Otto Männer GmbH
Unter Gereuth 9–11
79353 Bahlingen
Germany
Phone +49 (0) 7663 609-0
Fax +49 (0) 7663 609-299
info@maenner-group.com

03/21 Technical specifications subject to change.

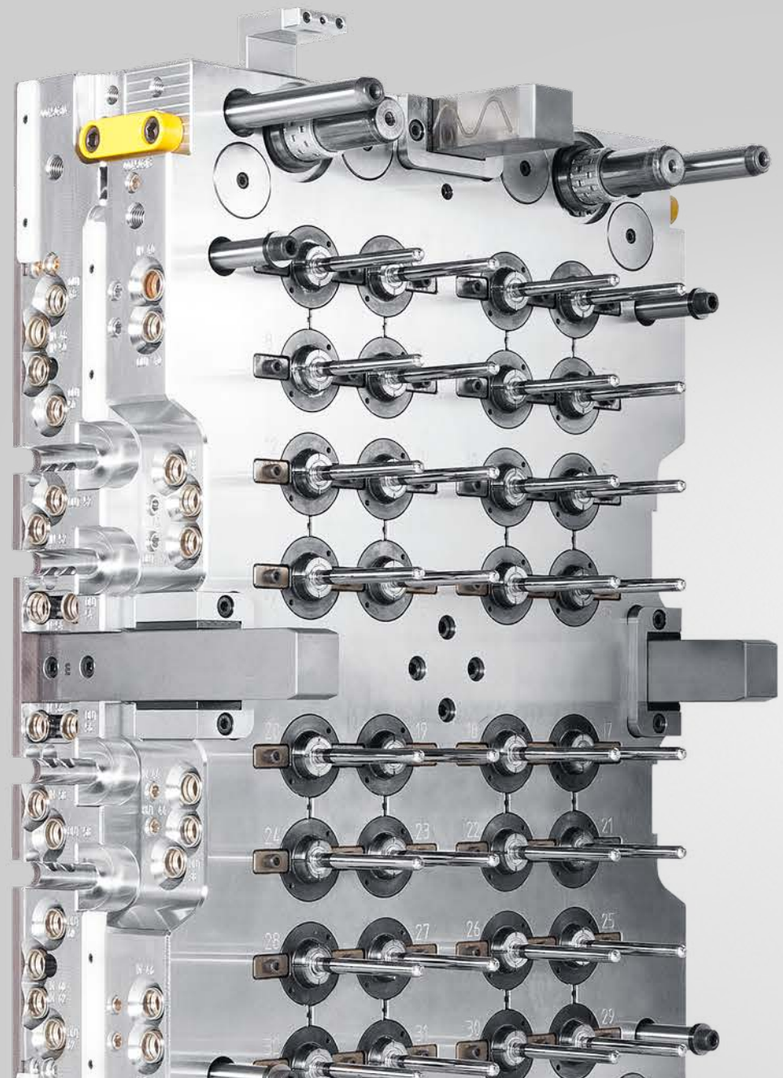
männer
SOLUTIONS FOR PLASTICS
A business of BARNES GROUP INC

High Precision Molds

Pharmaceutical Devices and Medical Consumables

Production Locations
www.maenner-group.com/production_locations

Sales & Service
www.maenner-group.com/sales-service



www.maenner-group.com

High-Precision Molds and System Solutions for Plastic Injection Molding

It is our responsibility to ensure that the product ideas of our customers are brought to fruition reliably and profitably. Our engineering experts assist you every step of the way – from the conception stage to the delivery of comprehensive product solutions.

We develop our high-precision molds with an eye to part-to-part consistency and reproducibility, which are essential to automated downstream processing of the injection-molded parts.

- High repetition accuracy
- Extreme durability
- Optimized temperature control for short cycle times
- Easy maintenance with MÄNNER's "easy-change" system
- Thin-wall technology

Project management

A project manager with extensive experience in documentation and validation processes provides you with full project support – from inception to start-up of your production molds.

New possibilities for optimization

männer moldMIND II records real-time process data generated in the injection mold while ruling out any possibility of data tampering. The smart device is used to monitor and analyze key parameters in the production process for optimizing costs, increasing productivity and protecting molds.

Engineering

Relying on our extensive experience in injection molding technology and comprehensive process know-how, we deliver targeted expert knowledge in all stages, from product development to smooth and efficient production.

Resources for comprehensive projects

When it comes to the production of plastic products composed of numerous individual parts, we are your ideal single-source provider of full-range pilot and production molds together with matching hot runner systems.

Comprehensive Complex Projects
Demanding Components
Extensive Expertise

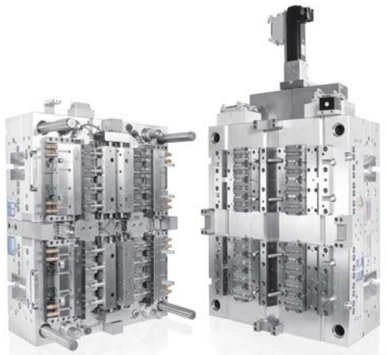
Pharmaceutical Devices

Products for medical and pharmaceutical applications are subject to strict quality requirements. Precision, cleanliness, and reliability are paramount. This applies not only to devices such as inhalers or insulin pens, but also to medical consumables. The proper functioning of every product is essential for guaranteeing an optimum level of patient safety. To help you to create perfectly functioning components, we deliver cleanroom-compatible injection molds for the production of high-precision individual components with maximum part-to-part consistency.

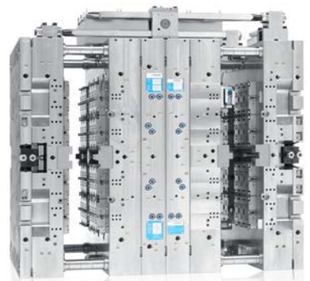
Regardless of where your production is located, you can rely on uniform mold specifications and high-level reproducibility. All männer molds are equipped with MÄNNER's own valve gate hot runner systems, ensuring clean and hygienic surfaces.

Inhalors

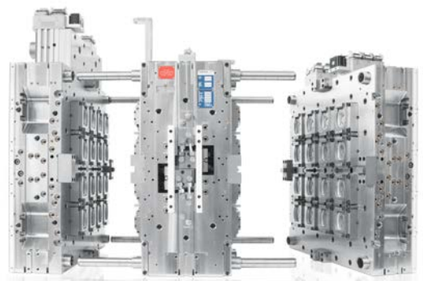
Insulin pen



Singleface mold, 16 cavities with e-plate



Stack mold, 32 + 32 cavities



Twin Stack mold, 16 + 16 cavities

Reproducibility
Repeatability
Process Capability

Medical Consumables

In addition to standard laboratory supplies, a large proportion of medical consumables are used for in-vitro diagnostics. This market is characterized by rigorous certification requirements, meaning that moldmakers, too, must satisfy specified requirements in the areas of mold qualification and parts validation. High-volume production requires high-cavitation molds with short cycle times, which still achieve very high part quality.

In addition to part-to-part consistency and repetition accuracy for fully automated downstream processing, we focus on long useful life and easy maintenance of our molds, which enhance overall equipment effectiveness (OEE).

Sample carrier

Petri dish

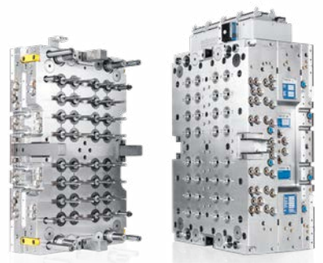
Contact lens packaging

Tamper-proof cap

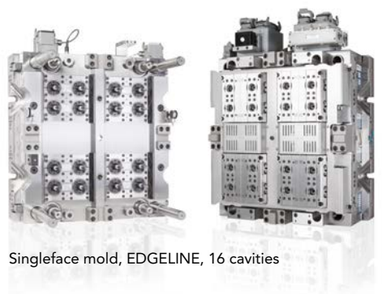
Syringe barrel made of COC

Box for surgical sutures

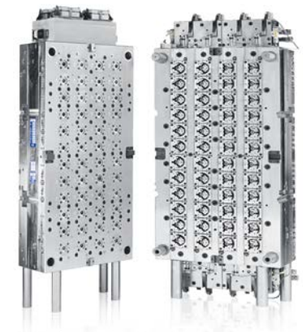
Needle caps



Singleface mold, 32 cavities

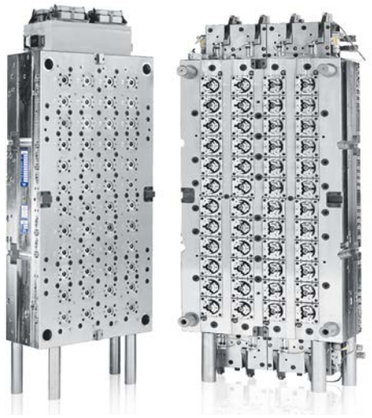


Singleface mold, EDGELINE, 16 cavities



Singleface mold, 48 cavities

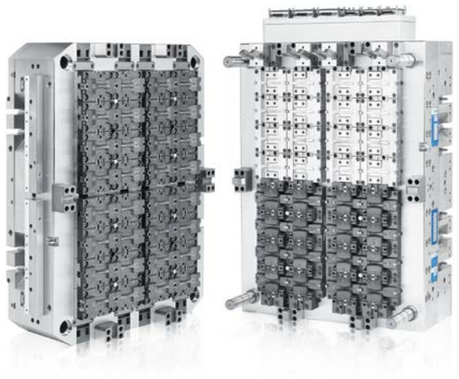
männer Mold Technology



Singleface Molds

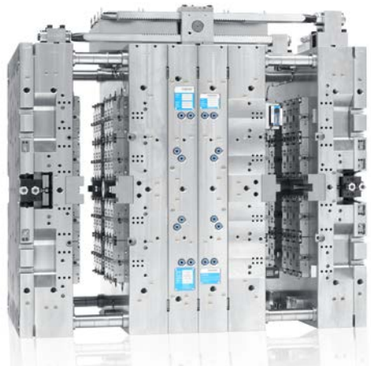
Optimized mold design for superior precision, stability, and cooling

- Extremely durable
- Maximum repetition accuracy
- Easy maintenance
- Up to 192 cavities



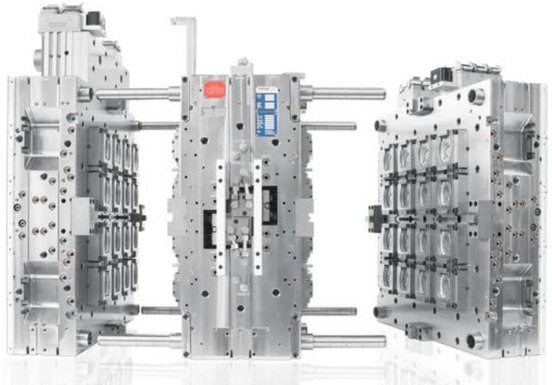
Multicomponent Molds

- Economical production of parts comprised of two or more different types of plastic materials and/or colors
- High cavitation with use of a wide range of technologies such as turntable, core-pulling, and transfer methods
- Insert overmolding
- For production of up to five components



Stack Molds

- For high-volume production
- Stack molds with two or four parting lines
- Two or four times the output quantity per cycle compared with singleface molds using the same closing force
- Energy savings of up to 50%
- Reduced space requirements
- Specially developed hot runner stack technology



Twin Stack Molds

- For high-volume production
- For the production of two different materials
- Individual process control for both parting line (process capability)
- Less material dwell time for critical materials compared to conventional stack molds
- Two times the output quantity per cycle compared to singleface molds using the same clamp force

Stable mold design

- Ejector plate cut-outs milled out of solid steel
- Efficient cooling in all cavity plates
- Parallel interlocks for centering of the mold halves

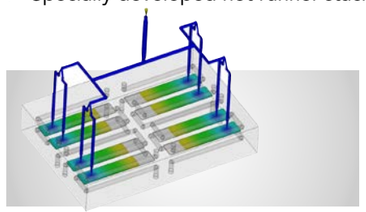
Temperature-optimized mold inserts

The cooling system design is a critical factor determining the cycle time of an injection mold.

- Balanced temperature control made possible by cooling channels that precisely follow the part geometry
- Complex geometries can be processed with the help of cutting-edge fabrication technologies such as vacuum brazing, and diffusion welding
- Use of special materials such as copper alloys

Easy maintenance

Easy maintenance thanks to MÄNNER's "easy-change" system: Mold inserts can be accessed without unclamping the mold and exchanged without additional adjustment



Simulation Capabilities

- Rheological simulation with Moldflow
  - Filling analysis
  - Venting analysis
  - Core shift
  - Parts distortion
  - Cooling analysis mold insert
  - Pressure demand hot runner and part
  - Overmolding (2C, etc.)
  - DoE
- Thermal Simulation with FloEFD
  - Thermal & Flow calculations
- Structural mechanics

Documentation and Training

- Customized user manuals
- Customized mold maintenance training
- Manufacturing documentation:
  - DQ (risk assessment, mold concept, mold design, design review)
  - IQ (mold steel measurement, mold calibration, flown rate documentation, part mapping, mold check)
- moldMIND II

Mold Qualification

- FOT
  - Dry cycle
  - Mold wear test
  - Functional sampling cycle
  - Virtual part inspection
  - First article inspection
- DoE
  - Initial sample test report
- FAT
  - Processing windows cycle
  - Plant acceptance cycle
  - Cp/Cpk measurement
  - Process capability
  - Steel correction

männer Hot Runner Technology

Hot runner technology has a crucial impact on the cost effectiveness and part quality in injection molding. As a pioneer in hot runner technology, we focus on the development and manufacture of Cylindrical Valve Gate Systems – recognized as the best hot runner solution for achieving impeccable surface quality, part-to-part consistency, and process reliability.

MSS Single System
STANDARD
Nozzle design

MMS Multi System
SPECIAL
Nozzle design

MSS Single System
MCN-I
Nozzle design

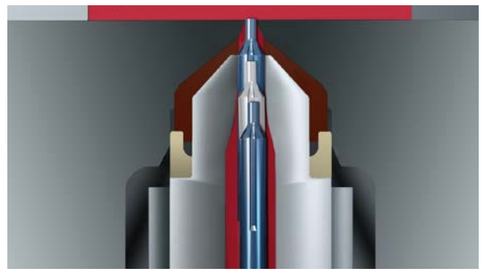
Edgeline System 4-drop
EDGELINE
Nozzle design

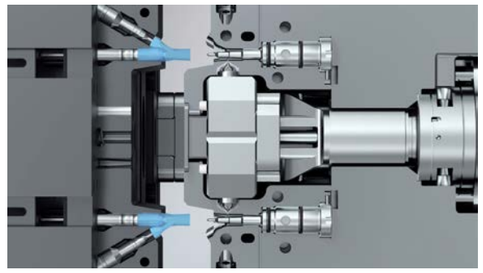
MES Stack System
STANDARD
Nozzle design

The Original männer Precentered Cylindrical Valve Gate

During the closing movement, the valve pin is first precentered by an angled guide area and then positioned perfectly in the gate orifice by means of a cylindrical guide. Nozzle and valve pin are designed to provide maximum performance and extreme durability.

- Superior gate quality
- Large gate cross section
- Minimal pressure drop
- Low shear rates
- Extreme durability wear and maintenance
- Defined opening and closing of the gate orifice
- Processing of demanding materials with narrow processing windows
- Short cycle times
- Individual heating control
- Cleanroom compatible (pneumatic barrel)
- Special valve gate nozzle for side injection. männer EDGELINE is suitable for a wide range of resins (polyolefins, COC/COP, PMMA, PA, PC, TPE, and many more)





männer moldMIND II

männer moldMIND II is a digital cockpit for injection molds – for mold owners, injection molders and operators. Injection molds have their own memory. High shot volumes, long operating periods, operating errors, downtimes and repairs – they all leave traces behind. The process data and events actually generated in the mold provide information about what has happened.

This relevant process data is captured by moldMind II in real time and a tamperproof record of the data kept throughout the lifecycle of the injection mold.

The intelligent monitoring system detects problems quickly and thus minimizes downtimes. moldMIND II provides a basis for planning maintenance work and supplies data for optimized production processes.

- Monitoring and analysis of key process parameters during production
- Real-time process data generated within the injection mold
- Tamper-proof throughout the lifecycle of the mold
- Central storage of comprehensive tool data and important documents and reports
- Easy handling
- Numerous interface and storage options
- Cloud storage allows data to be accessed from anywhere in the world

MONITORING WARNING PROTECTING MAINTENANCE

From the Idea to Serial Production

We support you in every phase of the creation of your product with our engineering know-how and extensive experience. With our design, manufacturing, and project management resources, we are your one-stop source for the full range of pilot and production molds – even for extensive, complex mold projects. An experienced project manager from MÄNNER is assigned to your project from day one.

High-speed cutting (HSC)

EDM Center

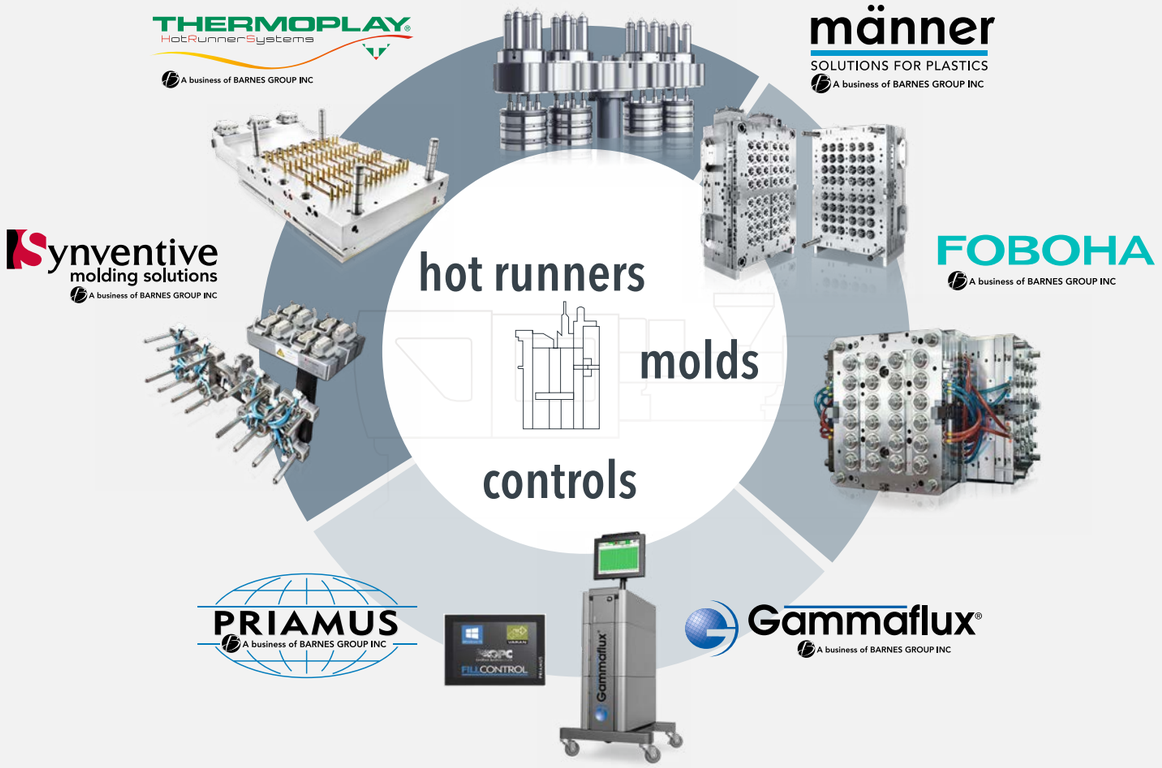
Fully automated milling center

The männer Test Center
For mold acceptance, product development, and materials testing. We offer the option of installing your own injection molding machine within a complete production environment.

- High-speed cutting (HSC)
- 3D design
- Wire/sink EDM
- 5-axis milling machines
- männer heat treatment (hardening / nitriding)
- männer Test Center (injection molding machines from 75 to 500 t)
- männer Polishing
- Surface, profile, and jig grinding
- männer Training Center
- ISO 9001:2015

Barnes GROUP INC

MOLDING SOLUTIONS GROUP



männer
SOLUTIONS FOR PLASTICS
A business of BARNES GROUP INC

Plant I in Bahlingen:
High Precision Molds

Plant II in Bahlingen:
Hot Runner Systems

Plant III in Bahlingen

Plant IV in Au, Switzerland:
High Precision Molds

Plant V: Manner USA, Inc.

Plant VI in Jiansu:
Barnes Molding Solutions

MÄNNER develops high-tech solutions for injection molding applications. We offer high-performance molds and customized hot runner technology for the production of plastic parts capable of meeting the most demanding requirements for precision and surface quality.

Founded in 1965, MÄNNER is among the industry's leading suppliers, with over 600 employees and production, sales, and service locations in Europe, the US, and Asia.

MÄNNER has been part of Barnes Group Inc. since 2013.
For further information please visit www.BGInc.com

The strategic Molding Solutions business unit of the Barnes Group is the world's only supplier able to combine know-how in technology for injection molds, hot runners, monitoring and control systems.

From prototype molds all the way to high-volume production molds, you benefit from our one-stop solutions. The focus is on carefully coordinated products and naturally balanced systems. This enables outstanding performance of the entire molding solution.

The global capacities of Moldings Solutions made possible by shared manufacturing sites in Europe, the Americas and Asia.

Headquarters in Bahlingen