



FRIMO.
HIGH TECH AND
HIGH PASSION.

FRIMO. HIGH TECH AND HIGH PASSION.

You can expect more from us

At FRIMO, we believe the key to success is continuous, long-term development of both our expertise and the passion with which our teams do everything in their power to achieve the best technological solution.

We have therefore gathered an unparalleled range of technologies within our corporate group, and this is what makes us the leading full-service provider of production systems for manufacturing high-quality plastic components. We know

future-oriented technology requires highly qualified, active people who listen, work as a team, and persevere, so that we can play a role in our customers' success each and every day.

With a willingness to change and the will to innovate, we never stop putting our products and our service to the test, worldwide. In this process, quality and safety are our top priorities. Above all, every FRIMO solution is one thing – optimized for your individual needs.



**MOVING FORWARD
FOR YOU
FOR OVER
50 YEARS.**

SHAPING THE FUTURE TOGETHER

FRIMO solutions put you in an optimal global position

No matter which industry you're in, you'll find the right equipment for your plastics manufacturing needs at FRIMO. This is because we develop customized tools and systems – including complete, fully automated production lines – with the goal of being the best in our class.

We have received countless awards for our production systems, and to ensure that we have competitive solutions for future requirements, we are heavily involved in both our own and collaborative research and development projects. At our TechCenters, you can test our technologies and products in a real-world environment on a prototypical and near-production scale.

Smooth production starts are more critical than ever as development cycles become increasingly short; they also

help minimize risks and increase efficiency. In this context, FRIMO offers the best possible support – because we're only satisfied when you are too.

23 SPE AWARDS

2 JEC AWARDS

FULL DEDICATION FOR YOUR SUCCESS.

As wide-ranging as your needs.
FRIMO equipment is used in numerous industries:

AUTOMOTIVE | RAILROAD | CONSTRUCTION | APPLIANCE
HEATING AND PLUMBING | AVIATION | MEDICAL | FURNITURE
COMMERCIAL VEHICLES | SPORTS AND RECREATION
WHITE GOODS

Scan the QR code to see our long list of references!



**ONE STOP.
ALL SERVICES.
AN UNPARALLELED
RANGE OF TECHNOLOGIES.**



MEETING THE NEEDS YOU'LL HAVE TOMORROW

We are your global technology partner

Whether local or global – we have systematically tailored our range of products and services to the needs of our customers, and offer assistance with our many years of experience in everything from planning to production.

Whether small or large – we offer standardized single systems and individual solutions, which combine a variety of different technologies with a high level of automation in order to simplify and automate your processes. Solving problems is good, but creating additional value is better.

In our pre-engineering stage, we approach your task with the creativity and determination required to offer you the ideal manufacturing solution for your individual application. We assist with global project management if production needs to be implemented at different locations, and when production is fully up and running, we remain there for you around the globe with our range of services.

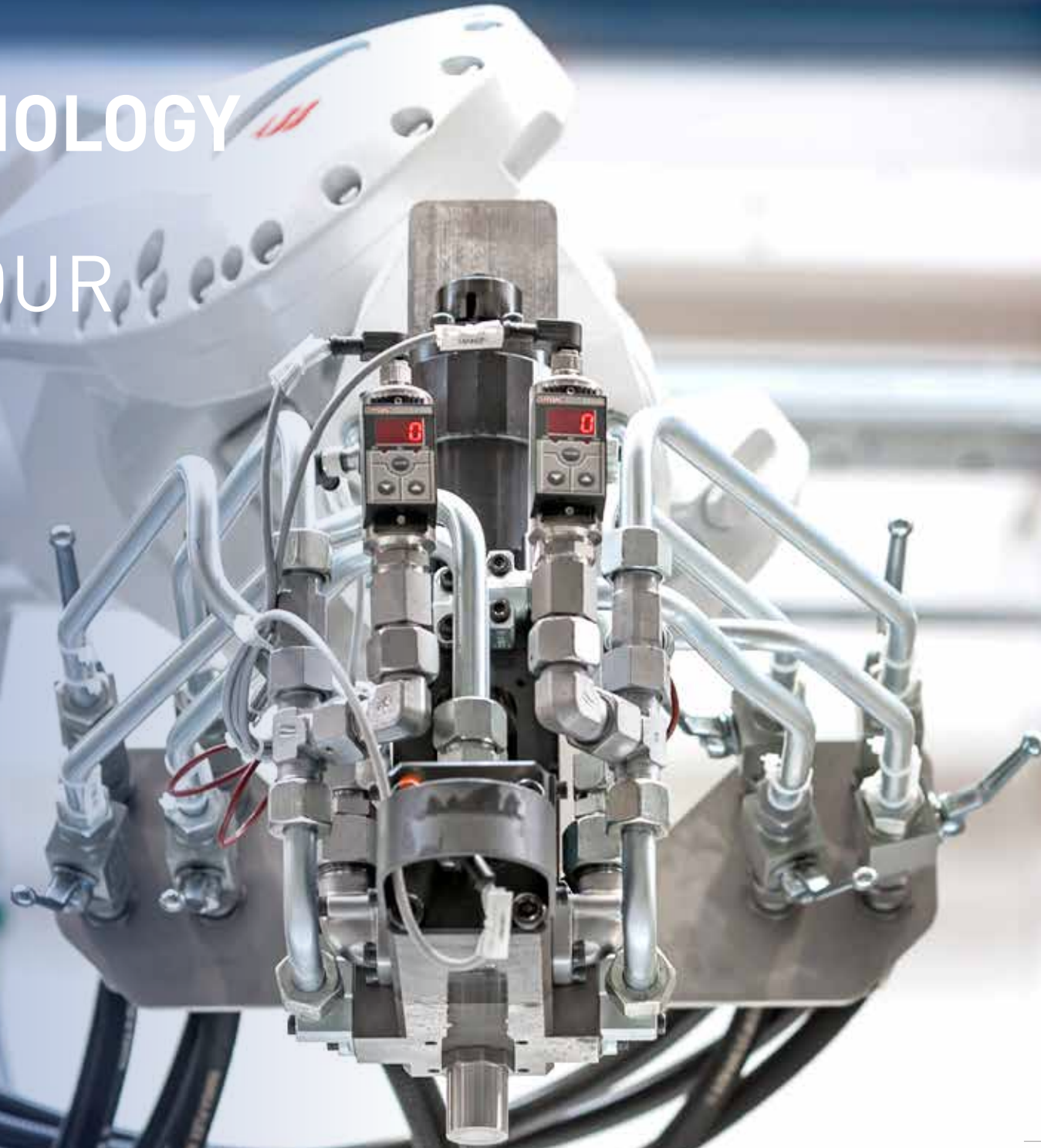
We provide technology-neutral advice:

- PU PROCESSING
- FLEXIBLE TRIMMING
- PUNCHING
- PRESSING/FORMING
- THERMOFORMING
- PRESS LAMINATING
- EDGE FOLDING
- JOINING/GLUING

We support in every step of the process:

- ENGINEERING
- PROJECT MANAGEMENT
- PROTOTYPING
- TOOLING
- MACHINERY
- AUTOMATION
- SERVICE
- PART PRODUCTION

PROVEN TECHNOLOGY EXPERTISE TO BENEFIT YOUR PRODUCTION.



The **FRIMO Augmented Reality app** allows you to gain exciting 3-D insights into our technologies. Simply download the app and scan the images labeled with the app icon!



PU PROCESSING

For the right mix

FRIMO PRe Mix metering technology for polyurethane part manufacturing is just as versatile as the material itself. We offer individual solutions for processing soft, semihard, hard, and integral foams, pouring systems, reinforced systems, and spray systems.

Our PRe Mix machine line has an impressive, extensive base configuration and is available in both standard and customer-specific versions. The compact and modular design saves space and increases flexibility. Excellent accessibility combined with state-of-the-art controls and visualization create an ideal environment for the operator and guarantee consistent high quality products.

Product portfolio:

- Pump metering systems
- Piston metering systems
- Hybrid metering systems
- Spray systems
- Mix heads
- Spray heads
- Material feeding
- Peripheral systems



For a wide range of applications

Our PRe tool and system technology is used for many different components in numerous industries. We supply highly specialized solutions used to produce instrument panels, door panels, seats, headrests, and insulation and structural components.

Innovative solutions begin with modeling technologies, such as 3-D printing. When it comes to tools, we supply everything from simple to complex, including trial tools, prototype tools, pre-production tools, and complex series production tools. We are the market's leading technology supplier of foam-in-place solutions for premium decorative materials, as well as cost-effective production of surface variations (PRe Skin) and release agent-free foaming (PRe Liner).

Our standard tool carrier meets all kinematic, clamping force, and clamping area needs. Even electric foam-in-place solutions for carpeting are possible with FRIMO. A version with a swiveling lid offers ideal ergonomics and is particularly popular for RTM processes. Stationary or mobile system layouts designed to meet your specific needs are equally versatile. At the same time, our focus is on the highest levels of availability and process safety.

Product portfolio:

- Modeling technology
- Tools
- Tool carriers
- Stationary systems
- Turn tables
- PRe Track overhead conveyor systems
- PRe Floor floor conveyor systems



FLEXIBLY
TRIMMED
WITH THE UTMOST
PRECISION.



FLEXIBLE TRIMMING

Well-engineered for your safety

FRIMO FlexTrim systems make it possible to complete trimming jobs within the production process in a particularly flexible manner. As a result, you can easily process a variety of components with different designs, made of different materials, and with complex geometries with the required level of precision.

To achieve this, we include all common cutting methods needed for the project, such as milling, ultrasonic cutting, blade cutting, and water jet cutting. This can be added onto or combined with punching processes. At our TechCenters, we offer a wide range of trial opportunities as early as the planning and development stage, and therefore can help determine the ideal solution for your needs from both a technical and economical perspective.

FRIMO FlexTrim scoring systems have an unparalleled level of process reliability, which is especially important when working in safety-related fields with tight tolerances, for example the process known as airbag weakening. This is proven each and every day by FRIMO systems used for series production located around the world.

Product portfolio:

- Product mounts
- Milling systems
- Ultrasonic cutting systems
- Blade cutting systems
- Scoring systems
- Water jet cutting systems

FAST AND ACCURATE PUNCHING WITH PRECISION.

The **FRIMO Augmented Reality app** allows you to gain exciting 3-D insights into our technologies. Simply download the app and scan the images labeled with the app icon!



PUNCHING

Highly productive and reliable – perfect cuts for high volumes

At FRIMO, you get comprehensive and optimally customized punching solutions for a wide variety of applications. We are the leading specialist when it comes to high-volume, complex punching projects. Our systems are used across the globe in the automotive industry for punching instrument panels, center consoles, door and column panels, and bumpers.

We assist early in the development stage to help achieve the most efficient production possible. We help determine the best possible punching method based on your individual project parameters, and conduct tests to ensure our determination is correct. This approach ultimately cuts investment and production costs and gives you the necessary availability and security during production.

The punching methods we use encompass all principles of die cutting and kiss cutting, as well as additional special types of punching that are combined with each other or with other processes, such as edge folding. For these special situations, we have automated and connected systems.

Product portfolio:

- Product mounts
- Punching tools
- Punching systems:
 - EcoCut
 - ErgoCut
 - CombiCut
 - MicroCut
- HyPress punching
- Specialized punching systems
- Punching lines
- Tool changing systems

LIGHTWEIGHT SOLUTIONS FOR DIFFICULT TASKS.



PRESSING/FORMING

A powerful combination – efficient composite processing

With FRIMO, you can rely on many years of extensive experience in efficiently processing composites in high volumes. We supply production equipment that is perfectly tailored to the manufacturing process. This includes both thermoplastic processes (NFPP, LFT, GMT, LWRT, Organo sheets) and thermosetting processes (RRIM, SRIM, SMC, BMC, LFI, RTM).

Typical applications include structural or hybrid components or as the substitution of steel or aluminum. Our technologies are already successfully used in the automotive industry for manufacturing monocoques, paneling components, floor structures, seat cushions, door panels, ceiling panels, wheel rims, and springs made of fiber-reinforced composites.

By integrating features and combining technologies, we accelerate processes with the goal of increasing the competitiveness of our products and, in turn, your production. With us, you get everything from one source – component design, material selection, tool and machine design and production, and prototype and pre-series parts production in our TechCenters.

Product portfolio:

- NFPP hybrid tools/systems
- NFPP OneShot tools/systems
- Preform tools/systems
- RTM tools/systems
- Organo Sheet Injection (OSI) tools/systems
- Pressing tools
- Forming tools
- Combination tools

VERSATILE APPLICATIONS COST-EFFECTIVE SOLUTIONS.

The **FRIMO Augmented Reality app** allows you to gain exciting 3-D insights into our technologies. Simply download the app and scan the images labeled with the app icon!



THERMOFORMING

Thermoforming and vacuum laminating – innovative solutions for small-batch and high-volume production

At FRIMO, there are a variety of options for cost-effectively manufacturing thermoformed surfaces. Film and sheet materials can be used to efficiently and reliably produce all types of decorative paneling, such as for vehicle interiors. This makes it possible to meet high demands for durability and functionality, as well as for appearance and feel.

To achieve this, we provide customized equipment and tool technology for thermoforming and vacuum laminating, even with IMG (in-mold graining) quality. It is even possible to use a combination of these methods in one system. Through the use of 3-D simulation and visualization technologies, we optimize the process as early as during the development stage, based on your process data. Results are then verified on the systems at our TechCenter.

Our systems are equipped with innovative and patented features for saving materials, high availability, the ideal heating concept, controls, monitoring process data, and ergonomically ideal operation.

Product portfolio:

- Thermoforming/ vacuum-laminating tools
- IMG thermoforming/ vacuum-laminating tools
- EcoForm single-station systems
- EcoVarioForm in-line systems
- VarioForm in-line systems
- Multipurpose machines (MPMs)
 - Vacuum laminating
 - Press laminating
 - Edge folding
- Turntable systems
- Specialized systems
- Tool changing systems



PERFECTED DOWN
TO THE LAST DETAIL
FOR STUNNING
SURFACES.



PRESS LAMINATING

For high output and availability –
precisely automated and combined

Increasing demands in the design and quality of surfaces, particularly in the automotive industry, require high-performance systems and tool technology. Such systems make it possible to turn structural components into top-quality interior panels using decorative materials such as films, leather, artificial leather, and textile materials, all while saving as much material as possible.

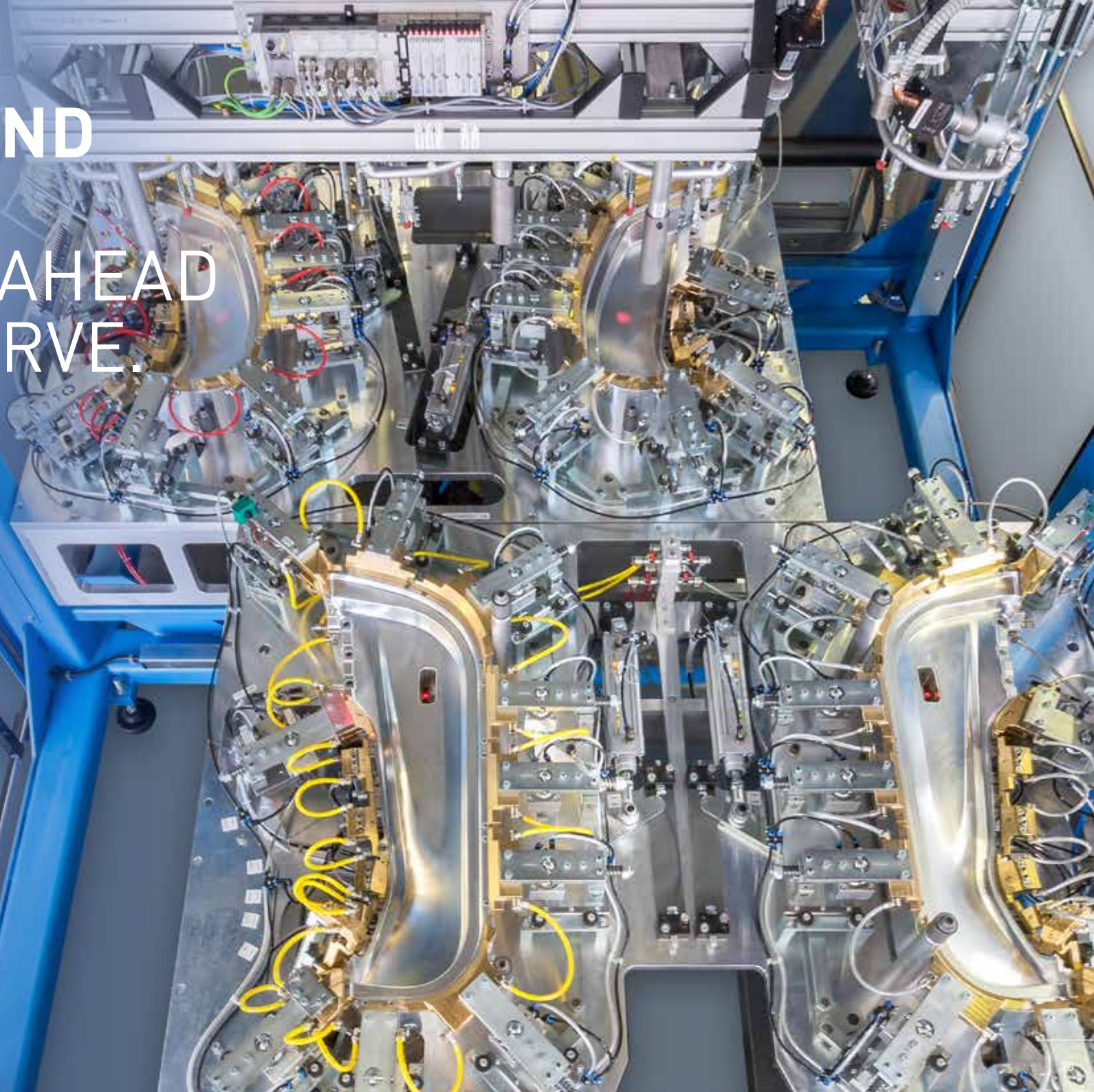
We supply highly specialized laminating solutions that give you the ability to process even the most delicate materials in a high-output process with reproducible quality. In our FRIMO robot cells, the individual surface finishing processes, the adhesive application, and the actual leather-laminating operation is carried out automatically and perfectly adapted in one continuous process.

For laminating and edge folding in one system, we offer FRIMO Accurate Blank Laminating (FABL), an innovative option that also allows preformed blanks to be processed with edge folding directly afterwards.

Product portfolio:

- Press laminating tools
- Press laminating/edge folding tools
- Groove lamination tools
- Membrane lamination tools
- Single-station press laminating systems
- In-line press laminating systems
- Robot cells
 - Adhesive application
 - Press laminating
 - Edge folding
- Multipurpose machines (MPMs)
 - Vacuum laminating
 - Press laminating
 - Edge folding
- Membrane laminating systems
- Specialized systems
- Tool changing systems

PRECISE AND CLEAN THINKING AHEAD OF THE CURVE.



EDGE FOLDING

A reliable process without the need for reworking – intricate technology for clean edges

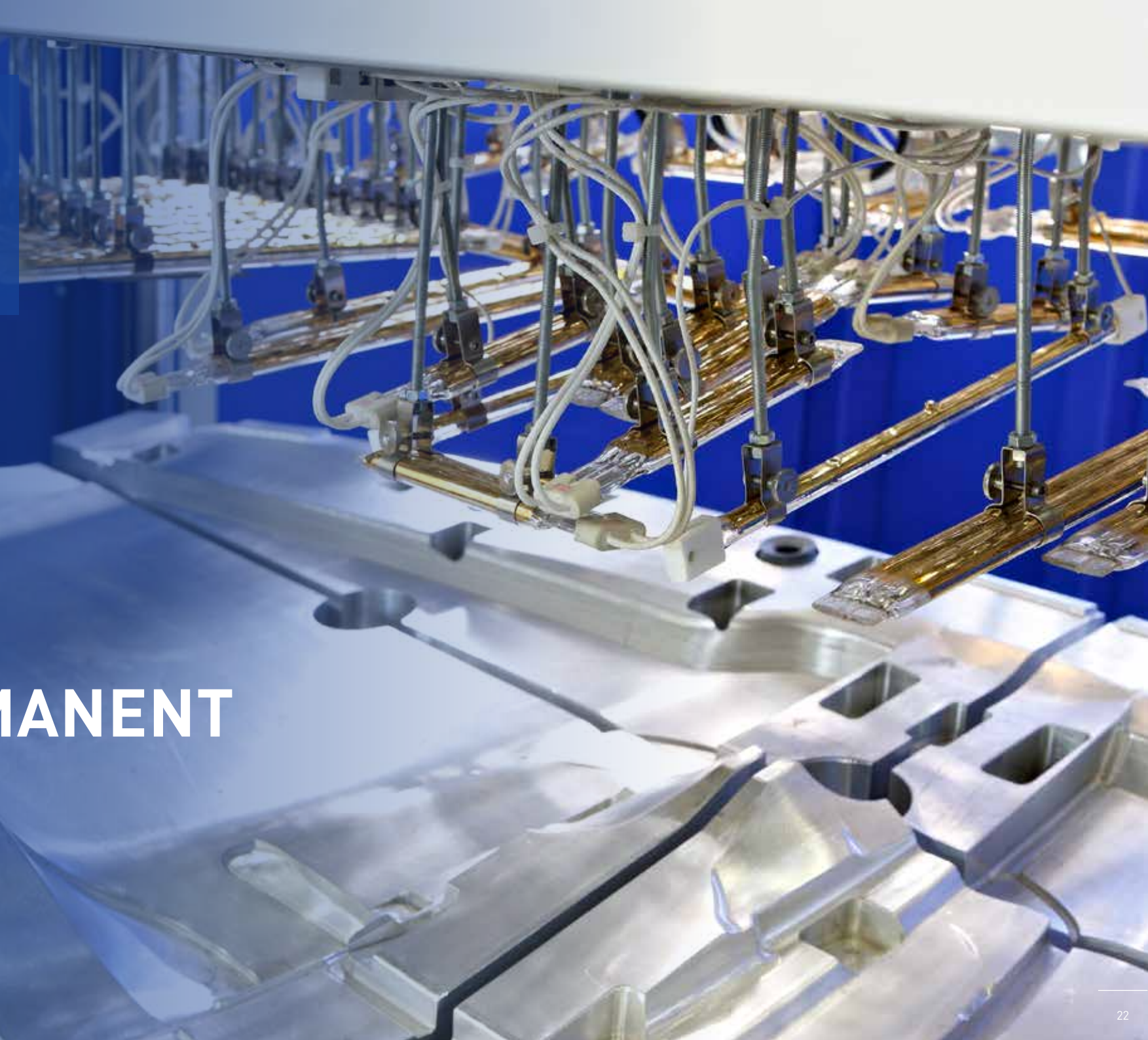
Our edge folding equipment offers a customized follow-up and finishing process for laminated, back injection-molded, or back compression-molded automotive interior components. During this process, decorative materials such as film, textiles, carpeting, and leather are affixed to the back of the structural component.

We recommend various methods depending on the project that are either adhesive-based with dispersion or hot-melt adhesives, or adhesive-free using hot air or heated edge folding sliders.

We have continuously improved our edge folding technology, making the process increasingly reliable, since all process parameters, including temperature, pressure, and locking times are permanently monitored, and self-adjusting hot air blower technology is used. FRIMO edge folding sliders close seamlessly with zero gap and move independently of each other both horizontally and vertically. This is how we solve highly complex tasks and combine edge folding with other technologies.

Product portfolio:

- Edge folding tools
- Combination edge folding tools
 - Trimming
 - Punching
 - Welding
 - Etc.
- Single-station edge folding systems
- In-line edge folding systems
- Combination systems



A PERMANENT
BOND
WITH
FRIMO.

JOINING/GLUING

We create bonds –
with the ideal design and controls

Joining tasks are becoming increasingly complex and multifaceted, and quality requirements of the bonds are also increasing. A variety of different methods are used depending on the scope of the application, as well as the material configuration, component geometry, and quantity requirements.

Considering weldability during the design stage creates advantages later on. This is because the only way to compensate for tolerances and guarantee reliable welds is with perfectly designed weld-seam geometries. Our special FRIMO controls technology also plays a considerable role in the efficiency of the processes.

When it comes to infrared welding, FRIMO JoinLine systems are a technological leader in the market. In addition to the substantial benefits of completely particle-free joining and the weld seams' extremely high rigidity, the process is perfect and particularly sustainable for welding high-performance plastics.

The FRIMO Plastics Joining Configurator app, which can be found in both the Apple and Android app stores, will show you which joining method is right for you.

Product portfolio:

- Infrared welding systems
- Hot plate welding systems
- Ultrasonic welding systems
- Ultrasonic standard components:
 - Handheld welding devices
 - Generators
 - Converters
 - Feed units
 - Path measuring systems
- Ultrasonic riveting systems
- Heat stake riveting systems
- Hot air riveting systems
- Gluing systems



RELIABLE
SERVICE
LOCAL TO YOU
AROUND THE WORLD.



SERVICE IS ABOUT TRUST – TRUST IN THE ORIGINAL

For all of your service needs – wherever you are

For over 55 years, the FRIMO brand has stood for production equipment of outstanding quality. To ensure the best results with your systems over their entire lifetimes, you should also rely on the official FRIMO service team.

Our experienced and qualified FRIMO service team offers support to ensure the optimum use and maximum availability of your systems worldwide. From training and production assistance, to inspections and maintenance, repairs, modifications, and relocations, we offer you a wide range of services and solutions specific to your needs.

We can offer custom service agreements for preventative maintenance, preserving resources and minimizing production risks. When it comes to spare parts, you will receive a perfected list of official FRIMO spare parts for your equipment, offered with fair terms. To achieve this, we tested our international spare parts management and optimized it for you.

We are also working to improve our future service capabilities. With Smart Services, we are increasing our utilization of digital solutions to provide optimum support to your FRIMO system operators.

COMPLETE COMMITMENT – COMPLETE SUCCESS

With expertise and enthusiasm – quality begins with our employees

Our specialists' individual know-how is extremely important to us, but that alone is not enough. This is why when it comes to our human resource development measures, we place a special emphasis on interdisciplinary competencies in our teams, which are increasingly required in global and digital working environments.

Lifelong continued learning is required of each of our employees, beginning with our apprentices and entry-level workers and continuing all the way up to our specialists and managers. Through a variety of real-world and custom-designed

training courses and the use of e-learning, we strive for continuous improvement. This is reflected in our products and services, as well as in our trusting business relationships with customers.

FRIMO stands for full dedication, and that is why we focus on enhancing this commitment and our performance at all levels of the company. This is how we maintain our capacity for innovation, and how we will continue to supply you with production systems, with which you will be successful in the competitive international market.



**QUALITY THROUGH
EXPERTISE
FOR YOUR
SATISFACTION.**

SUSTAINABLE IDEAS FOR THE FUTURE.



SUSTAINABILITY MEANS LIVING YOUR VALUES

We look at sustainability in its entirety – economically, environmentally, and socially.

Here at FRIMO, we believe it is our mission to conduct business in a sustainable manner - economically, environmentally, and socially. To achieve this, we develop and retain qualified personnel, whose occupational safety and health is a top priority.

We pay careful attention to conserving resources within our working environment, as well as when developing our products. We make advancements to our production systems with a focus on minimizing material and energy consumption.

Compliance with legal provisions and ethical standards is a must for us. We're fully committed to fair and legally compliant

conduct in competition and thus ensure our quality and company success in the long run. Our values and guidelines are written in our code of conduct applicable across the FRIMO Group, and we monitor its observance.

Our mission statement:

- WE ASSUME RESPONSIBILITY.
- WE PRACTICE COOPERATIVE PARTNERSHIP.
- WE ARE CREATIVE AND INNOVATIVE.
- WE OBSERVE LAWS AND ETHICAL GUIDELINES.
- WE ACT SUSTAINABLY.

THE WILL TO INNOVATE REQUIRES A WILLINGNESS TO CHANGE

We want to play a key role in shaping the future of plastics processing

Innovation requires more than just coasting on success. Being an innovative development partner means being proactive instead of reactive. This is why our research and development has three branches: development projects launched internally, development with external involvement on behalf of customers or in research projects, and continuous advancements and improvements stemming from our daily operations.

We have many patented developments and, as a result, can offer you beneficial solutions that are exclusive to FRIMO. With our one-of-a-kind range of technologies, we play a role in shaping trends. In the automotive industry, megatrends like lightweight construction, autonomous driving, and the increasing variety of models are key drivers of new solutions at our company.

When it comes to manufacturing lightweight components to reduce weight in high-volume production, we contribute to developments in research projects like SMiLE, Leika, and iComposite 4.0 with our solutions. In our own collaborative project, Street Shark, we are driving the development of multifunctional 3-D lightweight sandwich construction and the series-production use of high-quality and even bionic surfaces.

Whether for PU processing, flexible trimming, punching, pressing/forming, thermoforming, press laminating, edge folding, or joining/gluing – we are your innovative global technology partner.

A man in a blue checkered shirt is wearing a VR headset and looking at a 3D printed mechanical part on a white table. The part is red and blue with green tubes. The background is a modern office with a grid wall.

**MAKING
INNOVATIONS HAPPEN
CREATIVE AND
DETERMINED.**

LOCAL EXPERTISE WITHIN THE GLOBAL FRIMO NETWORK

Since FRIMO's founding in 1962, our corporate Group has grown into a leading technology supplier of production solutions. Today the FRIMO network includes international locations in Europe, America, and Asia with a total of 1,500 employees, as well as numerous international representative offices.

Locations

- FRIMO Group
- FRIMO Lotte
- FRIMO Sontra
- FRIMO Freilassing
- FRIMO Hamburg
- FRIMO Control Systems
- FRIMO China
- FRIMO Hungary
- FRIMO USA
- FRIMO Mexiko
- bo parts Deutschland
- bo parts USA
- B+R Elektro-Steuerungstechnik

Representatives

- Brazil
- Czech Republic
- France
- Great Britain
- India
- Italy
- Korea
- Portugal
- Russia
- Scandinavia
- Slovakia
- Spain
- Turkey

**ONE STOP.
ALL SERVICES.
WE'RE HERE FOR YOU
ACROSS THE GLOBE.**

FRIMO Inc.
50685 Century Court
Wixom, MI 48393
USA
☎ + 1 (248) 668-3160
sales.usa@frimo.com

www.frimo.com

