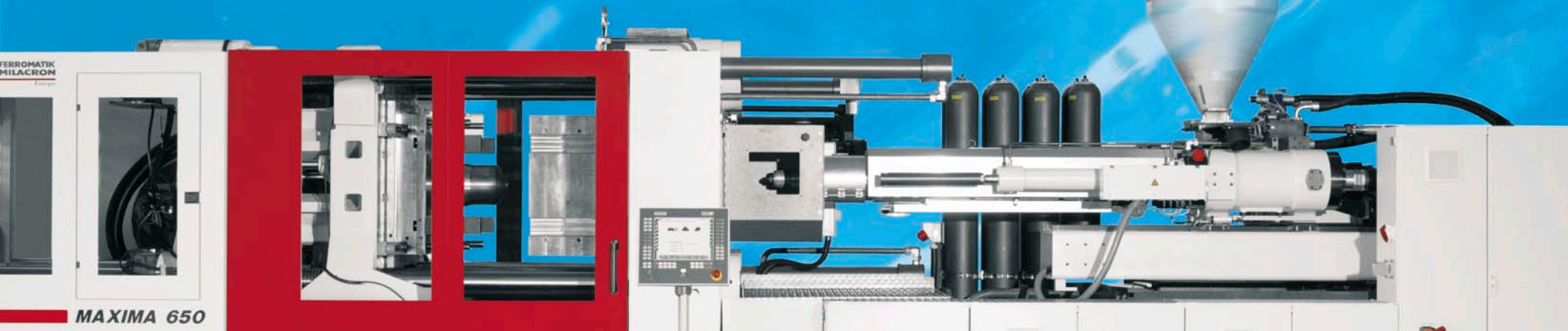


THE MAXIMA SERIES

5,000 to 30,000 kN



Global Partners in Plastics

MAXIMA

The Hydraulic Powerhouse

The name says it all: with its powerful hydromechanical 2½-platen design the MAXIMA series was conceived for the manufacture of large parts. And there's more: short closing and pressure build-up times, outstanding platen parallelism with centrally applied clamping force, and a large mold installation area with the smallest possible machine footprint – to name but a few of MAXIMA's strengths.

Maximum Economy

The clamping and injection units can be combined with a whole range of different screw diameters and special processes. This offers the flexibility to meet the exacting requirements of any application and allows manufacturers to choose the most economical machine for their needs.

Maximum Output – Minimum Energy Consumption

All MAXIMA models use only the latest electrically regulated pumps. By managing energy use and requiring very little time for pressure build-up, MAXIMA uses as much power as it needs – and no more. This design results in energy savings of up to 12%. Only all-electric machines can top that. MAXIMA is an investment in the future.

MAXIMA 500 · 650 · 800 · 1000 · 1300 · 1800 · 2300 · 3000



Typical Applications

Automotive & Transport

Interiors · Exteriors · Lighting

Packaging

Lids · Buckets · Tubs

Consumer Goods

Body care products · Sporting goods · Toys

Appliances

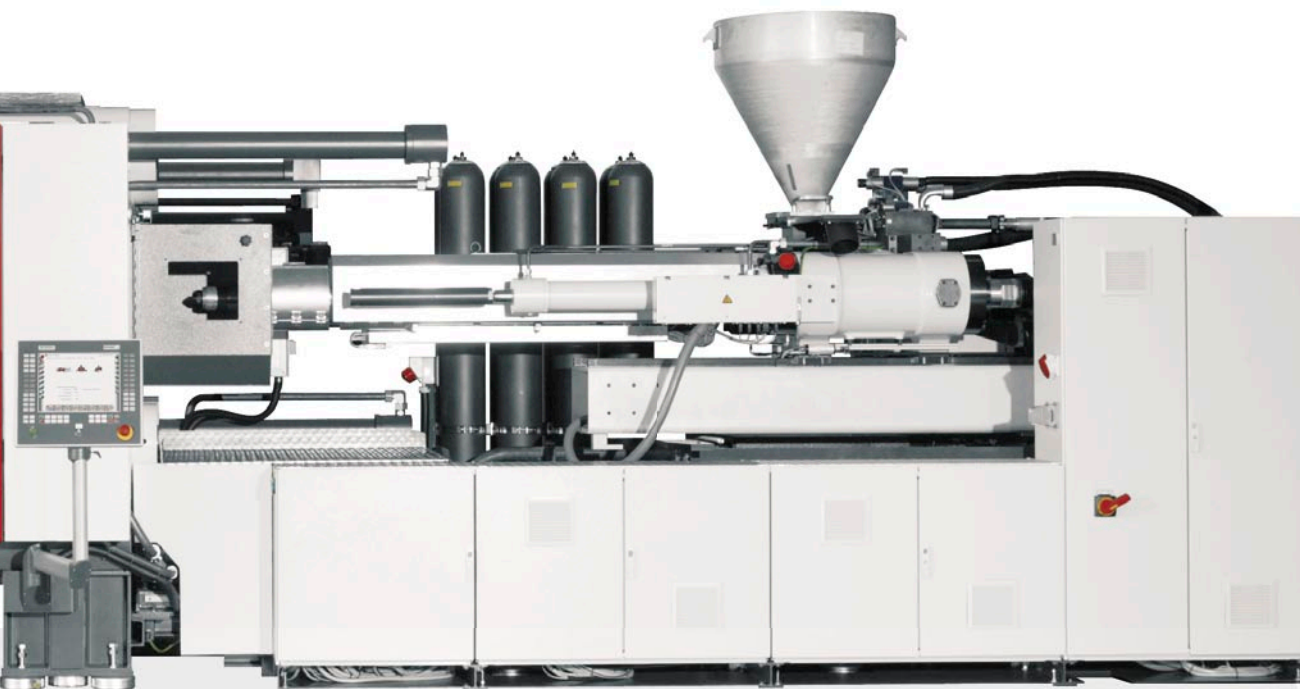
Microwave ovens · Vacuum cleaners · Air conditioners

Electrical & Telecommunication

Batteries · Computers · Televisions

Construction

Siding · Grates · Drains



Ferromatik Milacron – Part of the Milacron Team

Plastics make our lives better: more convenient, safer, and more colorful. For over 50 years Ferromatik Milacron has been building injection molding machines for plastics manufacturers at our facility in Malterdingen, Germany. With a workforce of 500 and offices in 50 countries, Ferromatik Milacron machines are sold worldwide. As part of the Milacron group, founded in 1884, Ferromatik Milacron enjoys the backing of a global company with 3,500 employees.



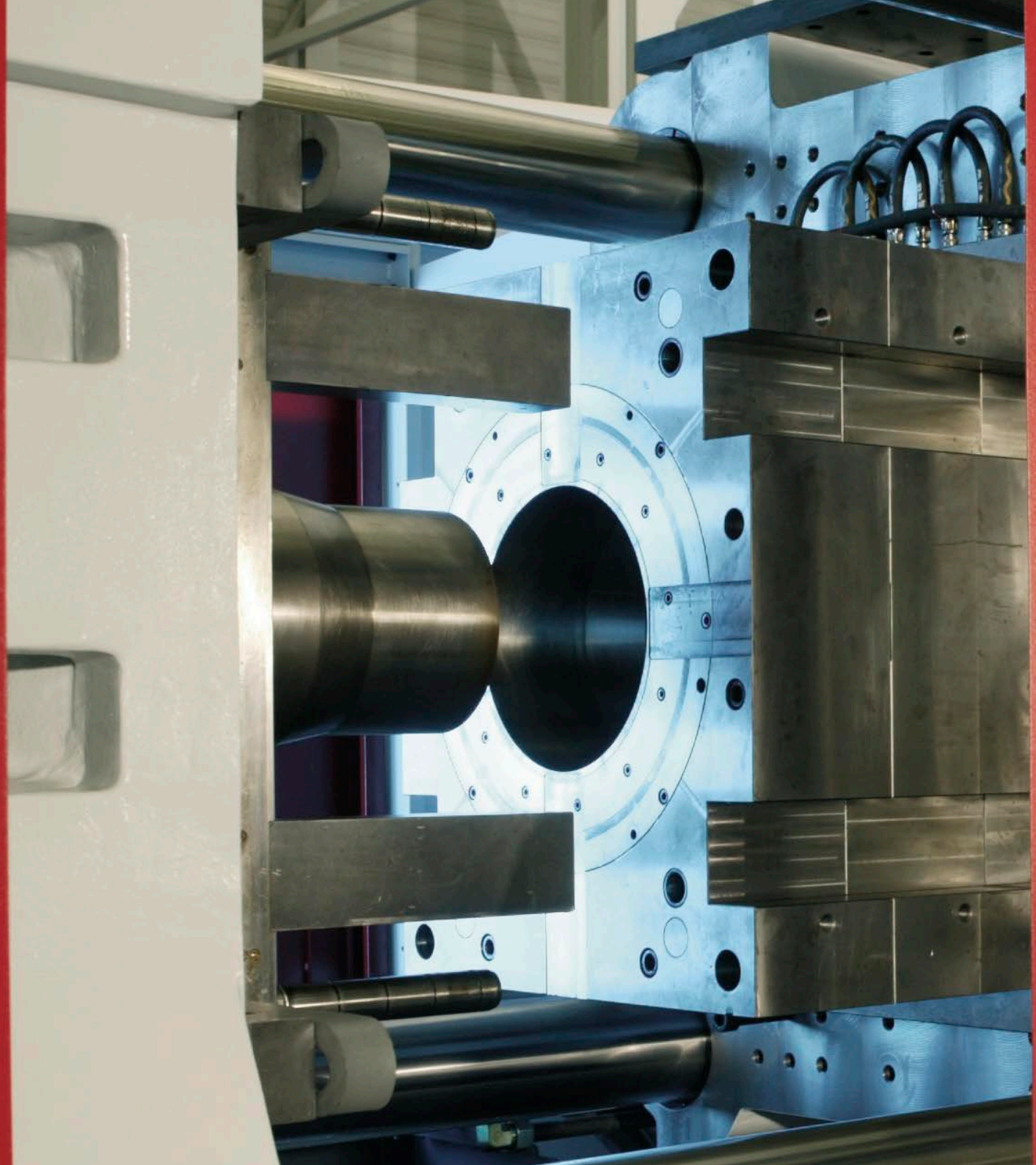
Main facility in Malterdingen



Flexible production system



MAXIMA assembly





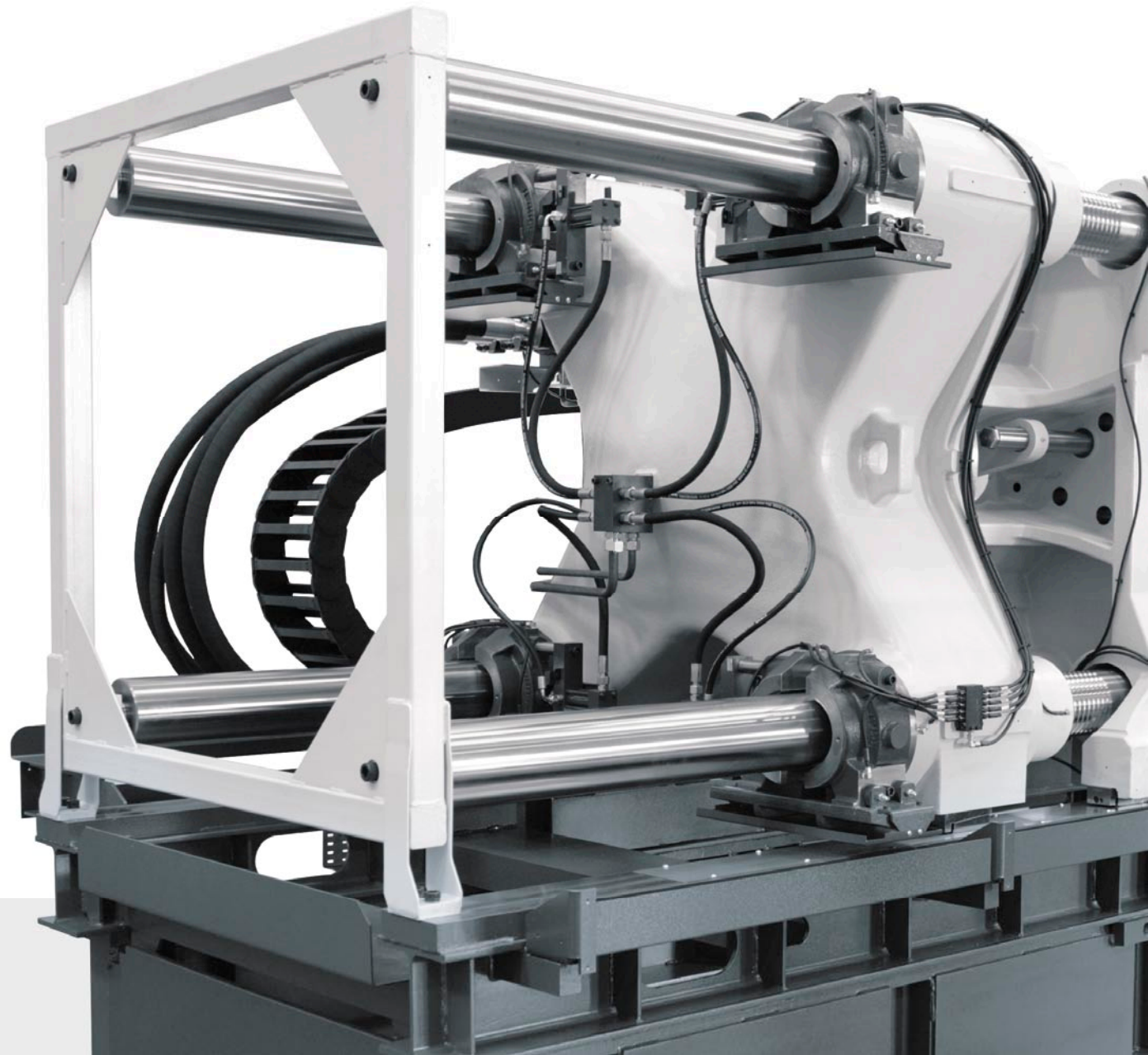
MAXIMUM CLAMPING FORCE

Minimum Footprint

The robust and compact 2½-platen design of the MAXIMA clamping unit was developed especially for working with heavy, large-volume molds. The result is a solidly constructed machine with a generous mold installation area and superb support. Centrally applied clamping force protects the mold from unnecessary wear. And MAXIMA offers all of this in one of the most compact packages in its class.

Minimum Mold Wear

MAXIMA's exceptional platen parallelism is achieved by the use of extended glide shoes which provide excellent platen support. An evenly distributed clamping force, in combination with mold safety, ensures long mold life – and reduced maintenance.



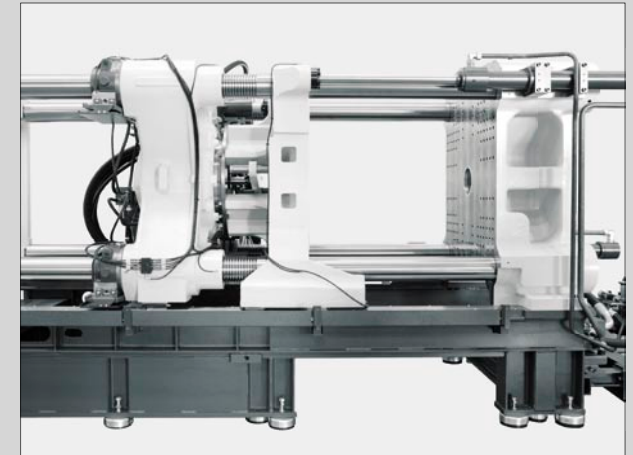


Maximum Mold Installation Area for the Automotive Industry

Above-average tie-bar spacing and a large opening allow for the use of big molds and deep draw parts with a smaller machine than would otherwise be possible. Tie-bar extensions and optional tie-bar pullers provide molders with added flexibility. Large molds – such as those used in the automotive industry – can be easily installed with a crane.

Long-Term Part Quality and Reduced Mold Maintenance

Locking is applied to the mold via a central clamp cylinder for even pressure on all cavities.



The benefits of this design:

- Short stroke clamp piston with reduced oil volume means faster pressure build-up
- Precision controls with pressure transducer
- Symmetrical force distribution across mold
- Proven solution for maximum uptime
- Precision mold movement for reduced wear
- Reliable locking system

MAXIMUM PRODUCTIVITY

Dynamic Plasticizing on Demand

The dynamics-friendly design of the clamping unit with a 1:5 ratio of moving to fixed mass allows for rapid acceleration to top operating speeds. A short stroke clamp piston for the clamping force build-up, together with quick and reliable locking of the tie-bars, ensures energy efficiency. The intuitive MOSAIC controls simplify setups and optimization of the injection molding process.

Individual Solutions

With a wide selection of injection units and screw diameters and optional special screw geometries, individual solutions can be configured for any application. Bimetallic barrels and hardened screws provide long service life.

Shorter Cycle Times

For many high performance applications, accumulator hydraulics can significantly improve cycle times since this allows for parallel operation of all machine axes. An optional electric screw drive is also available providing parallel plasticizing and high repeatability – with low energy consumption.

The accumulator-driven version includes a high volume hydraulic accumulator. A regulated pump using an advanced algorithm provides energy efficient accumulator charge management.





Designed for Thin-Wall Parts

MAXIMA is used in various industries with accumulator hydraulics, electric screw drives, and application-specific screw geometries. High injection rates paired with evenly distributed clamping force and fast operating speeds are a guarantee for efficiency and high performance.

Fast Locking Split Nuts

Mechanical locking to the tie-bars is achieved with split nuts positioned behind the moving mold platen. During mold setup the installation height is precisely determined by two cylinders in order to connect directly with the locking mechanism and quickly reach high pressure via the clamp cylinder. This allows for fast, reliable locking and unlocking independent of the mold installation height.



Mold height positioning is guided via low maintenance bushings and a central lubrication system



The whole injection unit swings out offering easy access for maintenance

MOSAIC

User-Friendly Controls

The intuitive and ergonomic MOSAIC control panel was developed to provide support for all operating tasks from the simplest production routines to the most complex machine setups and optimization. A Wizard guides the operator step-by-step through the setup and programming modes. The controls use advanced networking technologies for fast and reliable communications with the machine. All processes and functions are represented graphically in the user interface, simplifying optimization. MOSAIC offers:

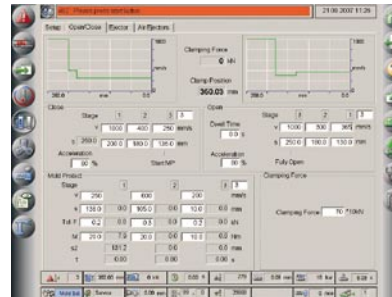
- Intuitive controls via large 15" touch screen terminal mounted on an adjustable swing arm for stress-free operations and natural movement
- Graphic menu controls
- Every page just one or two clicks away
- Online help for parameter optimization
- On-screen function buttons
- Freely editable mold sequence
- Detailed process monitoring with tolerances, minimum and maximum values, average, and standard deviation
- Real-time graphical representation of molding process and production cycle controls
- Easy data storage and guided machine setup
- Ethernet interface
- USB memory key for storing mold data, screenshots, and for exporting report data
- Password protected access levels ensure security
- Separate data sets for setup and optimization during machine operation



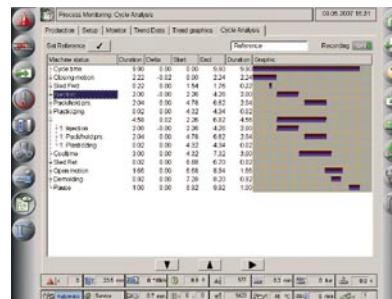
It's Magic: The Wizard

Like having an assistant by their side, the Wizard helps operators set all relevant parameters both in setup and programming mode. This simplifies tasks and greatly reduces the chances of entering incorrect settings. Wizard-based support is available for the following areas:

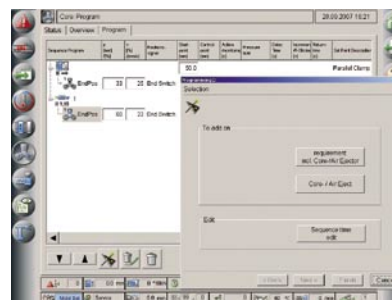
- Mold installation height settings
- Mold cavity pressure sensor
- Stack-turning technology, cube molds, and twin cube molds
- Editable core-pull movement and mold sequence



Intuitive machine setup: access to all functions in just one or two clicks



Cycle and trend analysis for fast process optimization

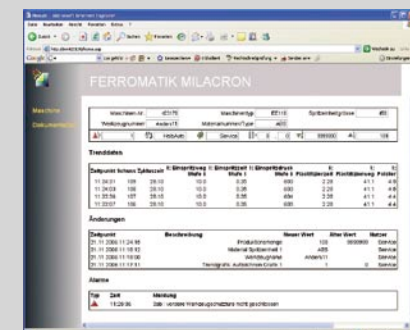


Simple programming of core-pull movements with help from the Wizard

Remote Monitoring

Thanks to the standard Ethernet interface, the machine can be monitored from any location with internet access. The following parameters can be monitored:

- Machine number and type and injection unit size
- Mold number and the type of material being processed
- Number of error messages and alarm logbook
- Current operator and operating mode
- SPS status indicator
- Shot counter
- Configurable trend data indicators
- Logbook for operator notes



Standard in all machines: remote monitoring access

MAXIMUM FLEXIBILITY

Innovative Process and Mold Technologies

Special processes and mold technologies – in all their permutations and combinations – open up a whole new world of possibilities for innovative manufacturing solutions. These may either maximize productivity or add value to the product – while reducing production costs.

Multi-Component Technology

With multi-component technology parts multiple colors, materials, and even functions can be produced on a single machine. Many of these parts would be uneconomical – or even impossible – to produce using conventional technologies.

With the standard multi-component process, a substrate is overmolded at a second station. This step is repeated until the part is complete.

Multi-component technology requires a specially configured machine including:

- Core-pull controls for opening secondary cavity
- Activation of mold-integrated index platen for transfer of substrate

- Robotic transfer of substrate
- Integration of turntable with clamping unit

Monosandwich

The sandwich process is a simpler variant of multi-component technology. With this solution the part has a layered structure where the core material is covered with a different skin material. While conventional sandwich technologies require an additional injection unit, Ferromatik Milacron's patented monosandwich process only requires a secondary extruder, a much more economical solution.

The advantages of this technology are:

- Simple process setup
- Superior part quality thanks to exceptional repeatability and precision
- Uses existing single component molds
- Faster material and color changes

- Reduced material costs through use of economical core materials including regrind
- Perfect surface even with foamed or reinforced core materials
- Creative design solutions through innovative material combinations





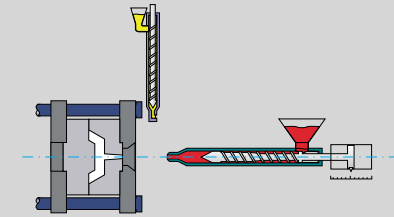
Tandem Technology

Tandem technology uses a mold with two parting lines. The cavities of the two parting lines are filled alternately. While the machine opens to remove the part from the first, a locking mechanism keeps the second parting line closed. Thus cooling time is utilized within the injection process.

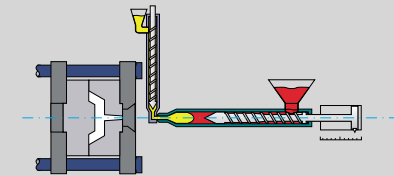
For slower, thick-walled part production with long cooling times, this approach effectively doubles output. With faster production tasks and short cycles, tandem technology can still achieve productivity increases of up to 30%. The advantages:

- Reduced production costs due to increased output
- Lower capital investment through use of smaller machine sizes

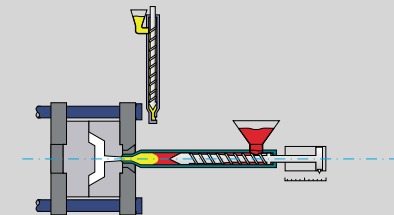
How Monosandwich Works



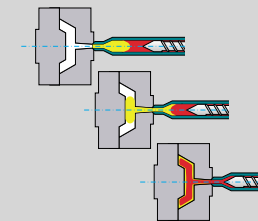
The core material (red) is plasticized in the injection unit.



The secondary extruder introduces the skin material (yellow) directly into the injection unit barrel. The two components are now sequentially positioned in the same chamber.



Injection of materials as per conventional single-component molding.



Both components are injected into the mold cavity in the same stroke. The skin material is evenly distributed around the walls of the cavity; the core material displaces the still molten skin material and forms the core.

SYSTEM SOLUTIONS

For Perfect Integration in Your Production Process

Together with carefully selected industry-leading partners, the Ferromatik Milacron product portfolio extends from standard applications to complex manufacturing cells. Offerings include:

- Development of production designs
- Identification of the most economical application technologies (multi-component, monosandwich, tandem technology, etc.)
- Selection of optimal combination of clamping- and injection unit
- Best-in-class mold technologies, including temperature controls
- Selection of robotics and downstream processes
- Specification of raw material handling systems and drying systems
- Quick mold clamping systems including quick coupling systems

The team at Ferromatik Milacron includes experienced process engineers who can help with the development of complex manufacturing solutions.



APPLICATIONS & SYSTEMS

From Idea to Finished Product

The Business Unit Applications & Systems team is ready with advice and service when you need it:

Consultations

Our experts can visit your facility to provide process and technology advice for your specific production needs. In the face of rising electricity costs, we offer comprehensive support for implementing energy saving programs.

Injection Molding Trials

Our state-of-the-art Technology Center includes a variety of injection molding machines for trials. You can use your own molds and even run pre-productions.

Acceptance Test

At the time of the purchase, we would be happy to include an acceptance test in our factory to insure that the machine meets the requirements of your application.

Process Service

If process problems arise, our trained technicians will come to your facility to identify and correct any issue and get you up and running again with minimum interruption.

Production Designs

We would be happy to develop individual solutions for your production needs. These extend from the choice and configuration of the machine to the right technologies, screw, mold, and auxiliary equipment. Our calculation tools allow us to provide comparative part costs for different solutions.



The Technology Center in Malterdingen

System Solutions

Depending on your requirements, we work with industry-leading partners to provide full turnkey production systems including the machine, the mold, and auxiliary equipment.

Research and Development

Our engineers are continually at work developing innovative new solutions and the technologies of tomorrow.

Training

We offer various courses year-round in machine setup, process optimization, maintenance, and repairs at our Training Center. We also provide training programs in your facility.

SERVTEK

Now under the SERVTEK name, the specialists at Ferromatik Milacron are setting new standards in customer service:

Flexible Service Contracts

Service contracts are available for both new and existing machines and can be tailored to your specific requirements. Service contracts assure maximum availability and long machine life.

Adapting Single-Component Machines for Multi-Component Molding

Existing machines can be upgraded with the addition of a stand-alone injection unit for multi-component molding. This can also be done with machines built by other manufacturers.

New Life for Old Production Cells

Overhauling and modernizing older machines is routine for our professionals.

Optimum Screw Selection for High Output

Depending on the application and the material, a variety of screw designs, screw tip assemblies, and barrels are available for improving plasticizing performance.

Phone Support Around the Clock

Extended phone support is available for fast answers to technical questions.

Replacement Parts within Hours

In addition to our central facility in Germany, we have local parts warehouses around Europe, Asia, and the US so that all available parts will be at your location within 24 hours.



Global Partners in Plastics

