Our Know-How

FROM CONCEPT TO CREATION

#madebykautex

Kautex – Future needs Origins

90 Years of Pioneering Extrusion Blow Molding Technology.

Since 1935, Kautex has stood for groundbreaking technologies in extrusion blow molding. Now, 90 years later, we combine German engineering tradition with global innovation to deliver sustainable production solutions for plastic products.

As part of the Jwell Machinery Group, Kautex Maschinenbau System GmbH develops smart machines and digital solutions that empower our customers to manufacture efficiently, sustainably, and with future-readiness in mind.

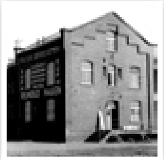
Our passion lies in sustainable plastics processing – whether through the use of recycled materials, the development of lightweight products, or the creation of digital twins for blow molding machines.

With a global team of around 150 specialists across sales, service, and R&D, we are internationally connected and locally responsive. Our wordlwide locations allow us to stay close to our customers and the pulse of the market.

Our legacy of innovation began with the invention of the world's first commercial extrusion blow molding machine – and today, we continue to shape the future of the industry with smart technologies and sustainable solutions.

Kautex – Extrusion Blow Molding Technology with Responsibility.

ANNIVERSARY 90 1935 – 2025



FIRST DECADE

1935 – 1944

The first 10 years of the company's existence was a time of courage. The company's founder, Reinold Hagen, became a businessman at the relatively young age of 22 following the premature death of his father.

SECOND DECADE

1945 – 1954

Experiments with thermoplastic materials lead to the idea of blow molding plastics in such a way that they retain their shape. The first blow molding machines are developed for series production.

THIRD DECADE

1955 – 1964

Kautex enters the international market. Its global expansion begins with the export of machinery to the USA.

FOURTH DECADE

1965 – 1974

Kautex sets the standards in machinery performance with breakthroughs such as the 5,000-liter tank and the introduction of international servicing.

FIFTH DECADE

1975 – 1984

The machinery division goes its own way: Kautex Maschinenbau GmbH is established as a spin-off of the main Kautex company and is taken over by Fried. Krupp GmbH.

SIXTH DECADE

1985 – 1994

Mechanical engineering becomes digitized and paves the way to optimizing control and monitoring processes.

SEVENTH DECADE

1995 – 2004

This decade sees a boom in demand for machinery for producing plastic fuel tanks. Kautex continues to thrive despite a series of takeovers and a merger.

EIGHTH DECADE

2005 – 2014

The self-discovery phase has paid off: Kautex focuses on its goals and takes the lead in the global blow molding industry.

NINTH DECADE

2015 – 2024

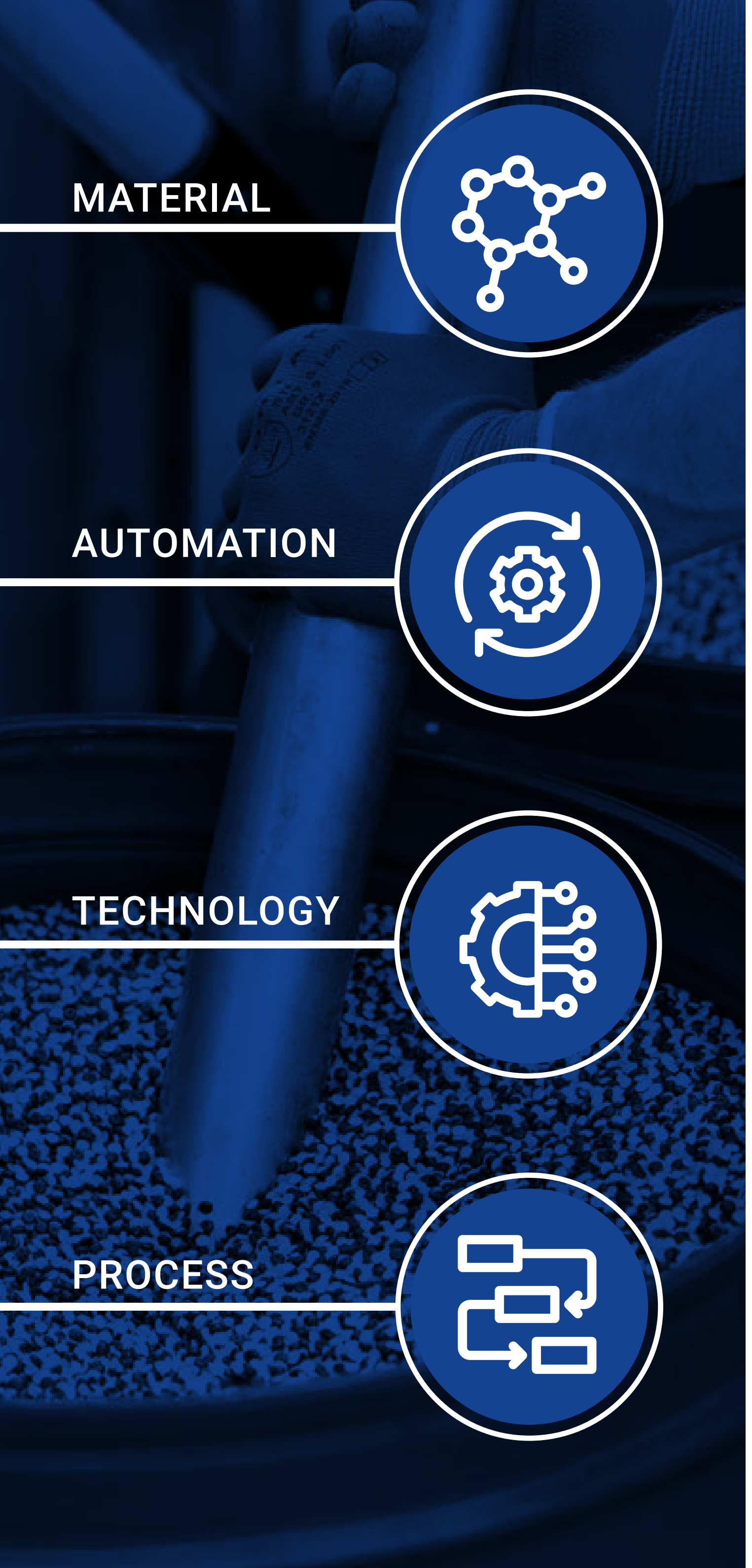
Plastech Beteiligungs GmbH (family holding Neumann / Knünz) takes over ~93% of the company shares.

TENTH DECADE

2024 until now

Together with our new strategic partner Jwell, we are looking into a bright future!

JWELL



Our Know-How

From Concept to Creation.

The Power of Kautex Know-How

At Kautex, we transform ideas into market-ready plastic products. This is made possible by a unique combination of technical expertise, customer insight, and a passion for innovation. We call it: Kautex Know-How.

Our know-how is built around four core disciplines that drive sustainable and efficient extrusion blow molding solutions:

PLASTICS KNOW-HOW – TURNING MATERIAL KNOWLEDGE INTO PRODUCT PERFORMANCE

Our plastics experts combine deep polymer expertise with hands-on processing experience. From in-house designed extruders and head systems to tailored tooling and simulation – we transform material understanding into real-world product results.

AUTOMATION KNOW-HOW – MORE THAN MACHINES

We develop advanced automation for every step in the extrusion blow molding chain. From high-precision blow molds and post-cooling systems to trimming, quality control, and robotic handling – ensuring seamless, efficient production.

TECHNOLOGY KNOW-HOW – INNOVATIONS THAT SHAPE THE FUTURE

We've pioneered technologies like Blue Hydraulic, Flying Knives, and Intelligate that raise the bar for energy efficiency, precision, and automation. Our technology know-how pushes the limits of what's possible in blow molding.

OUR MATERIAL KNOW-HOW – MATERIAL EXPERTISE FOR EXTRUSION BLOW MOLDING MACHINES.

From HDPE to recyclates – we know how each material behaves and what it takes to process them efficiently.

In extrusion blow molding, deep material knowledge is crucial. Whether working with HDPE, PP, PE, PA, LDPE or recyclates, we fully understand their processing and mechanical behavior. This insight enables us to select optimal materials and adjust production parameters for reliable, energy-efficient processes.

Together, they form the foundation for machines and systems that set standards in performance, precision, and productivity. And they all come together in our Technical Center the physical center of our innovation and R&D activities.

Shaping the Future of Plastics

Why Blow Molding

Key Benefits of Blow Molding

Why is blow molding a key technology?

EFFICIENT FOR HOLLOW SHAPES
From a few milliliters to several thousand liters – with short cycles and moderate tooling costs.

HIGH DESIGN FREEDOM
Supports complex geometries, threads, sight strips, asymmetrical parts, multilayer structures.

MATERIAL SAVINGS
Precise wall thickness control means material is only used where it's needed.

SUSTAINABILITY-READY
Supports recyclates, bio-based plastics, and multilayer barrier configurations.

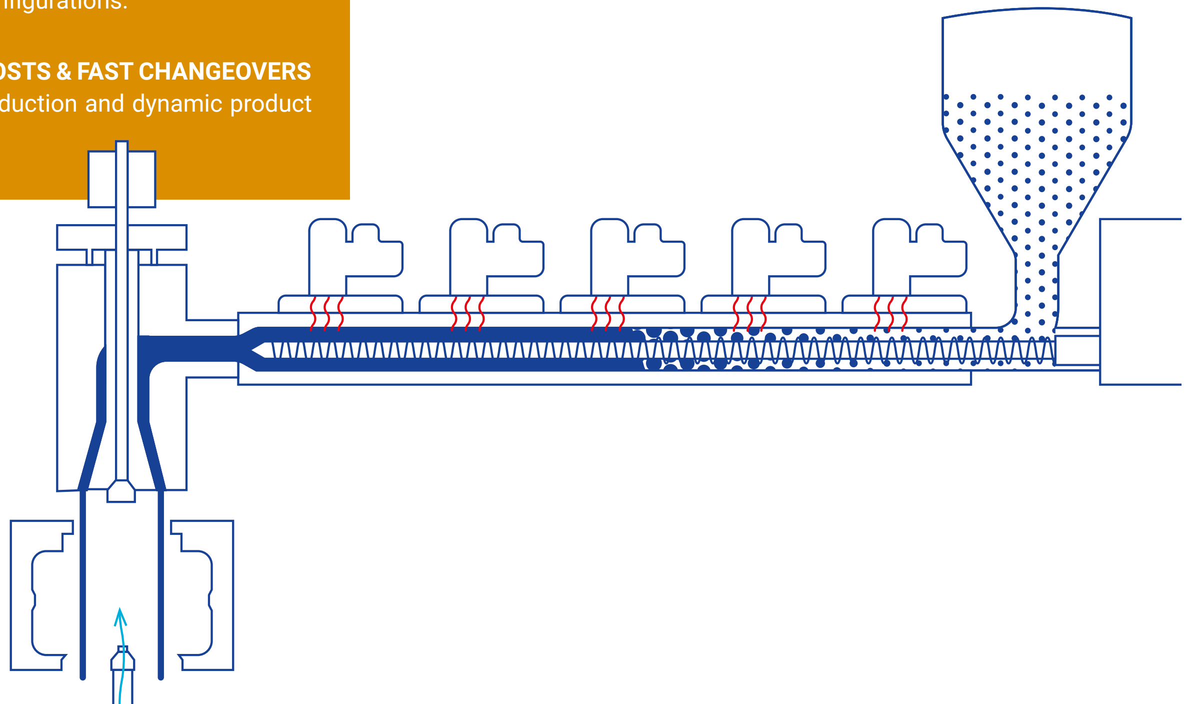
LOWER TOOLING COSTS & FAST CHANGEOVERS
Ideal for flexible production and dynamic product portfolios.

Blow molding is more than just a manufacturing process — it's a key technology for shaping modern plastic components.

At Kautex, we combine decades of expertise with cutting-edge innovation to unlock the full potential of extrusion blow molding: cost-effective, highly flexible in design, and ready to meet the challenges of sustainable production.

Whether for simple bottles or complex automotive components, blow molding enables efficient, large-scale production of hollow plastic parts — in almost any shape and size. From design freedom to recyclability, the advantages of this technology speak for themselves.

Learn more about Blow Molding!



Blow Molding vs. Other Processes

How does blow molding compare?

Blow molding is not the only plastic processing method — but in many cases, it's the best. Here's how it stacks up:

EXTRUSION BLOW MOLDING

- **Best for:** Hollow plastic parts of all sizes
- **Strengths:** Short cycle times, low tooling cost, large design flexibility
- **Applications**: Packaging, tanks, technical parts, kayaks, toys

INJECTION MOLDING

- **Best for:** Solid, high-precision parts
- **Strengths:** High accuracy, large material selection
- **Limitations:** Economically inefficient for hollow shapes
- **Applications:** Electronics housings, buckets, dashboards

ROTOMOLDING

- **Best for:** Large-volume hollow parts in low quantities
- **Strengths:** Seamless parts, ideal for niche or oversized products
- **Limitations:** Long cycle times, limited geometry
- **Applications:** Water tanks, playground equipment

THERMOFORMING

- **Best for:** Thin-walled packaging at high volumes
- **Strengths:** Fast and low-cost for simple parts
- **Limitations:** Limited structural stability, poor wall thickness control
- **Applications:** Food trays, blister packs

Why Choose Blow Molding?

Your product may be perfect for blow molding if it is...

- ✓ hollow
- ✓ produced in series
- ✓ made of thermoplastics
- ✓ designed with functional or aesthetic complexity

Especially for medium to high volumes, blow molding delivers unmatched efficiency. And our experts will advise you honestly — even if another process might be more suitable.

Limits of Blow Molding

Even a powerful process has its boundaries:

- × Not suitable for micro-details or tight tolerances (Injection molding is better)
- × Not designed for solid or fully massive parts
- × Limited for high-temperature or fiber-reinforced polymers
- × Less cost-effective for very small production runs with high complexity

At Kautex, we believe in honest, application-focused advice — even if blow molding isn't the best fit. Our experts are here to guide you to the right solution, whatever it may be.

Plastics Know-How

Polymer Expertise for Advanced Extrusion Blow Molding Machines.

Benefits of Kautex Plastics Know-How:

Why Plastics Know-How from Kautex?

- Improved product quality through accurate wall thickness control
- Lower waste and reduced material use via optimized process settings
- Faster development thanks to simulation and pre-analysis
- Reliable use of recyclates and modern materials
- Sustainable, efficient production enabled by smart material decisions

Because understanding Plastics is More than Engineering.

At Kautex, we know: Understanding plastics is essential to mastering blow molding. That's why we've brought together decades of knowledge under one name – Plastics Know-How. From material behavior and simulation to extruder and die head design, we turn expertise into production excellence.

We understand the specific processing properties of HDPE, PP, PE, PA, LDPE, and recyclates. This insight drives our in-house development and manufacturing of extruders and die heads – customized to your materials and production targets.

Thanks to rheological simulations, we analyze material flow even before production begins. This allows us to precisely design key process components – like screws, dies, and flow channels – for optimized material use and reliable results.

In partnership with leading experts like W. Müller, we deliver industry-standard quality – from machine to head system.

Plastics Know-How means less waste, better quality, and full flexibility – layer by layer.

Smart Head Systems

Where Precision Meets Flexibility

Whether you need accumulator heads for large, thick-walled parts or continuous heads for fast, multilayer packaging – we deliver tailored solutions.

Accumulator heads ensure optimal melt homogeneity and stable performance – ideal for fuel tanks, IBCs, or technical parts.

Continuous heads support up to seven layers and offer high output and fast color changes – perfect for packaging in consumer, industrial, or medical applications.

All Kautex die heads are modular, easy to maintain, and designed for processing recyclates as well as virgin materials.

Learn more about head tooling, quick-change systems, and partner technologies

Material Know-How

We understand Plastics.

Whether it's **HDPE, PP, PE, PA, LDPE,** or **recyclates** – each polymer behaves differently. We know their flow characteristics, mechanical properties, and thermal behavior.

With this material knowledge, we optimize your processing parameters to deliver maximum process stability, energy efficiency, and consistent quality.

Our Automation Know-How

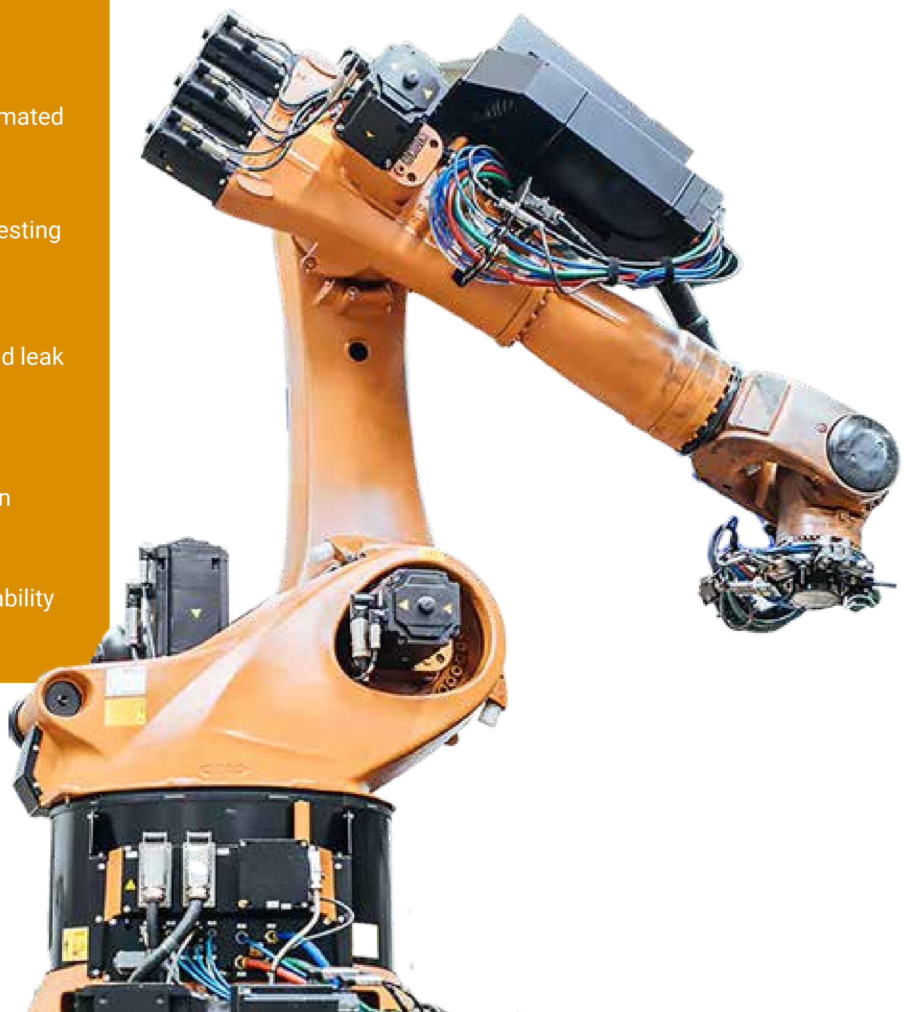
Efficiency Through Integrated Intelligence.

At Kautex, we don't just build machines — we design smart, automated systems for reliable, future-ready production. With more than 90 years of experience in blow molding and mechanical engineering, we've developed a deep understanding of how automation adds real value.

Our Automation Know-How brings together expertise across molding, post-processing, and quality control. From deflashing and cooling to vision systems and robotic handling, we create solutions that improve productivity, reduce waste, and ensure consistent quality — customized to your production goals.

Benefits of Kautex Automation Know-How:

- Increased output through fully automated process chains
- Consistent product quality with integrated testing and inspection
- Reduced scrap with precision deflashing and leak detection
- Faster changeovers via modular automation
- Lower staffing needs and improved repeatability



Downstream Know-How

Efficiency Beyond the Mold

Your Benefit: A Streamlined, Automated Downstream Process that saves Time, reduces Costs, and delivers repeatable Results.

From deflashing to leak detection – our downstream expertise ensures every part leaves the line with precision and reliability. By integrating automation modules seamlessly into the process chain, we enable higher output, faster product changes, and reduced scrap.

With modular systems and smart inspection technologies, we adapt to your production needs while guaranteeing consistent quality.

Blow Mold Know-How

Precise Molds. Smart Controls. Reliable Results.

Innovative Mold Functionalities, Optimized Product Design, and a faster Path from Concept to Production.

From view stripes to integrated grips – smart mold features expand the possibilities of your products. While we are not mold makers ourselves, our expertise in article design for the blow molding process ensures that every product concept is optimized from the start.

Through our partner network, we provide access to reliable mold construction, offering you a seamless and integrated solution. With advanced simulation, we analyze manufacturability early on – and if challenges arise, we can immediately propose design adjustments to secure efficiency and quality.

Our Technology Know-How

Innovations That Drive Your Productivity.

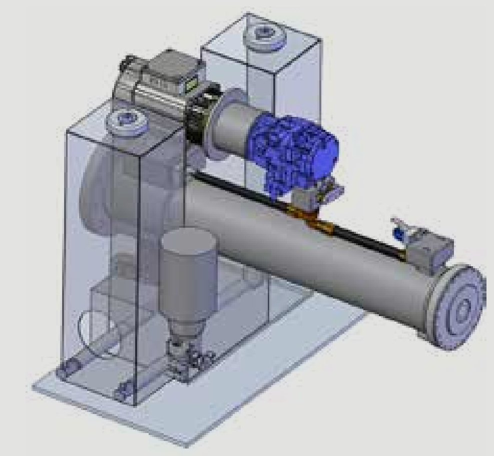
At Kautex, technology means progress with purpose. With every new development, we aim to make extrusion blow molding smarter, faster, more flexible, and more sustainable. That's what we call Technology Know-How – a growing portfolio of intelligent solutions that optimize your production and open up new product possibilities.

From rapid color and mold changes to traceability-ready digital tools, from multi-color applications to precision parison cutting – our innovations are practical, proven, and built for the real world of plastic processing.

Every feature we develop follows one goal: to deliver real efficiency, real design freedom, and real production value – now and for the future.

Benefits of Kautex Technology Know-How:

- Fastest color and mold changes on the market
- Multi-color capability with single-shot split-color molding
- Process-integrated recycling data via R-Cycle
- Time and material savings across the board
- Flexibility for new product shapes and short run



Blue Hydraulic

Energy Efficiency Built In.

With Blue Hydraulic, Kautex sets new standards in sustainable machine performance. The intelligent hydraulic system significantly reduces energy consumption – while maintaining full production power.

- **Lower energy demand** – double-digit savings compared to conventional systems
- **Sustainable** – reduced CO_2 footprint, increased efficiency
- **Seamless integration** – ideal for Kautex extrusion blow molding machines
- **High performance** – maximum productivity without compromise

See the Blue Hydraulic in action!

Fast color change

More Uptime, Less Waste.

Switch colors faster and keep production running. Our concept reduces purging effort, material loss, and changeover times – for higher efficiency and quality.

- **Rapid changeovers – s**horter color transitions, greater productivity
- **Less waste** – clean purging saves material
- **Consistent quality** – reproducible results in minimal time
- **Easily scalable** – compatible with modular setups

Fast Color Change – Maximum OEE through minimal downtime.

See the fast color Change in action!

Split-Color Technology

Two colors. One step. Endless possibilities.

With Kautex's Split-Color Technology, different colored melt streams are separated and shaped into a single parison. This allows for high-contrast two-tone products — without secondary finishing.

- Available in monolayer, 2- or 3-layer systems
- Compatible with continuous & accumulator heads
- Applications: sports gear, panels, toys, furniture, and more

See the Split-Color Technology in action!

Our Technical Center

Where Innovation Takes Shape.

Benefits of Kautex Technical Center:

Why Work with the Kautex Technical Center?

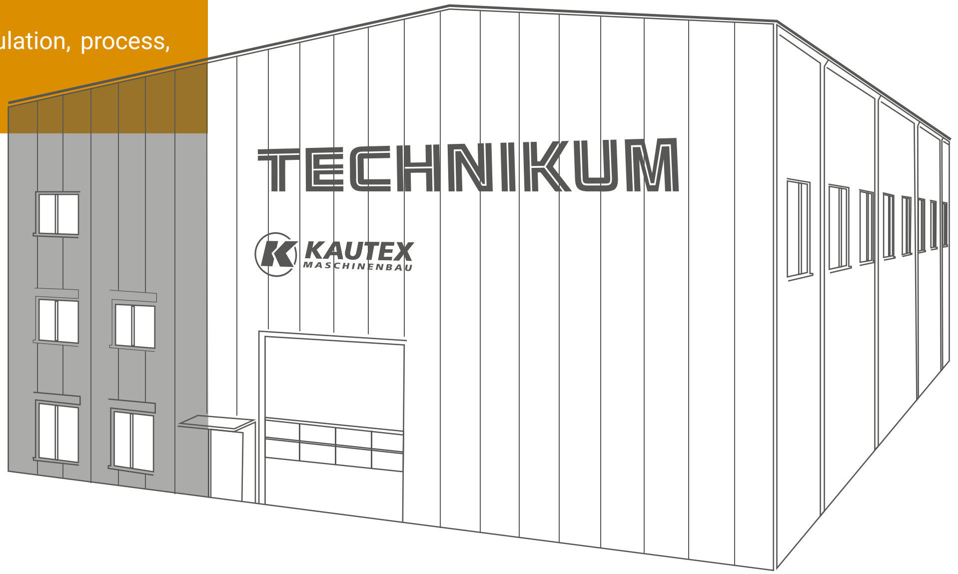
- No interruption to your mass production
- Faster time-to-market through direct access to equipment, tools, and expertise
- Full product lifecycle support – from material to mold to final testing
- Lower development costs with one infrastructure for all tasks
- Reliable sampling and validation before you scale up
- Dedicated experts on-site – simulation, process, materials, and design

At Kautex, innovation doesn't just happen in theory – it's tested, proven, and refined in our Technical Center in Bonn. With more than 1,000 m² of space, modern lab equipment, and an up-to-date machine park, our Technical Center is the beating heart of our product and process development.

From the initial idea to the finished product, we offer a controlled environment for validating new materials, shaping product design, optimizing processes, and running small series — without interrupting your production.

Whether you're launching a new packaging solution, qualifying recyclate, or exploring design features: here, you benefit from our full know-how in plastics, tooling, machine performance, and simulation – under one roof.

Discover our Technikum!



Our Capabilities

From Concept to Certification – All Under One Roof

We support you in every stage of product and process development. The following services are available to you at our Technical Center:

SAMPLING

We run your articles on real Kautex machines – using your molds, your material, and our process knowledge. Perfect for validating product ideas, testing new designs, or simulating full-scale production.

PRODUCT DESIGN & OPTIMIZATION

From CAD feasibility checks to blow molding–specific DFM feedback: our experts help you design your part for performance, manufacturability, and cost-efficiency. Need grip zones, multilayer functionality or label windows? Let's make it work.

SIMULATION SERVICES

Our simulation tools help optimize:

- Parison behavior
- Wall thickness distribution
- Cycle times
- Product geometry

All based on material rheology and machine parameters — for "first-time-right" results.

SMALL SERIES PRODUCTION

Need limited quantities before ramp-up? We produce short runs for pilot projects, field tests, or early deliveries — even with recyclates or specialty resins.

MATERIAL TESTING

We analyze how new materials behave in the blow molding process — including recyclates (PCR, PIR), biopolymers, or custom compounds. Our lab infrastructure enables material trials under production-like conditions.

TESTING & VALIDATION

In our integrated Container Lab, we offer:

- Wall thickness & layer distribution
- Drop tests (ambient & frozen)
- Infrared thermography
- Top-load & dimensional testing
- Bulk density, pourability & moisture testing

All tests are documented for certification and traceability.

GET IN TOUCH

We are happy to help!
Please feel free to contact us for any inquries or assistance you may require.

www.kautex-group.com