



# FORMING INNOVATION



IT HAS ALWAYS BEEN ONE OF MANKIND'S HIGH ARTS  
TO GIVE IMPORTANT THINGS A SPECIAL FORM.

PLASTICS, GREEK [PLASTIKI]: THE FORMING/FORMED



IT IS OUR HIGH ART TO GIVE SPECIAL THINGS  
THE RIGHT FORM.

# "PLASTICS ARE INNOVATIVE MATERIALS."

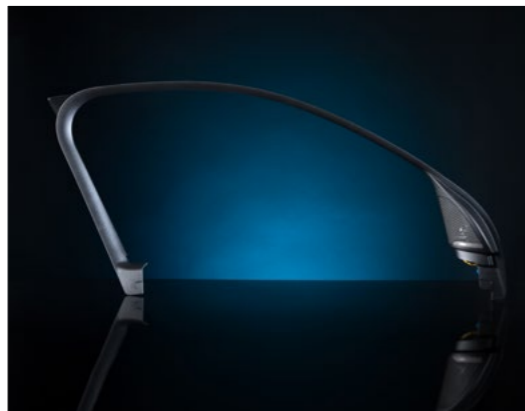
The specific application of plastics has become indispensable for many developments in automotive engineering, railroads, the electrical industry, the production of home appliances, as well as in the medical technology and diagnostics industries.



*From left: Thomas Kraus (Chief Sales Officer), Holm Rippenhausen (Chief Technical Officer) and Dr. Ralf Zander (Spokesman of the Executive Board and Chief Financial Officer).*



*Marcus Wirthwein (Chairman of the Supervisory Board).*





# WE FORM IDEAS.



# 2,700

EMPLOYEES IN THE ENTIRE GROUP WORLDWIDE

As an expert for innovative forms we have been fulfilling individual customer requests since 1949.

As a specialist for innovative forms, we have been working on individual customer requirements since 1949. With 20 companies across Europe, Asia, and the USA, we maintain close proximity to our customers worldwide. Around 2,700 employees work for the Wirthwein Group in the Mobility, Rail Infrastructure, New Energy, Home Appliance, Medical and Interior Design business units.

Since its foundation, Wirthwein has been an owner-managed family business. This makes us independent and dynamic. We cultivate long-term relationships in the market and are a reliable and stable partner.

Wirthwein produces using state-of-the-art technology there where our customers need the components and assemblies. That is, all over the world. Nevertheless, we are regionally anchored. With Bembé Parkett and Winkler Design, the Group is also active in the Interior Design industry. The cross-group collaboration creates synergies which our customers benefit from: in terms of innovative yet economical solutions. However diverse the business areas are, the group-wide quality standards are equally high.

Plastics – it is indeed an art to form products of this material.

We form processes with highly complex requirements for automation technology and multi-level production. When it comes to plastics technology, Wirthwein provides a particularly comprehensive service portfolio. Our customers greatly profit from our extensive know-how which we apply across a wide range of industries.

Wirthwein sets standards through the transfer of knowledge between its business units. High cost-effectiveness and constantly high product quality give our customers a sense of security. Our development expertise also guarantees you a technological edge.

Quality is the hallmark of Wirthwein and the basis for mutual success.

As a producer of safety-relevant plastic components for railroad superstructures, maximum quality assurance has been standard for us for decades. This quality philosophy applies to all business areas likewise. We are Q1-supplier of Deutsche Bahn AG and A-supplier of renowned OEMs as well as important system suppliers.

Our quality management system complies with IATF 16949 requirements, which is also confirmed by the certifications we have received at our sites:

- IATF 16949
- ISO 9001
- TISAX result available
- ISO 14001
- ISO 50001
- ISO 13485
- ISO 15378

# 80,500 T

OF PLASTICS ARE PROCESSED EVERY YEAR

## WE FORM PROCESSES.



WIRTHWEIN SKILLS

# DEVELOPMENT AND DESIGN



## Concept and Development

Our customers come to us with a wide variety of requests and challenging projects. We take care of every requirement regardless of the industry. Right from the start, we tackle processes together with our customers. From the first sketch to the delivery of the finished products, we clarify workflow and processes to turn ideas into injection molds and then into plastic components and assemblies.

Our development work is based on the specific requirements of customers and project partners. State-of-the-art methods and tools as well as highly qualified staff form the basis of our development work to create innovative top-quality products. This ensures a smooth transition from development to design to production, across all industries and national borders.

## Design and Construction

Manufacturing variants are coordinated and implemented with you in close cooperation with our in-house mold making department. Precise design drawings and 3D animations provide you with important information on component behavior and manufacturability.

Particularly sophisticated designs require additional engineering services such as filling simulations, warpage or strength calculations. Materials and processes are carefully selected and optimized.



WIRTHWEIN SKILLS

# MOLD DESIGN AND PRODUCTION



## Mold- and Toolmaking

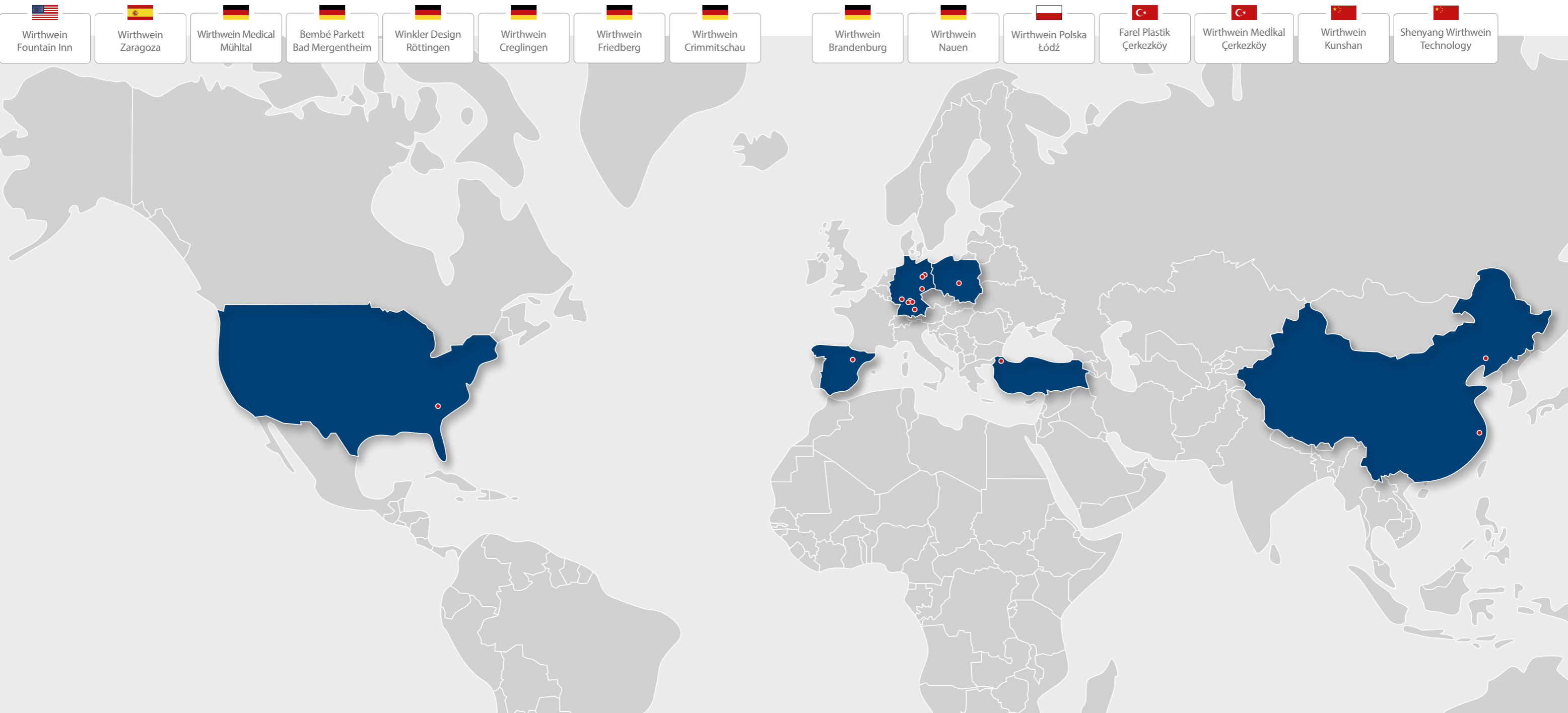
Toolmaking is a key factor for us as a full-service supplier in plastics engineering. Our decades of comprehensive experience in the business fields of Mobility, Rail Infrastructure, New Energy, Home Appliance and Medical is a prerequisite for a broad transfer of know-how. The Wirthwein plants work closely together and create true flexibility in this network. This international exchange of know-how throughout the group forces innovative solutions for complex tasks.

We are also highly flexible and dynamic when it comes to size and weight - we offer solutions for the production of components with a wall thickness of 0.5 mm, through to axial wheels with a diameter of just under one meter, as well as multi-level window frames and injection molds measuring up to 1,300 x 2,000 millimeters and weighing over 20 tons.

## Production and Logistics

We constantly strive to improve ourselves. With state-of-the-art technologies in all process steps, an extensive fleet of state-of-the-art machinery and comprehensive quality assurance, we ensure efficiency and effectiveness in the production of complex plastic parts. We work flexibly in the thermoplastic injection molding of technical plastic parts with insert and shot weights from 0.007 grams to 14 kilograms. Our customers can always rely on the outstanding properties of our products - today and in the future and at whichever Wirthwein plant.

As a long-standing system supplier we offer you ecologically sustainable and well thought out logistics concepts with short transportation routes, high package densities, and protective wrapping. We deliver just in sequence to your assembly line and therefore orient by your production cycle. Our intelligent transport planning helps to keep your storage- and inventory costs as low as possible.



# WIRTHWEIN LOCATIONS WORLDWIDE

# 70

WIRTHWEIN PLASTIC  
COMPONENTS BUILT  
IN ONE CAR



In top form for Mobility –  
We mold plastics into shape.

We develop components for the automotive industry and manufacture them in series at our locations around the world. Among our customers are well-known automotive manufacturers and system suppliers. Our strength lies in the close interaction between development, project management, in-house toolmaking and the use of state-of-the-art production technologies.

COMPONENTS FOR

# 40,000

KILOMETERS OF  
RAILWAY LINES

High performance for Rail Infrastructure –  
We put trains on the right tracks.

We supply the global railway superstructure with hundreds of millions of units annually, including products such as bolts, intermediate layers, and angle guide plates for rail fastening, as well as cable ducts. Building on more than 75 years of experience in railway infrastructure, we develop and manufacture customized plastic solutions for our customers worldwide that contribute significantly to safe, reliable, and environmentally friendly railway operations.



# 8MIO

FAN WHEELS  
PRODUCED  
EVERY YEAR



Stable Form for New Energy –  
We efficiently put thermal management into motion.

And we do it quite quietly. The use of high-performance plastics significantly reduces noise levels in radial and axial fans. Our products are also used in numerous other industrial applications where dimensional stability and heat resistance are essential.

# 100 MIO

COMPONENTS BUILT IN HOME APPLIANCES



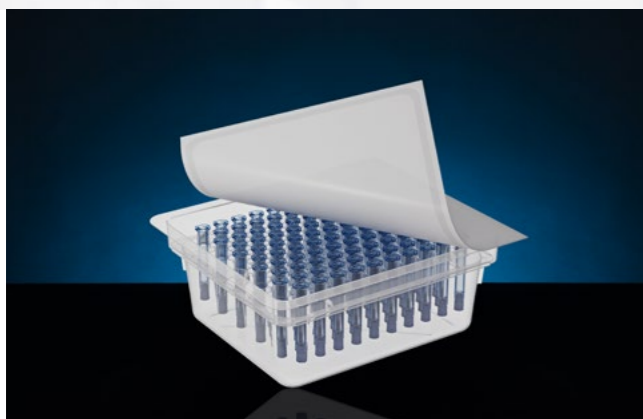
Perfect form for Home Appliance –  
We are a strong partner for your home.

We develop, produce, and test almost any kind of plastic components and assembly groups for home appliances, such as washing machines, tumble dryers, dishwashers, stoves, cooling- and floor care devices. As a full service supplier and globally operating system supplier we do not only produce in our own plants but also offer shop-in-shop solutions to our business partners.

ANNUAL PRODUCTION VOLUME OF

# 2BN

PLASTICS SYSTEMS



In pure form for Medical –  
We bring plastics to life.

As a system supplier of sophisticated plastic systems and primary packaging material, we meet the specific requirements on the medical, diagnostics, and pharmaceuticals industries. We design, develop, and produce your ideas. We have the passion for maximum precision in both plastics processing in the clean room and in-house toolmaking.



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