PROVEN TECHNOLOGY EXPERTISE TO BENEFIT YOUR PRODUCTION.
It is fascinating to see all the things polyurethane (PU) makes possible. Our production solutions are just as versatile, ensuring optimal PU processing. An endless variety of parts can be made using soft, rigid, or integral foam. That is why our PU processing technology is used for a variety of applications in many industries, such as the sports and recreation and construction industries. We support you throughout the entire process so that even the smallest details meet your specific production requirements.

Highly-specialized solutions are common in the transportation industry. On the road, the rails, or in the air, there is just no way around polyurethane. FRIMO PURe tooling and equipment technology is used in series production around the world in instrument panel, door panel, seat, and headrest production, as well as for insulation and structural components, cable overmolding, and much more.

In addition, polyurethane-based composite materials are steadily gaining importance in modern lightweight construction.

Innovative solutions begin with modeling technology, and 3D printing opens up a whole new set of opportunities. As far as tooling goes, we offer simple to complex trial, prototype, pre-series, and series production tools. At FRIMO, we have exclusive, specially-developed processes for back foaming premium decor materials, economically producing surface variations with PURe Skin, and using PURe Liner for foaming without release agents.

Our standard tool carriers cover a variety of clamping tonnages and clamping area requirements. The machine layout is equally as versatile, with stationary or mobile options tailored to suit your needs. Maximum operational availability and process reliability are two of our biggest focuses.
HOW CAN WE HELP YOU? OUR **PURe PRODUCT PORTFOLIO** GUARANTEES PURE QUALITY.

Whether you are looking for a single machine or a complete system, we offer the best solution for your production from a technical and cost perspective.

**FRIMO High-Pressure Mix Heads**
- Straight Mix Heads
  - 2 or 3 component
- L-Shaped Mix Heads
  - 2, 3, 4, or 6 component
- Spray Heads
  - airless, air-assisted

**FRIMO Foam Tools**
- Forming foam tools
- Back foaming tools
- Front foaming tools (PURe Liner optional)
- Spray liners
- Castings

**FRIMO Stationary Systems**
- Custom machine layouts with
  - Permanently installed mix heads
  - Robotic manipulator
  - Manual zero-gravity mix head manipulator
  - Gantry system

**FRIMO Mobile Systems**
- PURe RT turn table systems
- PURe TRACK overhead track systems
- PURe FLOOR track systems

**FRIMO Tool Carriers**
- Electric tool carriers
- Pneumatic tool carriers
- Hydraulic tool carriers
- Manual tool carriers

**FRIMO Peripheral Equipment**
- Pre-mixing stations
- Barrel and container stations
- Nucleation
- Color additive metering
- Crushers (mechanical, vacuum, or combination)

**FRIMO Metering Machines**
- Rotary metering pump units:
  - PURe Mix STANDARD (multi-component optional)
  - PURe Mix ECO (boom optional)
  - PURe Mix COMPACT
  - PURe Mix SPRAY

- Plunger piston metering units:
  - PURe Mix HYBRID
  - PURe Mix TANDEM
Over the past few years, we've produced over 1000 TOOL CARRIERS in 70 DIFFERENT TYPES.

Large parts pose special challenges. Our tool carriers allow optimal tool handling, even for large and heavy tools. High-speed closing and opening, as well as individually adjustable swiveling motions that bring the tool to the optimal position for the operator and for handling, ensure a smooth process.

The machine variations in our product portfolio differ in controls and kinematics. In addition to our standard machines, we offer the opportunity to customize the layout and options based on your specific project requirements. Special configurations can easily be integrated into highly-efficient and flexible production environments. Examples of these include shuttle systems or tool carriers that run either separately or continuously on an overhead track system (PURe TRACK) or on a floor track system (PURe FLOOR).

LOOKING TO DO BIG THINGS? RELY ON POWERFUL FRIMO TOOL CARRIERS FOR LARGE PARTS.
PRODUCING SMALL PARTS? SPECIALLY-ADAPTED FRIMO TOOL CARRIERS ARE IDEAL FOR BOTH LOW AND HIGH-VOLUME PRODUCTION.

Our sophisticated tool carriers enable small PU parts to be produced efficiently in both low and high volumes with foam molding, front foaming, or back foaming. Designs with specific opening and closing motions to suit every project and production environment are available.

The extremely compact design of the tool carriers makes it easy to integrate them into your production process, even in the smallest spaces. The dimensions can be customized, and vary based on the part and tool dimensions. Multiple cavities can be used on a single platform for economic production. If you want to use existing foam tools, we can quickly create a solution for your requirements with our modular concept.

Why FRIMO tooling?
Your advantages:

- Large product portfolio with standard and custom designs
- Variety of clamping forces and clamping areas
- All controls systems and kinematics
- Compact and modular design
- Fast, precise opening and closing
- Maximum tilting motion; optional carrier tilting functions
- Good accessibility and ergonomic operation

- Quick set-up and easy tool change
- Simple start-up; low-maintenance
- Solutions for low and high-volume production
- Sustainable concept for maximum profitability and energy efficiency
- Can easily be integrated into a variety of machine concepts
FRIMO PURe metering technology covers just about every area of PU processing. We offer custom solutions for soft, semi-rigid, rigid, and integral foam processing, as well as foam-in-place and spray systems.

Our machines, which include the day tanks, control panel, and temperature control units, are built on a standard frame that can easily be moved with a forklift. The compact, modular design saves space and increases flexibility. All structural components are easily accessible, simplifying maintenance and operation. Modern controls and display systems create a reliable process and ensure consistent high quality.

FRIMO PURe Mix STANDARD, PURe Mix ECO, and PURe Mix COMPACT are our three standard models. They include extensive standard equipment, which can be supplemented with a variety of options geared towards your application.

PURe SUCCESS
METERING TECHNOLOGY
WITH ALL THE BELLS AND WHISTLES.
SPECIAL REQUIREMENTS?
WE HAVE CUSTOM PURe SOLUTIONS.

Production system flexibility is becoming more and more important. Shorter product cycles with more variations create challenges that cannot always be solved with standard machines.

Our PURe Mix HYBRID, PURe Mix TANDEM, and PURe Mix SPRAY product lines are efficient specialty solutions for complex applications.

These specialty solutions can address complex applications such as challenging metering requirements with extreme mix ratios or minimum quantity metering that cannot be done with rotary pumps. Plunger pistons and machine components can be manufactured in stainless steel for processing chemically aggressive components. Our spray applications are not just for surfaces, but also for new applications in which the sprayed PU material acts as an adhesive or reinforcement.

Why FRIMO PURe Mix?
Your advantages:

- Fully-regulated metering units
- Modern controls and display systems
- Extensive standard equipment
- Magnetic couplings ensure spill-proof metering pumps
- Process-optimized double-insulated tanks
- Numerous options
- Compact design on a frame
- Optimal accessibility for operation and maintenance
- Easy to move
FRIMO PURe Mix Heads are available in both two-component and multi-component versions. Various sizes are available for the smallest to the largest applications. Straight mix heads are particularly ideal for injecting into a closed tool, while L-heads create advantages in laminar foaming.

We have mix heads available for selective or permanent mixing of up to six components. For RTM processes, we offer an advanced mix head with servo-pistons for three components. With this mix head, the reaction profile and injection strategy can be adjusted according to the part requirements to reduce processing time.

The advanced FRIMO air-assisted spray head offers the widest range of process parameter variables and increased repeatability with the lowest possible material use.

HAVE YOU SEEN HOW INGENIOUS OUR HEADS ARE? FRIMO MIX HEADS COMBINE COMPONENTS PERFECTLY.

Why FRIMO mix heads? Your advantages:
- Compact design
- Lightweight
- Easier connection with small fitting dimensions
- Self-cleaning mix head concept
- Special surface-treated piston for low-friction operation
- Robust, reliable, and low-maintenance due to the hardened materials that are used

Over the past few years, we’ve produced over

360 MIX HEADS

The FRIMO Augmented Reality App allows you to gain exciting 3D insights into our technologies. Simply download the app and scan the images labeled with the app icon!
PERMANENT INSTALLATION OR MOBILE SOLUTION?
FRIMO EQUIPMENT TECHNOLOGY FOR PURE VARIETY.

Our many years of processing experience allow us to offer machine concepts that let you produce PU parts economically and efficiently. We offer a variety of approaches for combining tool carriers and metering units along with peripheral equipment to form complete production systems. Stationary machines and turn tables for continuous or cyclical production are also part of our product portfolio.

In addition to these well-known machine concepts, overhead or floor track systems are interesting options because they combine maximum flexibility with higher productivity.

The style and layout of all machine types can be customized according to customer specifications and conditions.

Why FRIMO system technology?
Your advantages:

- Custom system layouts
- Long operating life, highly-reliable process
- Sustainable, energy-efficient solutions
- Low-maintenance
- Good ergonomics
- Individually adjustable display systems
- Remote service system integrated
- Latest controls system geared toward Industry 4.0

UNIQUE DESIGN, OPTIMAL FUNCTION
FRIMO PURe EQUIPMENT GIVES YOU BOTH.
PREFER SOMETHING MORE PERMANENT?
FRIMO STATIONARY MACHINES ENABLE CUSTOM LAYOUTS.

Our stationary machines are configured specifically for your project and laid out to make the best possible use of the available floorspace. The tool carriers are positioned on the floor in a way that creates optimal operability, handling, and logistics.

IS ROUND A BETTER FIT FOR YOU?
FRIMO TURN TABLES ARE YOUR BEST BET.

Turn tables are best for consistent production volumes that can be planned for ahead of time with few variations. Multiple tool fixtures are mounted to a rotating table where they are moved from one workstation to the next.

Additional processes can be integrated, such as surface activation on the part. Robotic handling allows material inflow and outflow to be fully-automated. In certain cases, it is possible to connect turn tables and stationary machines, combining the advantages of both concepts.

Why FRIMO stationary machines?
Your advantages:

- Custom layout: ex. island, linear, or specialty solutions
- Manual to fully-automated production possibilities
- Flexible production of product variations in differing volumes
- Can be combined with stationary or mobile robots
- Tool changes and maintenance can be completed without interrupting production

Why FRIMO PURe turn tables?
Your advantages:

- Ideal for high-volume production
- Fixed operator stations and production cycles
- Cylindrical or continuous versions possible
- Lower height requirements
- Clearly defined material flow concepts
- Utility supplies (air, water, etc.) in center of turn table
- Self-supporting or external bearing, depending on size
WANT PRODUCTION TO RUN LIKE CLOCKWORK?
KEEP IT ON TRACK WITH FRIMO PURe FLOOR.

With the PURe FLOOR track system, tool carriers travel with the tools to different processing stations along a monorail. This concept provides maximum flexibility in all areas. Not only can the track layout be customized, but also the speeds at which individual carriers, or groups of carriers, travel between different areas of the system. This system can be expanded in multiple stages, though its advantages can be experienced in the first stage.

HOW MUCH FLEXIBILITY IS POSSIBLE?
FRIMO PURe TRACK SETS THE BAR HIGH.

The modular FRIMO overhead track system, PURe TRACK, provides maximum production flexibility. This system offers multiple expansion options and can produce small, medium, and large parts. Tool carriers with high clamping forces and tool weights are possible. They are guided by a double track system that hangs from a gantry mounted to the floor.

Why FRIMO PURe FLOOR or PURe TRACK? Your advantages:

- Maximum flexibility with customizable design
- Multiple operator stations for simultaneous processing
- High productivity for high volumes
- Tool carrier changes are fully-automated and do not increase cycle time
- System can be added on to in multiple stages
- Easy access for cleaning and maintenance
- Minimal wear and long operating life
- Keeps floor clear of obstacles (PURe TRACK)
- Parallel tracks for aligning cycle times (PURe TRACK)
Our system controls actively support you. The newest FRIMO Intelligent Process controls system, which uses the Siemens TIA Portal Platform, takes a step towards Industry 4.0 and sets a new standard for the future.

It uses the latest hardware and software and features clear, easy-to-understand operator guidance with voice commands. Extensive process data collection and analysis help derive process improvements, which increase operational availability and quality. By adding network connections to all machines, we can actively support you in optimizing process safety and stability, and in planning upcoming maintenance and repairs.

**JUST BACKGROUND NOISE? NOT FRIMO PERIPHERAL EQUIPMENT.**

Why FRIMO peripheral equipment?
Your advantages:
- Shared controls concepts
- Part of FRIMO machine concepts
- Fewer interfaces
- Continuous process flow

We supply efficient peripheral equipment to make sure every last detail fits because that is what completes a system. This includes equipment for material conditioning and preparation, as well as part reworking.

**WANT TO BE IN COMPLETE CONTROL? INTELLIGENT FRIMO CONTROLS GIVE YOU EVERYTHING YOU WANT.**

Our system controls actively support you. The newest FRIMO Intelligent Process controls system, which uses the Siemens TIA Portal Platform, takes a step towards Industry 4.0 and sets a new standard for the future.

It uses the latest hardware and software and features clear, easy-to-understand operator guidance with voice commands. Extensive process data collection and analysis help derive process improvements, which increase operational availability and quality. By adding network connections to all machines, we can actively support you in optimizing process safety and stability, and in planning upcoming maintenance and repairs.

**PRODUCTION EQUIPMENT TECHNOLOGY | PU PROCESSING**

**Why FRIMO controls?**
Your advantages:
- Simple, intuitive HMI
- Operator guidance through voice commands
- Controlled access with keyed systems
- Reliable, customizable data collection with databases
- Extensive communication and analysis tools, such as parameter change logs, camera analyses, bar code readers, etc.
- Latest industrial PCs with 19-22” touch screens
- Modular HMI software for integration of Windows-based applications
- Diagnostics sent continuously through network to the customer and/or FRIMO Service
- Use of tablets or smartphones for maintenance and repairs

**JUST BACKGROUND NOISE? NOT FRIMO PERIPHERAL EQUIPMENT.**

Why FRIMO peripheral equipment?
Your advantages:
- Shared controls concepts
- Part of FRIMO machine concepts
- Fewer interfaces
- Continuous process flow

We supply efficient peripheral equipment to make sure every last detail fits because that is what completes a system. This includes equipment for material conditioning and preparation, as well as part reworking.
Building specialty machines is our daily business, and we want to be your partner in exploring changes or completely new paths. There can be many challenges. During a concept development phase, we examine even the smallest details with you and use our findings to develop a unique, highly-automated production system with custom tooling and machine technology.

What kind of project do you have for us? We offer comprehensive consultations and can help you bring new developments to market.

WANT TO DO SOMETHING COMPLETELY NEW?
WITH FRIMO PuRe TECHNOLOGIES WE CAN ACCOMPLISH IT TOGETHER.

PuRe FUTURE
WE’RE THERE.
FRIMO. HIGH TECH AND HIGH PASSION.

FULL DEDICATION FOR YOUR SUCCESS.

LOCAL COMPETENCE WITH THE GLOBAL FRIMO NETWORK

Since FRIMO was founded in 1962, our corporate group has grown to become one of the leading technology suppliers for production solutions. Today, the FRIMO network consists of international locations in Europe, America, and Asia with a total of 1,500 employees and numerous international representatives.

Locations
- FRIMO Group
- FRIMO Lotte
- FRIMO Sontra
- FRIMO Preßlasing
- FRIMO Hamburg
- FRIMO Control Systems
- FRIMO China

Representatives
- FRIMO Hungary
- FRIMO USA
- FRIMO Mexico
- FRIMO Poland
- bo parts Germany
- bo parts USA
- B+R Elektro-Streuungstechnik
- Brazil
- Czech Republic
- France
- Great Britain
- India
- Italy
- Korea
- Portugal
- Russia
- Scandinavia
- Slovakia
- Spain
- Turkey

ONE STOP. ALL SERVICES.
An unparalleled range of technologies

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