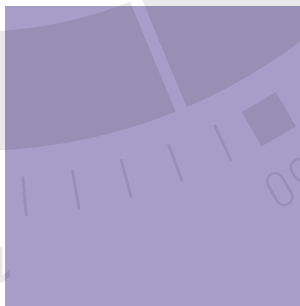
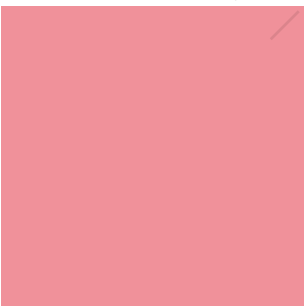
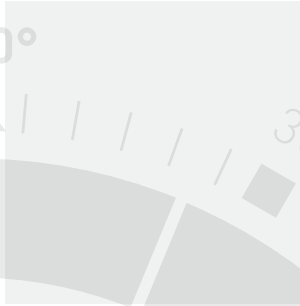
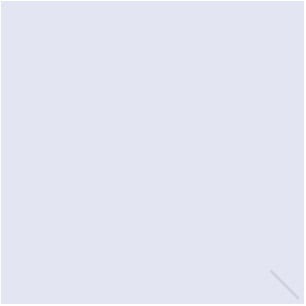


Plastics
Technologies
in Motion.





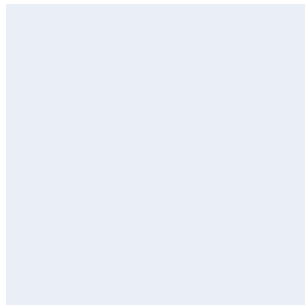
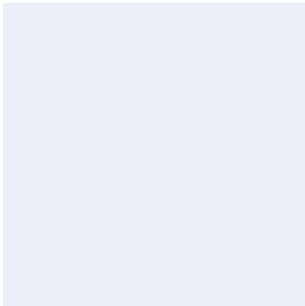
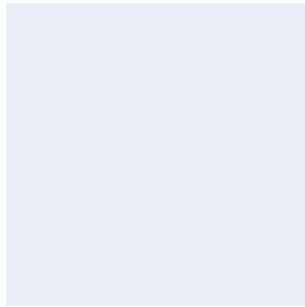
Plastics
Technologies
in Motion.

FRIMO – Your Global Technology Partner.

FRIMO is one of the leading specialists for the development and manufacturing of tooling, machinery and equipment for the production of high-quality plastic components for various applications and industries.

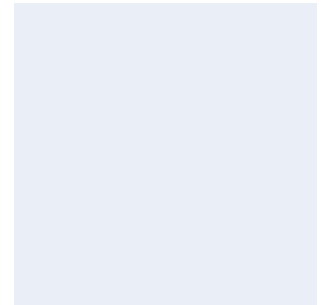
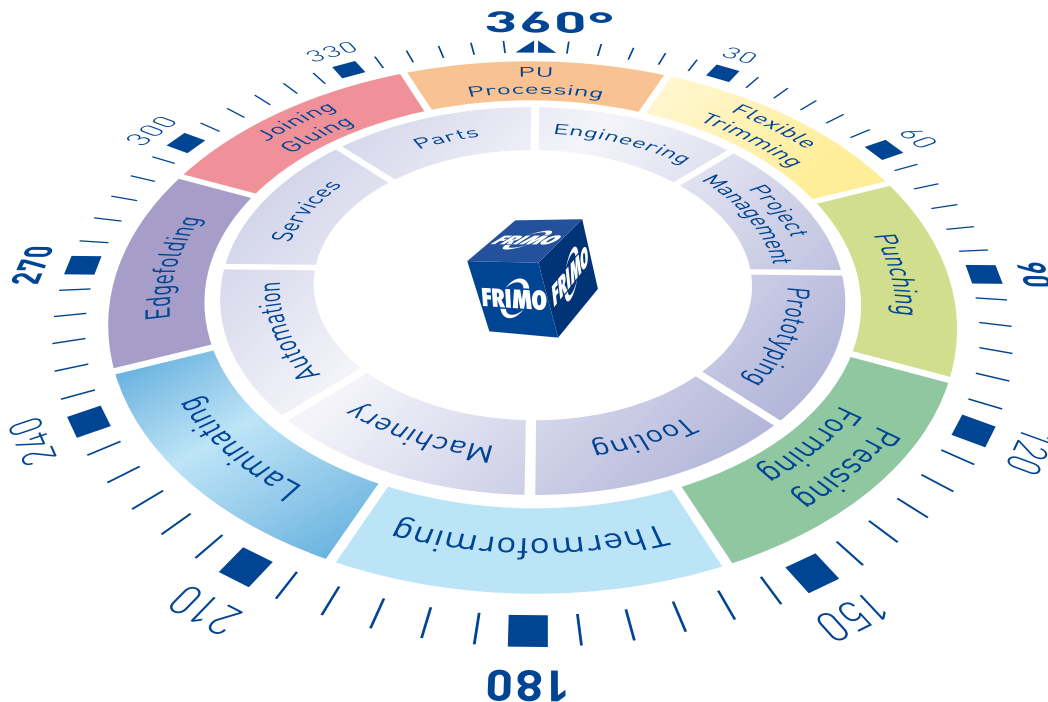
We offer you a comprehensive spectrum of technologies and services, and support you through every step of the process. Regardless of whether you opt for high-quality tools, high-performance machines or automated production lines. The solution we provide is always individually optimized to meet your requirements.

FRIMO tooling and machinery has been successfully integrated into in numerous projects worldwide. OEM and tier 1 suppliers as well as customers from other plastic processing industries benefit from tailor-made FRIMO solutions with the expertise of more than four decades.



Get to know us from all sides!

The FRIMO group of companies, with its headquarters in Germany, today consists of international locations in Europe, America and Asia with more than 1,000 employees as well as a number of international representatives. As an innovative technology partner FRIMO has received several honors for outstanding quality and performance. FRIMO has been awarded more than 10 times the famous SPE Award and even the Grand Innovation Award as a partner of BMW.





All services from a single source – Tailor-made for your application.

Depending on your needs, we are able to supplement our products with comprehensive services along the entire value chain: from engineering, project management and prototyping to the production of tools, machines and equipment including a broad spectrum of after sales services.

Our range of services also includes the automation or combination of multiple technologies into an intelligent system as well as the management of turnkey projects. We also provide solutions to take over responsibility for your spare parts production.

With the perfect interaction of technology, project management and staff competence, we create effective solutions that add value for our customers all over the world. Your benefits: Technology-neutral consulting, production reliability through proven and high-performance products, synergies through technology bundling, high innovation potential, reduction of interfaces and faster turnaround times.

One Stop. All Services.



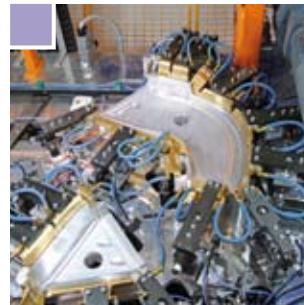
Explore our extensive product portfolio!

As your innovative technology partner, FRIMO provides a full product range related to a broad spectrum of technologies for the processing of plastics:

- **PU Processing**
- **Flexible Trimming**
- **Punching**
- **Pressing / Forming**
- **Thermoforming**
- **Laminating**
- **Edgefolding**
- **Joining / Gluing**

Depending on the application, these can be standard tools and equipment, tailor-made production systems or cross-technology turnkey projects.

Turn your ideas into reality, with FRIMO!



360°

PU
Processing

FRIMO *PURe* product portfolio:

- Pump metering machines
- Piston metering machines
- Hybrid metering machines
- Spraying machines
- Mixing heads
- Spray heads
- Peripheral equipment

The right mix makes the difference – *PURe Mix* mixing and metering technology.

Products made of polyurethane are common in all areas of our daily life. For example PU is used as insulation material for refrigerators, in upholstered furniture or sport articles. In the automotive industry instrument panels, door trims, headliners, seats, headrests, steering wheels or bumpers and spoilers are typical applications.

FRIMO offers a full product range for the processing of soft, semi-rigid, rigid and integral foams as well as for casting systems, filled systems and for PU spray applications.

The *PURe Mix* mixing and metering products always offer the right mix. All standard products within these series are based on a modular and compact design and a comprehensive technical configuration. Customer specific configurations can be easily adapted on demand.



Flexible and individual system solutions – *PURe* Tooling and Machinery.

FRIMO delivers tooling technology for all foaming, casting or spraying processes which cover the complete range for PU components: from simple tools for prototypes to reliable tools for pilot series and serial production up to sophisticated concepts, which can be used for the backfoaming of high quality surface materials.

Independent from kinematics, clamping force or clamping surface, FRIMO offers tailor-made tool carriers that can be integrated in different plant concepts as stationary plants, rotary tables or *PURe Track* overhead conveyor systems. FRIMO focuses on individual and turnkey plant solutions that provide the customer a maximum of availability and productivity.

FRIMO *PURe* product portfolio:

- Model technology
- Tooling technology
- Tool carriers
- Stationary plants
- Rotary tables
- Overhead conveyor systems



360°

Flexible Trimming

FRIMO *FlexTrim* product portfolio:

- Product fixtures
- Milling machines
- Waterjet cutting machines
- Blade Cutting machines
- Scoring machines
- Laser cutting machines

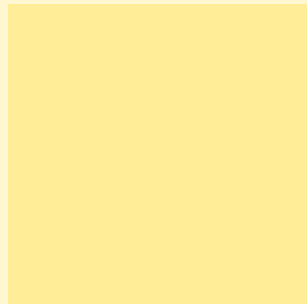
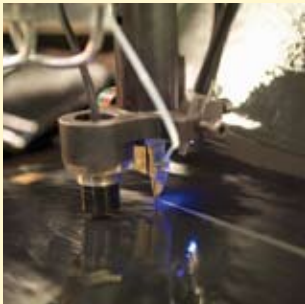


For various operations and applications – Flexible Trimming with *FlexTrim* machines.

An ever-growing range of models and variants, new design requirements and materials, and constantly accelerating development and product cycles demands increasingly flexible trimming systems.

The FRIMO product portfolio comprises all established trimming processes such as milling, waterjet cutting, blade and laser cutting. These compact, robot based *FlexTrim* machines are also available in a modern application center for testing purposes. FRIMO has no preference for any specific trimming technology but rather offers its customers the optimal solution from a technical and economic perspective.

Flexible trimming technologies are often used in combination with punching operations for the production of variants or for lower and medium production volumes. The scoring technology is a special form of blade cutting and is applied for the intentional weakening of different materials to create specific tear lines for invisible airbags.



Fast, reproducible and clean – Punching solutions for the perfect cut.

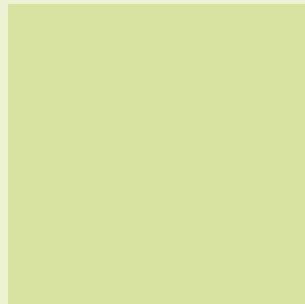
As a longtime partner in the automotive industry, FRIMO specializes in the punching of complex plastic components such as instrument panels, center consoles, door and pillar trims or bumpers, for example.

No matter if it is a cut-through process, kiss cutting, groove punching, or hot-knife retainer weakening, FRIMO offers a wide variety of highly efficient tools and machines for almost any application. If required, these punching systems can be fully automated, linked or combined with flexible trimming machines.

This enables FRIMO to offer comprehensive, optimally tailored system solutions. Specialized processes, such as stapling to mount heat shielding plates, pitching to prepare components for vacuum laminating or the self-punching fastening system *OneShot* complete the product portfolio.

FRIMO product portfolio:

- Product fixtures
- Punching tools
- *EcoCut, ErgoCut, CombiCut, VertiCut* punching machines
- Special punches
- Pitching machines
- Stapling machines
- *OneShot* machines



360°

Pressing
Forming

FRIMO product portfolio:

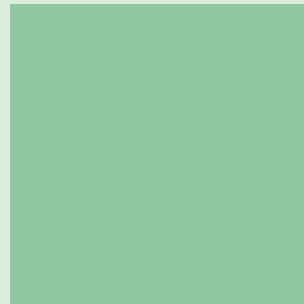
- Pressing tools
- Forming tools
- Foam tools for PU formed parts
- RIM Skin tools
- Combi tools
- *HyPress* hydraulic presses
- Forming plants for carpets
- Plant technologies for insulation and acoustic components

Pressing and Forming – Custom-made tooling and machinery.

FRIMO offers a broad spectrum of tooling and machinery for the pressing and forming of plastic components. Typical applications are the manufacturing of form-stable substrates, foamed PU parts and a variety of insulation and acoustic components.

The product portfolio includes pressing tools for the processing of composite materials such as SMC, LFT or GMT as well as foam tools for processes such as RRIM, SRIM/GMPU, Long Fiber Technologies or NFI. For the manufacturing of high-quality class A surfaces FRIMO offers special RIM Skin tools. Furthermore combi tools integrate different process steps, including forming, laminating and punching in one single unit.

For the forming and backfoaming of carpets or other textiles tailor-made plant solutions provide the customer a maximum of availability and productivity.



For more economic efficiency – Efficient and reliable Thermoforming.

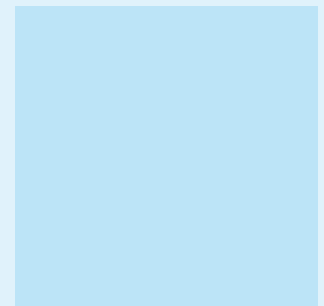
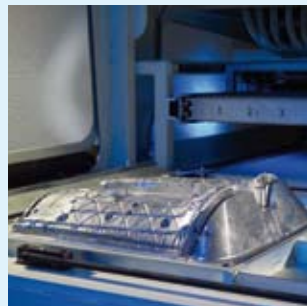
Thermoforming is a particularly economical and effective technology with high-quality results and a virtually unlimited spectrum of applications. Film forming with IMG technology or TEPEO 2® represents an economical alternative to the other forming processes like slush-moulded or spray skin.

In the automotive industry, tailor-made FRIMO tooling and plant technologies are used to produce a wide range of cockpit and door components as well as interior trims. Moreover this technology is also used in various other industries, including sanitary applications, medical and packaging products as well as „white goods“, office materials, sport and leisure articles.

Besides individually configured equipment, FRIMO also offers standardized *EcoForm* und *VarioForm* machines for the processing of all kinds of foils and plastic sheet materials.

FRIMO product portfolio:

- Thermoforming tools
- *EcoForm* single-station thermoforming machines
- *VarioForm* in-line thermoforming machines
- Rotary tables
- Special machines
- Tool change systems



360°

Laminating

FRIMO Product portfolio:

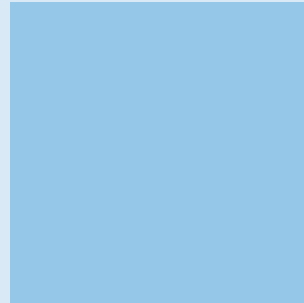
- Vacuum-, press- and membrane laminating tools
- *EcoForm* single-station vacuum laminating machines
- *VarioForm* in-line vacuum laminating machines
- Single-station press laminating machines
- In-line press laminating machines
- Membrane laminating machines
- Rotary tables
- Special machines
- Tool change systems

For perfect class A surfaces – Laminating technologies from the specialist.

FRIMO laminating technology is used above all in the automotive industry. Typical applications include instrument, door and side panels, parcel shelves, armrests, pillar and luggage compartment trims.

With extensive technological expertise, FRIMO is the specialist for reliable laminating solutions to produce components with high quality surfaces and the leading supplier of mechanical leather laminating systems. The product portfolio comprises all current processes for the vacuum laminating with plastic films as well as press lamination with plastic decor or leather decor materials.

The tooling and machinery concepts range from simple fixtures, single station and inline units up to fully automated and combined plants which also integrate further process steps such as punching, edgefolding or trimming.



Clean finish and excellent optics – Economical edgefolding solutions.

Edgefolding is a subsequent process that follows processes like vacuum or press laminating, back injection or back pressing to finish the plastic components.

Edgefolding refers to the process by which decorative materials, such as plastic films, textiles, carpets or leather, are folded over and fixed to the back of a substrate component using a gluing or welding process. The joining between decor and substrate is carried out by using adhesives or alternatively hot air, ultrasonic or heated slider units.

FRIMO offers a wide range of of different edgefolding machines with the equivalent tooling. The elaborate construction of the slider units leads to a modular machine design and compensation for material tolerances.

FRIMO Product portfolio:

- Edgefolding tools
- Single-station machines
- In-line machines
- Rotary tables
- Combined machines
- Edgefolding accessories



360°

Joining
Gluing

FRIMO product portfolio:

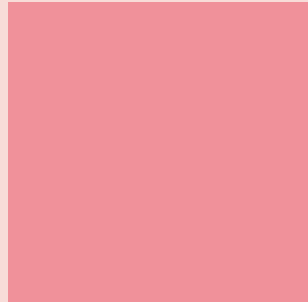
- Ultrasonic welding machines
- Ultrasonic standard components:
 - Hand welding units
 - Generators
 - Converters
 - High frequency converters
 - Feed units (Actuators)
 - Position measuring systems
- *JoinLine* Infrared welding machines
- Hot air welding machines
- Hot plate welding machines
- Riveting machines
- Gluing machines

The optimal connection – All joining technologies from a single source.

Technologies for the fast, economical and reliable joining of different plastic materials and components become increasingly important. Depending on the application, the used materials, the complexity of the component geometry and the required production volumes, different technologies can be used.

The FRIMO product portfolio includes standard equipment as well as tailor-made concepts for all established welding, riveting and gluing processes. The standard components for ultrasonic, hot plate welding and heat staking are permanently available and can be easily integrated into all commonly used systems on the market.

The FRIMO ultrasonic standard components such as generators, converters and sonotrodes allow for extremely fast welding and are particularly suitable for plane welding or riveting with cold tools.



Competence on-site – FRIMO locations and representatives.

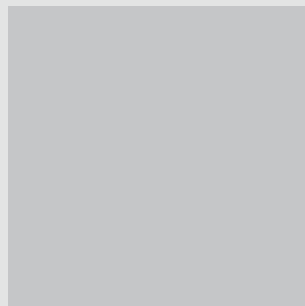


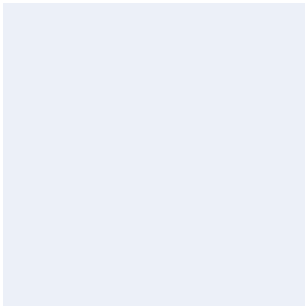
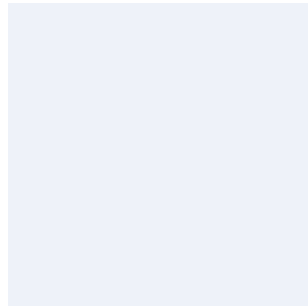
FRIMO Locations:

- FRIMO Group
- FRIMO Lotte
- FRIMO Sontra
- FRIMO Freilassing
- FRIMO Hamburg
- FRIMO Control Systems
- FRIMO Service
- FRIMO BoParts
- FRIMO China
- FRIMO France
- FRIMO Hungary
- FRIMO Poland
- FRIMO USA

FRIMO Representatives:

- Great Britain
- Iran
- Korea
- Russia
- Scandinavia
- Slovakia
- Spain
- Czech Republic
- Turkey

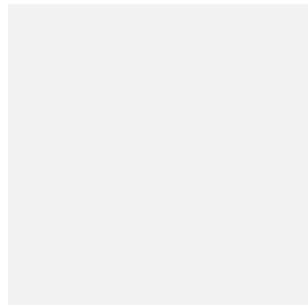
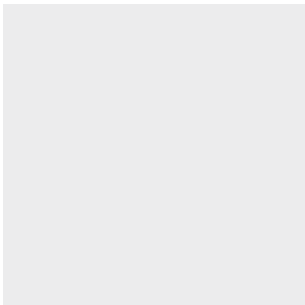
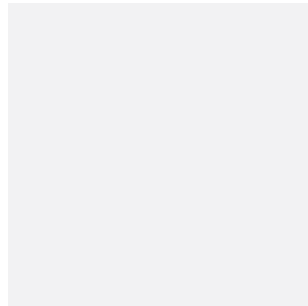
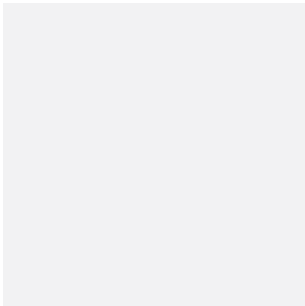




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