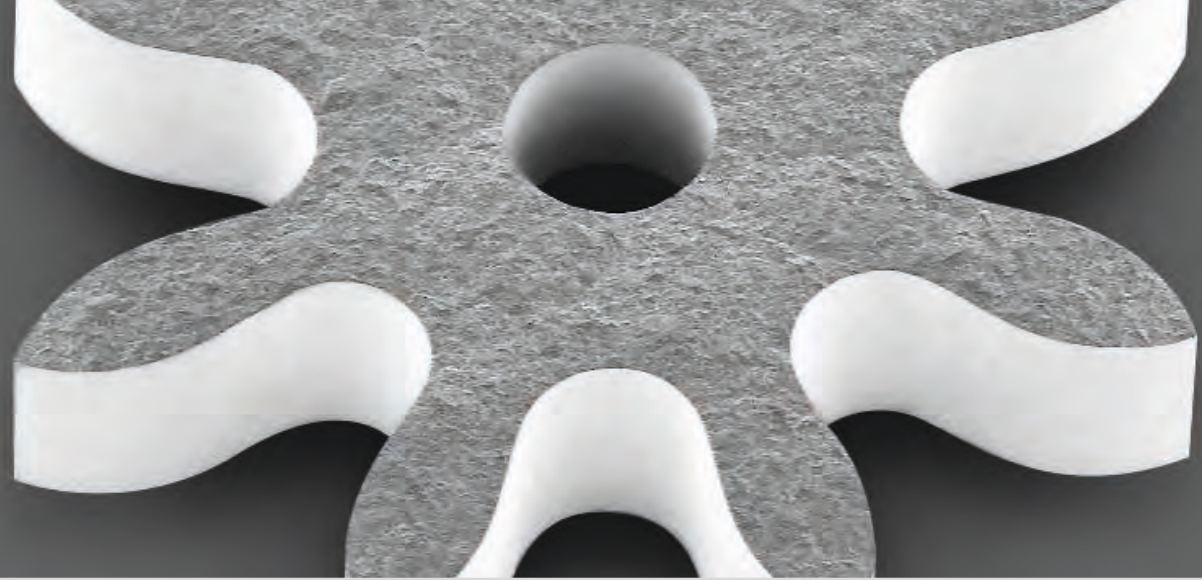




## Injection moulding inserts

Whenever the completion of the interior design of automobiles with parts adjacent to the dashboard is involved our vast expertise and attention to detail are in demand. Here we join the customized rear frame – optionally made out of steel or aluminium – to a dabbed nickel galvano insert. The nickel shells have a wall thickness of 8 - 10 mm and are designed with zero supporting surface without cavities and intermediate materials. That leads to a harmonious overall appearance of the surface design in the automobile interior. We assist our customers in a partnership already during the development process and therefore contribute efficiently to realizing the extraordinary design surfaces.





## Special tool moulds and more

Our core competences in electroforming are supplemented wisely with further types of tools and areas of know-how:

**RIM-/ROM-tools** for grained and ungrained interior and exterior parts incl. rear frame, foaming system, heating and cooling system.

**EDM-ELECTRODES** for electric discharge technology for maximum exploitation in the areas of surface optic and haptic.

**SPECIAL TOOL MOULDS** using electroforming for complicated surfaces e.g. parts with microstructures, rotational moulding, tooth formation, city reliefs or tools for Fresnel lenses for the solar industry.

The combination of different processes and technologies enables us to find innovative and profitable solutions for our customers' individual ideas and requests. No task is too demanding and no challenge too big. Furthermore our customers benefit from our service package which includes repairing galvanizing, milling with three linear and two rotational axes, manual engraving, model making, repair work at home and abroad and laser welding.



*"Standard isn't enough for us - we pursue highest quality standards for more durability and efficiency." Dipl.-Ing. Kurt Stricker, Managing Director*



## QUALITY MANAGEMENT – OUR PLEDGE FOR MORE EFFICIENCY

Sustainability and the demand of consistent quality awareness is the maxim which we pursue in each of our stages of production – without compromises. The delivery quality is not only a crucial factor of success for us – but also for our customer. Parallel to our internal quality philosophy we test our performance in continuous intervals in order to push optimizations – for the highest degree of customer satisfaction and a sustainable foundation of trust. We fulfil the guidelines of ISO 9001:2008 and the aviation standard EN 9100:2009.



*"Nobody can do everything, some people can do a little, together we reach the goal." Your contact persons at Fichtner & Schicht*



## BENEFITS – FOR THE ADDITIONAL EXTRA IN TOOL MAKING

Convince yourself of our capability and become our partner!

Holistic approaches – we deliver from the coordination of the CAD data right through to the finished tool, from one source. That saves time and costs and allows a high level of control of the whole process.

Customer orientation – we accept our customers' challenges and have been realizing them in reliable processes for over 40 years.

Down-to-earth company management – we are aware of our responsibility towards our

employees, customers and partners and manage our family business with greatest care and farsightedness.

Further development – we are investing continuously in our know-how and in our facility technology.

Flexibility – we stand for fast decisions and flexible process adjustments when the heat is on.



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*A selection of our customers:*

