





With outstanding product developments and solutions for the most challenging applications, GÜNTHER Hot Runner Technology are a technological innovator providing you with significant advantages in hot runner technology.

This results in reduced material consumption and thus lower costs, a reduction in energy expenses which should not be underestimated and, in most cases, shorter cycle times. The technology represents even greater potential in the overall process chain, though, as it simplifies automation and enables subsequent reworking to be reduced. The increase in productivity achieved by this is the true economic advantage of modern hot runner technology. This brochure provides you with an overview of our complete range of innovative hot runner systems, from hot runner nozzles to valve gate technology and manifold systems to hot halves and service.

This enables us to offer you a custom-tailored system for any application involving the processing of technically high-quality filled or flame protection-formulated thermoplastics. We are also able to implement any customer-specific solutions you can imagine. Feel free to contact us!

Herbert Günther

Siegrid Sommer

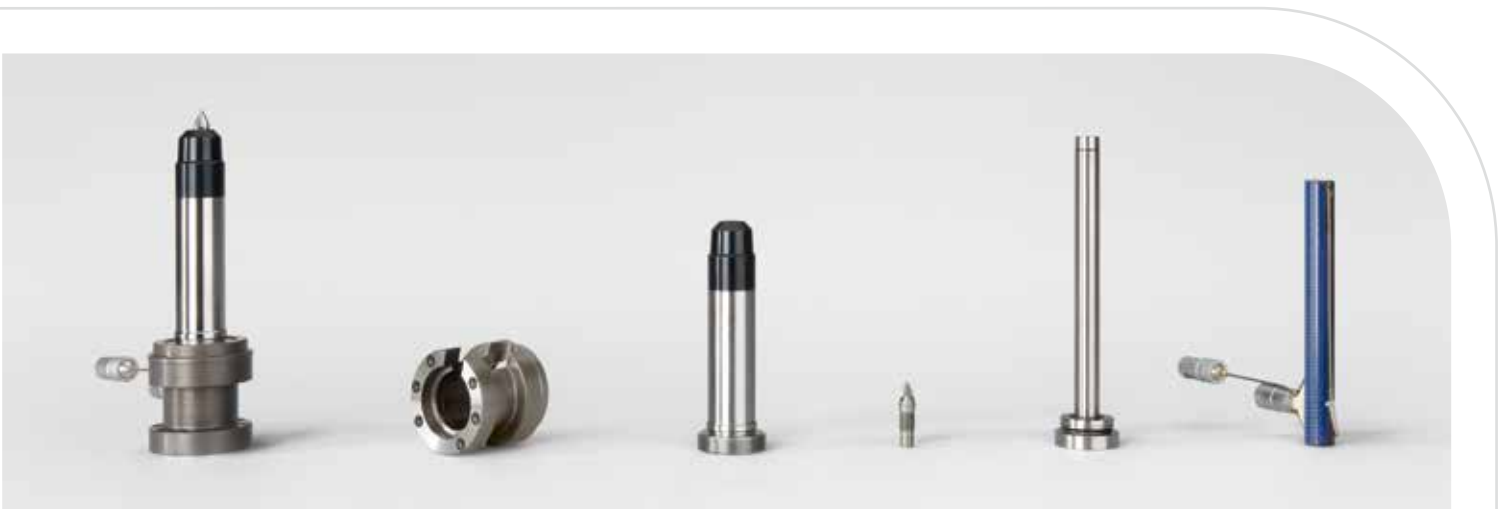
Dr. Stefan Sommer



Successfully leading into the future with more than 40 years of experience in hot runner technology

Your strategic partner for well-thought-out hot runner technology

GÜNTHER hot runner systems are individually configured according to customer requirements. Our custom-tailored systems are optimised for the processing of technically high-quality filled or flame protection-formulated thermoplastics. We offer our customers a wide range of open hot runner nozzles, valve gate nozzles, single nozzles and system nozzles. Naturally, this is offered in combination with a manifold or – as an additional option – with a hot half. Furthermore our product range includes cold runner systems, precisely matched control technology, gate bushings, electrical connections and corresponding accessories.





Hot runner nozzles

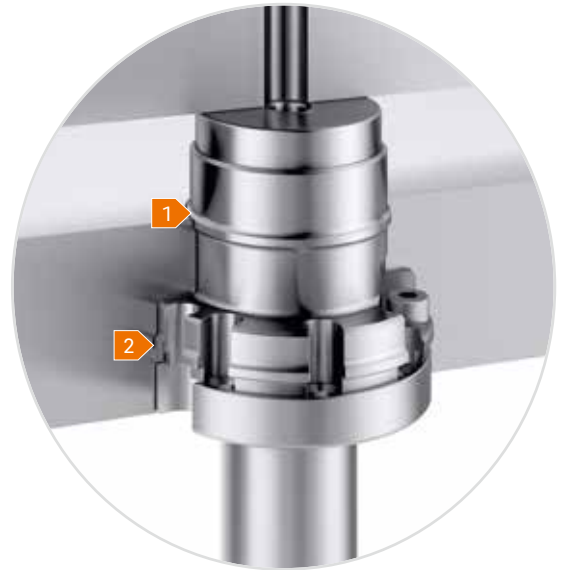
With their large variety of melt channel diameters, nozzle lengths and gate geometries, the GÜNTHER hot runner nozzle range offers solutions for all the requirements of modern injection moulding technology.





Slim nozzles for front mounting – the “_TT/_TF” series

- Small shaft diameter of 15 mm, 18 mm or 22 mm
- Melt channel diameters of 3.8 mm, 4.8 mm and 6 mm
- Convenient front loading of the nozzles means that the mould can remain on the machine for nozzle maintenance work.



- 1 Safe thanks to spatial and thermal separation of the connection cable from the manifold and protection against over-injection of the hot runner system.
- 2 For protection against leaks, the manifold chamber is sealed up to the cable channels. Two fits enable precise positioning on the pitch.

Open hot runner nozzles

The various different nozzle types used as a single nozzle or as a nozzle for multi-drop nozzle systems enable the implementation of a very broad range of applications. Thanks to the modular design used, individual components like heaters, sensors, melt channels and nozzle tips can be exchanged. This provides advantages when carrying out repair and maintenance work (time savings, lower repair costs and shorter downtimes).

Thanks to their two part shaft, the outstanding thermal separation of GÜNTHER hot runner nozzles is truly impressive. This ensures outstanding insulation in the front shaft area and therefore extremely minimal heat loss between the hot runner nozzle and the cavity in the mould. This is why GÜNTHER hot runner nozzles are especially suitable for processing thermally sensitive materials, technical plastics and high-temperature-resistant polymers. For filled materials, wear-protected heat-conducting tips provide the best possible protection against mechanical and chemical attack (e.g. glass fibers with heat stabilisers). 3D CAD models of the hot runner nozzles are available in the CADHOC® library.

The advantages at a glance

- + Homogeneous temperature management
- + Optimum thermal separation
- + Easy installation and protection against leaks
- + Outstanding insulation in the front nozzle area
- + Very good vestige quality
- + Installation-friendly plug-in type power and thermocouple plug connections
- + Applications up to a process temperature of 450 °C
- + BlueFlow®: hermetically sealed, up to 50% energy savings possible



BlueFlow[®] hot runner nozzles

The slim nozzle design and small shaft diameter of our BlueFlow[®] hot runner nozzles ensure considerably higher quality and design freedom when it comes to moulded parts made of thermally sensitive plastics.

Depending on the area of use in different branches of industry, this results in improved or even completely new application possibilities.

Slimmer

The especially slim design of BlueFlow[®] hot runner nozzles and their small shaft diameter allow for more flexibility in the temperature profile, which in turn results in higher part quality. The small size also enables a higher degree of freedom in direct injection design and reduces the amount of space required within the mould.

Optimum temperature profile

With thick-film heating, we are able to precisely adapt the individual heating output to the requirements in each section of the nozzle length, thus achieving a homogeneous temperature. As a result, the plastic in the melt channel is subject to practically no thermal stress whatsoever, meaning that the desired physical properties of the end product are reliably achieved even with thermally sensitive plastics and very small moulded parts. Parts weighing as little as 0.004 grams have been created using direct injection.

The advantages at a glance

- + Especially slim nozzle design
- + Precise heating output distribution
- + Fast, thanks to the small mass involved
- + Energy savings
- + Smaller injection moulding machines thanks to the small nozzle design
- + Conserves materials
- + Increased process stability

Save up to
50%
energy





Fast

BlueFlow® hot runner nozzles are characterised by their very small size and fast thermal control. Naturally, a precise controller is also required for such a small mass so that the temperature can be controlled within narrow limits. The nozzles are impervious to moisture.

Little size, big performance

Thanks to the slimmer design of our BlueFlow® hot runner nozzles, it is possible to use smaller, more economical and lower-priced injection moulding machines. At the same time, BlueFlow® can be used for production with a greater number of drops, and yet a comparable mould size. In this way, more parts can be produced with each mould in the same amount of time.

Money-saving technology

The exact, homogeneous temperature management of BlueFlow® hot runner nozzles protects materials and increases process stability.

Technology for energy conservation

The energy efficiency of BlueFlow® hot runner nozzles is a result of their small size, absolutely precise and homogeneous temperature management and innovative thick-film heating technology in conjunction with a two part shaft. No other technology involves heat generation so close to the material. Cutting the energy requirement by up to 50% makes operation more economical, not only due to a reduction in electricity demand, but thanks to reduced cooling needs as well. If energy is not introduced into the mould, it does not have to be removed later on.

Cool Tech for Hot Runners



A superior design

The innovative design of the BlueFlow® hot runner nozzles results in an overall lower mean temperature and thus to lower power consumption.





Multi-drop hot runner nozzles

GÜNTHER offer both radial and linear multi-drop hot runner nozzles. A perfect solution for side gating is the OktaFlow® hot runner nozzle, which enables up to eight tips to be used for each nozzle. Optimum freedom for designing hot runner systems with minimal cavity spacing is made possible by using SGF/SGT multi-drop hot runner nozzles.

For vertical injection: SGF/SGT multi-drop hot runner nozzles

With their SGF/SGT multi-drop hot runner nozzles, GÜNTHER Hot Runner Technology has developed a series which ensures optimum freedom for designing your hot runner systems. This nozzle series is ideal for the multi-drop injection of small parts with minimal cavity spacing. Thanks to their flexibility and ability to adapt to complex requirements, SGF/SGT series nozzles are able to fulfil the highest requirements on the gate position, vestige quality and shot weight.

Another advantage for your applications is that the temperature of the nozzles can be controlled separately for each tip. The nozzles allow for a gentle flow of molten plastic and enable the use of compact moulds with a high number of drops on micro-injection moulding machines.



The advantages at a glance SGF/SGT

- + Simple mould design
- + Small cavity spacing
- + Tips can be controlled individually
- + Also for micro-injection moulding machines

SGF/SGT multi-drop hot runner nozzle in a common housing

Up to eight nozzles with a nozzle length of 20 mm or more can be used.



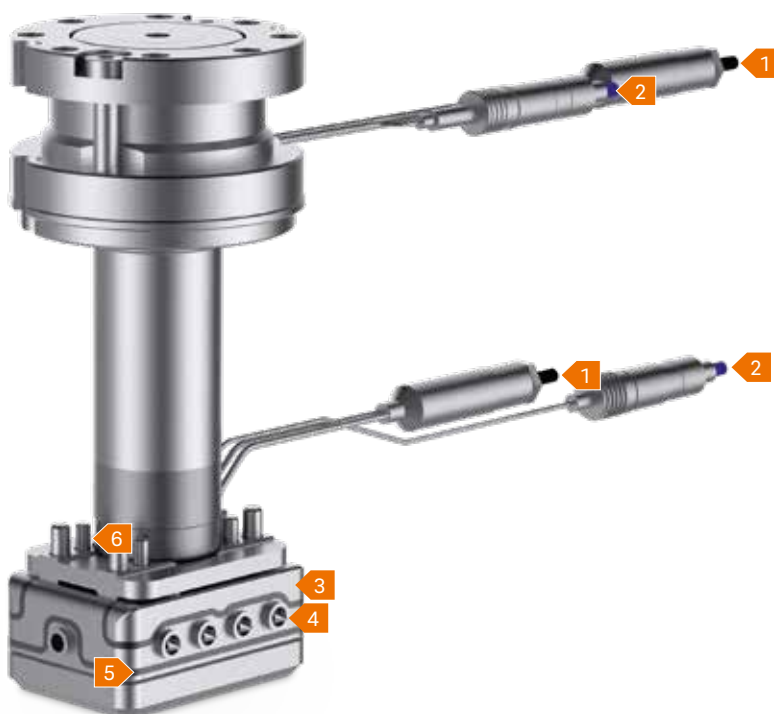
OktaFlow® – the perfect solution for side gating

Guaranteed free of problematic production-related “cold slugs”, the especially cost-effective and space-saving multi-drop nozzles of the radial and linear OktaFlow® series ensure direct side gating.

Both versions have the same features – they can be used in combination with a heated nozzle adapter or a manifold for injection moulding tools with a high number of drops. For the processing of filled materials, nozzle tips with wear protection can be used instead to ensure long service lives in continuous operation. The tips can be changed individually.

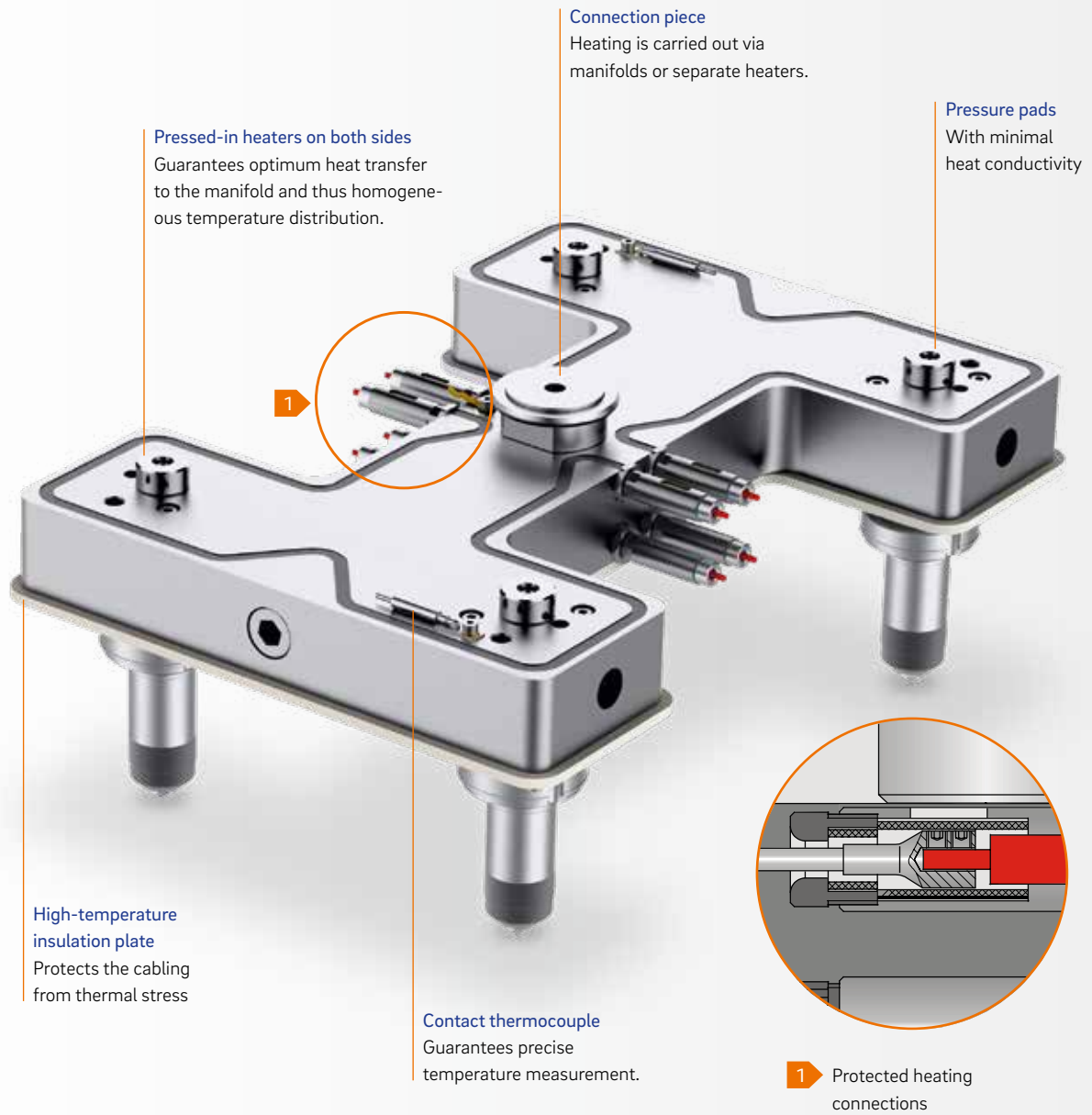
The advantages at a glance OktaFlow®

- + Side gating under 90°
- + Small cavity spacing
- + High number of cavities
- + No complex, split insert necessary
- + Longitudinal expansion via feed nozzle, installation of the sub-manifold independent of the heat expansion
- + Optimal temperature profile
- + Exchangeable nozzle tips
- + Installation-friendly plug-in type power and thermocouple plug connections
- + Reduced control technology requirements



OktaFlow® multi-drop hot runner nozzle

- | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1 Power connections and thermocouple plug connections
Pluggable, installation-friendly and high-temperature-resistant</p> | <p>3 Sub-manifold
Floating suspension, therefore impervious to heat expansion</p> <p>4 Tips
Individually exchangeable</p> | <p>5 Heated tip area
Heating profile close to the gate</p> <p>6 Pins
Secure the component against turning, position it at the correct height (radial design)</p> <p>7 Pitch circle Ø: 45 mm / 65 mm</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



Our manifold systems for your ideas



Straight manifold



H-manifold



Manifold systems

Different manifold versions can be selected for different applications, from partially or fully balanced to customer-specific special solutions. Flexible positioning of hot runner nozzles and a freely selectable pitch make individualised mould design possible.

Homogeneous temperature management thanks to pressed-in heaters

All melt-conducting components are heated externally, which ensures optimum plastic flow with the smallest possible pressure loss. Pressed-in heaters on both sides guarantee optimum heat transfer to the manifold block. This results in homogeneous temperature distribution.

Features

- Homogeneous temperature distribution
- Variable nozzle positions
- Power connections with external damage protection
- Easy and fast cleaning
- Model data is stored in the CADHOC® online library

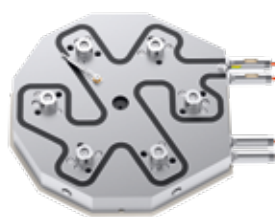
Protected power connections – highly maintenance friendly

Steel and ceramic sleeves protect the power connections from damage. Mechanical cleaning of the manifold channels is easy and fast. Cleaning in the fluid bed bath and oven is also possible.

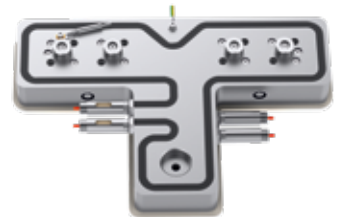
The model data in the CADHOC® System Designer library can be configured (and are thus quickly available) for both individual and standard manifolds.



Cross manifold



Star manifold

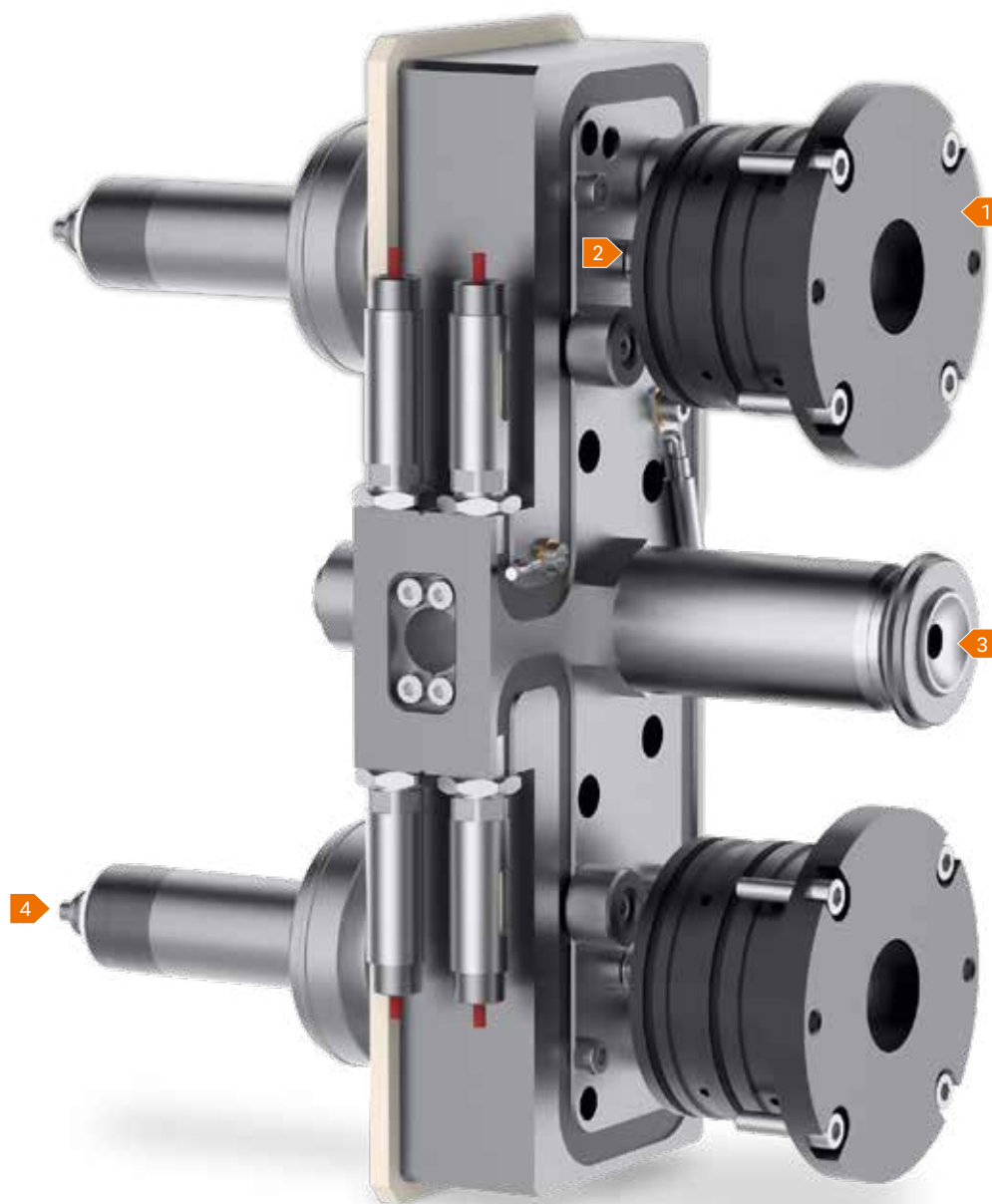


T-manifold



Valve gate technology

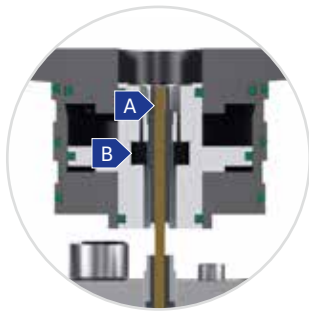
High visual requirements, a variety of applications, minimal shear stress, variable gate point diameters and high process reliability. These are just a few of the requirements for which GÜNTHER valve gate technology has the right answer.





GÜNTHER's portfolio includes a variety of valve gate nozzles and needle actuation options. This enables perfect application-specific adaptation to the mould concept, both technically and financially. Both the smallest and large shot volumes and gate point diameters from 0.8 to 4.0 mm can be implemented with valve gate technology.

The innovative design of the needle guide and the optimised shut-off needle enable low-wear operation. During the shut-off movement, the needle is first led over a cone up to the cylindrical pre-centring device for precise immersion into the cylindrical gate point. The needle guide is supported floating in the melt channel. In case of wear, the needle guide can be changed with minimal effort. Special openings in the mould clamping plate enable individual adjustment of the immersion depth of the shut-off needle from the outside. Depending on the application, highly filled plastics can be processed.



- 1 ENV single-needle valve
- A Adjustment of the needle position
- B Installation independent of heat expansion

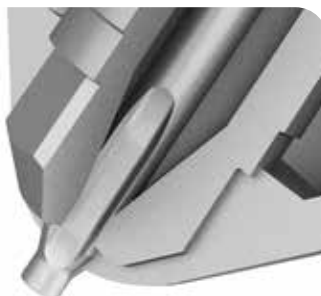
- 2 Needle guide and sealing in the manifold
- 3 Heated connecting nozzle

- 4 Needle guide in the nozzle

Possible needle guide designs



LA needle guide
Immersed up to the item



KA needle guide
Application-dependent use

The advantages at a glance

- + Unambiguous opening behaviour
- + Consistent gate point quality
- + Sequential injection
- + Long needle guide service life
- + Time and cost savings
- + Wear parts are easy to replace



Needle actuator

GÜNTHER needle actuators enable precise and intelligent needle control with simple installation and connection technology. Uniform opening of the individual valve gate nozzles enables a reliable injection process, even with the smallest shot weights.

ANES sliding mechanism

If a large number of closely positioned nozzles are being operated, a sliding mechanism is to be provided as the drive. Design of moulds with a high number of drops with small mould dimensions. High product quality, as all cavities are filled evenly through the synchronised opening and closing of the needles. Adjustment of the needle position in the assembled mould.



The advantages at a glance

- + Precise opening and closing
- + Reliable injection process
- + Individual cavities can be shut off
- + Optimally adjusted needle
- + Precise and intelligent needle control
- + All moving parts can be replaced by the customer
- + Saves time

Possible drive types:



Electrical



Hydraulic



Pneumatic



- 1** Fast and powerful servo drive
For valve gate systems, up to 24 drops per sliding mechanism. Needle adjustment in the μ range. Needles close in less than 0.2 s. Can be used in clean rooms.
- 2** Sliding components with special coating
Protected against wear, can be replaced by the customer.



Sliding mechanism

Can be actuated electrically, pneumatically or hydraulically.



Needle actuator

ENV and EEV single-needle valve

Single-needle actuation on single and multi-drop nozzle systems. Cascade injection moulding through the sequential opening and closing of needles is possible. Single-needle valve is mounted with the housing in the clamping plate.

ENV single-needle valve: Minimum cavity spacing with hydraulic drive: 48 mm, with pneumatic drive: 69 mm. Needle adjustment or needle replacement without removing the mould.

EEV single-needle valve: Minimum cavity spacing with hydraulic drive: 40 mm, with pneumatic drive: 57 mm. Due to a fixed needle length, needle adjustment is only possible with the mould disassembled.

Possible drive types:



Hydraulic



Pneumatic



ANEH stroke mechanism

Reliable injection process, even with small shot weights thanks to uniform opening and closing of the needles. Replacement of the external cylinder without removal of the mould. Adjustment of the needle position in the assembled mould.

Possible drive types:



Electrical



Hydraulic



Pneumatic



NEST single valve gate nozzle

The pneumatically driven NEST valve gate nozzle offers optimum process reliability when processing high-quality, demanding materials. Melt channel diameters from 5 to 12 mm and a length of up to 250 mm enable a variety of different injection moulded part and mould designs.

Possible drive types:



Pneumatic



SMA 10 stepper motor

Electric drive for complex applications with up to four different needle positions per cycle. Up to 16 SMA 10 stepper motors can be controlled with extreme precision using the DPE control unit. Using the DPE control unit, the position of each individual shut-off needle in the mould can be set individually. Needle adjustment in the range of 1/100 mm. Can be used in clean rooms.

Possible drive types:



Electrical



Complete systems

Taking your specifications into account, we design the most sensible solution for the respective hot runner application where all components are matched to one another. This guarantees maximum performance.



Fully assembled system
4-drop open hot runner system



Hot half
36-drop open hot runner system

Ready for installation, individually designed

With a hot half or a fully assembled Ready2Connect® system from GÜNTHER, you get a customize, well-thought-out design created just for you. All components are matched to one another, fully wired, checked for proper functioning and can be used in any industry.

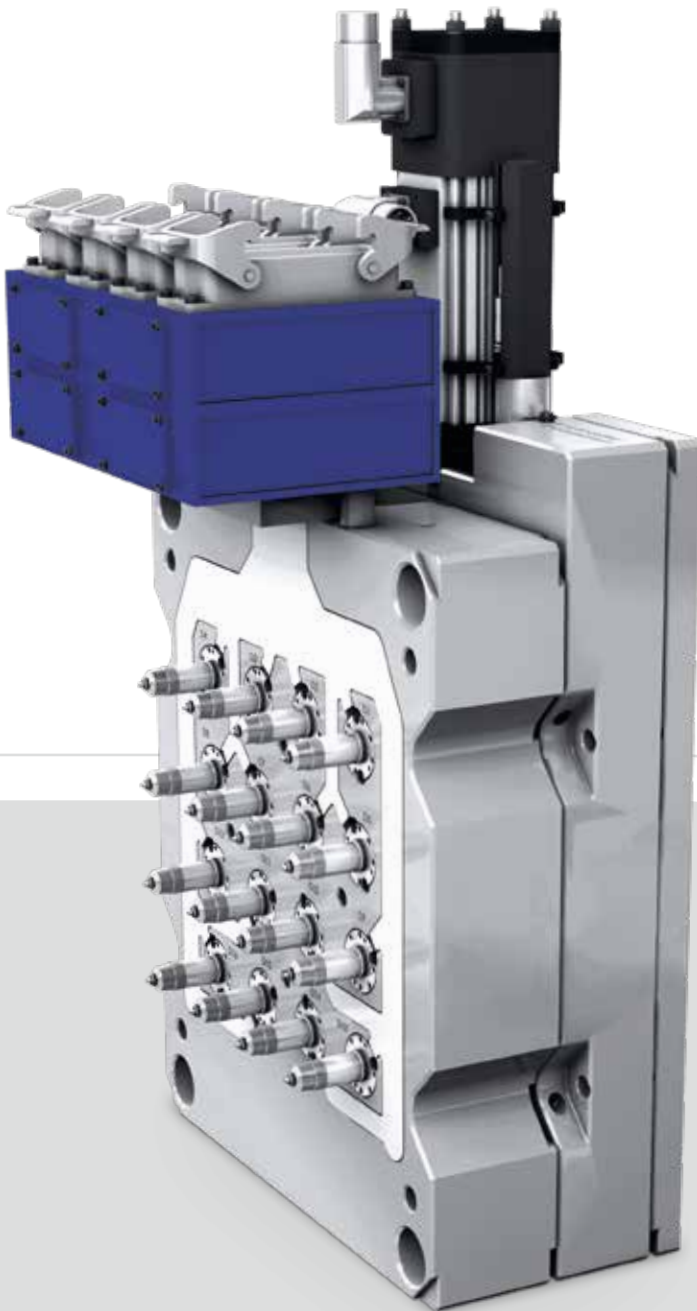
Hot halves are both efficient and economical

Complete nozzle-side mould halves with a height-matched hot runner without a cavity plate shorten project planning and maximise the performance of GÜNTHER hot runner systems considerably.



The advantages at a glance

- + Ready-to-install solution
- + Additional set-up costs for subsequent reworking due to faults in the hot runner are ruled out
- + Shortened project planning
- + Online configuration using CADHOC® System Designer
- + Extended warranty period



Hot half
16-drop valve gate, electrical

Optimally matched valve gate

We provide hot halves with valve gate technology with electrical, hydraulic and pneumatic drives.

More service

Thanks to our complete hot halves, you can dispense with extensive coordination work and potential installation errors. Naturally, we also support you in commissioning, maintenance and repair.



Control technology for hot runner systems

The future of smart control: High-performance control technology maximizes productivity and production quality in GÜNTHER premium hot runner systems. This is because self-optimizing temperature control has a favorable effect on part quality and energy efficiency.



blueMaster compact

The compact controller for three or six control zones is designed as a control unit for smaller applications or for use in the servicing sector. Its automatic optimization of temperature control, its simple, user-friendly operation on an app and its attractive price make it an ideal starter unit.

- Mobile handset network connection possible
- Consistently state-of-the-art thanks to regular updates*
- Data export of measurement data and progress graphs*
- A mobile handset to manage several controllers
- An existing mobile handset can be used
- Wireless charge module integrated for mobile handset

* Smartphone must be connected to the Internet.

blueMaster pro

The blueMaster pro premium controller with built-in 7 inch display is also able to operate complex hot runner applications. A wide range of graphical user interfaces allows users to select the interface they consider optimal for their specific application. Users can operate controls directly on the unit or in a browser from wherever they happen to be.

- Hot runner diagnosis
- Heat-up function
- Self-optimizing control
- Highly precise control, even for tiny loads
- Measurement data upload to the cloud
- Full user account control with passwords and assignment of rights
- Mould database
- Display of temperatures as curve on graph for simplified interpretation
- Help available in plain text directly on unit
- Load fuses can be accessed from outside
- Robust metal casing
- Reduction function protects material from thermal damage



Control technology for needle drives

With their clear menu guidance and convenient data exchange options, GÜNTHER control units are optimally tailored to the needs of the user.



DPE4 through DPE16 for the SMA stepper motor, Individual needle drive

Thanks to clear, well-laid-out and full-colour menu guidance, the current needle positions and the incoming and outgoing signals are always recognizable. The DPE is operated using a touchscreen. The control unit can be configured based on the application. Storage locations for mould data are available for saving the settings.

- Operation of up to 16 stepper motors to drive shut-off needles.
- Encoder signals are read out to ensure correct positioning.
- Cascading of connected needles is easy to implement.
- Valve gate control as a closed control circuit.
- Log of all actions and events in internal memory.
- Data exchange via USB interface.
- Individually adjustable needle position.
- Needle adjustment in the range of 1/100 mm.
- Simultaneous closure of shut-off needles possible from different positions.
- Fully automated process.

ServoControl control unit for servo motors as a needle drive on the ANES multi-drop sliding mechanism

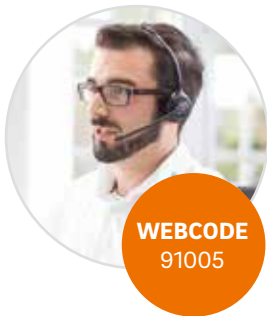
Three user levels protect the ServoControl from faulty operation while allowing the adjustment of all parameters to suit your application. The ServoControl communicates with your injection moulding machine over freely programmable inputs and outputs.

- Data and settings are backed up over the integrated USB interface.
- Data records can be transferred between multiple ServoControl units.
- User management with various different authorisation levels.
- All movement and position data are easy and convenient to set with the user-friendly touchscreen.
- 16 A CEE mains connection.
- Up to three motors can be operated individually or synchronously.
- Servo motors of different performance classes are available for driving the sliding mechanism (ANES).
- The sliding mechanism enables the tightest of cavity spacings and simultaneous closing of the cavities.



Service

To support your individual development and design processes and your day-to-day work, we offer design and calculation programs, our application database and hands-on seminars. You can also rely on our professional expertise when it comes to application-dependent nozzle and system selection.



Always find the right contact partner

Have any questions? Need consulting? Would you like to place an order? We would be happy to help you. GÜNTHER Hot Runner Technology are among the leading specialists for individually configured hot runner systems. Feel free to contact your competent contact partner directly for offers, orders, design and service at any time.

The GÜNTHER technical centre – innovative hot runner systems tested in advance

At our in-house injection moulding centre, we carry out material testing with test moulds under production conditions. We test and document the workability of plastics and optimise the moulds if necessary. This is how we ensure a precise and economical solution for you. Thanks to the GÜNTHER technical centre, you can be sure that your plastics can be processed with our hot runner systems and that your moulds will function flawlessly in practice.



Digital Support

Our application engineering consultancy and service team provide you with fast and comprehensive assistance for technical inquiries and issues by utilizing video conferencing systems. This allows us to make a precise assessment of the situation despite geographical distances and offer specific guidance. Your benefits: reduced downtime, easy implementation, comprehensive support, and greater flexibility. Feel free to contact us via email or phone.

GÜNTHER Hot Runner Technology seminars: Expertise for use in practice

Expand your knowledge and expertise! At our seminars, we provide you (as a user, mould maker or engineer) with an introduction to hot runner technology and convey extensive knowledge on hot runner systems. We also offer appropriate seminars for advanced learners. In addition, we provide you with helpful information and valuable tips on using our hot runner systems in your day-to-day work. This includes:

- Selecting and modifying components for system design.
- Optimum installation.
- Smooth operation.
- Safe and professional maintenance.
- Free-of-charge and practice-oriented seminars.





The GÜNTHER application database

In the GÜNTHER application database, you will find information on implemented applications with regard to materials, shot weight and the number of cavities. We can provide you with the data on implemented applications on short notice.

Are you planning a new application of your own? Do you have individual wishes? We would be happy to support you here as well. Just let us know your requirements. Our in-house experts will check them first and then share the design and data with you. All you have to do is ask – online, via email or in person.



CADHOC® System Designer – top-notch software provided for your support

The CADHOC® System Designer enables us to meet your needs after fast provision of product data on everything from individual components to complete hot runner systems, including negative volume.

Among other things, CADHOC® System Designer enables you to:

- Design nozzle sizes in an optimum way.
- Select plastic types from a comprehensive list.
- Make a direct configuration without any specification of the application information.
- Make an application-based configuration.

3D CAD models on every hot runner system are available for download in a variety of different data formats. After entering your configuration parameters, you will receive an email with a link to the product data of the configured hot runner system. Price information provided in a PDF file tops off this service.

The Delta Tool: Easily calculate hot runner heights

Do you need concrete technical information on hot runner heights?
Do you need an exact calculation?

Use our Delta Tool! This software enables you to make concrete calculations for reworking smaller gate points with a diameter of 1.2 mm, where the hot runner nozzle must be installed in the lagging position.



WEBCODE

Find it faster

Use webcodes to search the GÜNTHER website in a fast and targeted way. Entering a webcode in the search box will bring you directly to additional information.
www.guenther-hotrunner.com

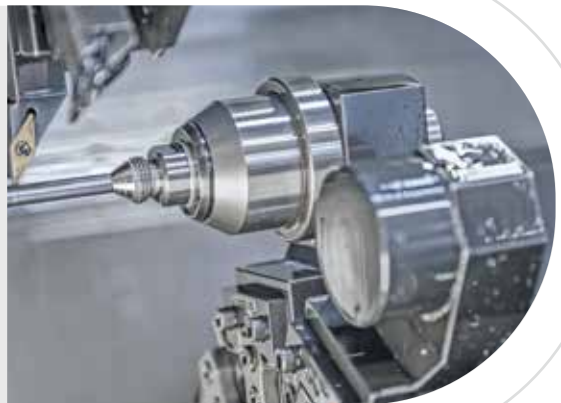


GÜNTHER Hot Runner Technology

Comprehensive know-how in material and production technology, competent employees and an optimally equipped machine park are the bases for creating efficient solutions for individual requirements.

Production lathes

- Three mould systems on two work spindles of the same type
- Two Y-axes for three revolvers and two work spindles
- Simultaneous processing with three revolvers on two work spindles and collision-free work
- Extremely short job and lead times thanks to simultaneous processing with up to three moulds

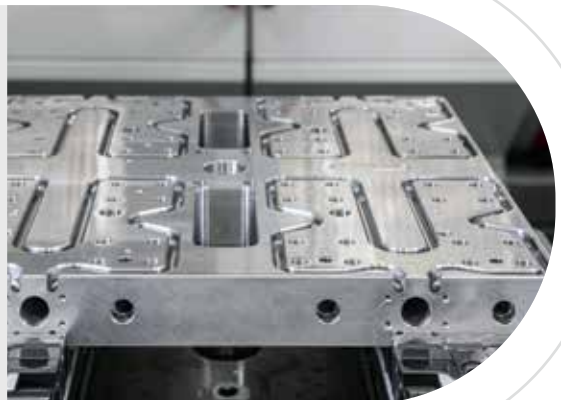


Linear handling system for manifolds and hot halves

- Fitting of production machines and magazines during running operation
- Reduction in replacement times
- Shortened lead times
- Quality assurance

Milling machines

- Five axes simultaneously
- Traversal path: X-Y-Z 850 – 700 – 500
- Speed: 10,000 rpm
- 125 mould places





Universal internal and external cylindrical grinding machine

- Z and X-axes and fully controlled B and C-axes
- Using four high-frequency spindles, speeds ranging from 1,500 to 120,000 rpm are reached



Universal external grinding machine

- Two left-hand external grinding wheels with a diameter of 500 mm
- Cutting speeds up to 50 m/s
- Fully automatic loading and unloading
- Workpieces can be processed individually and quickly



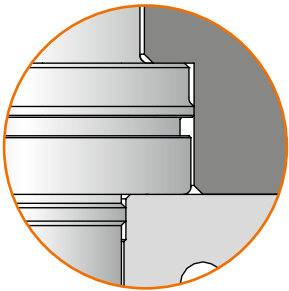
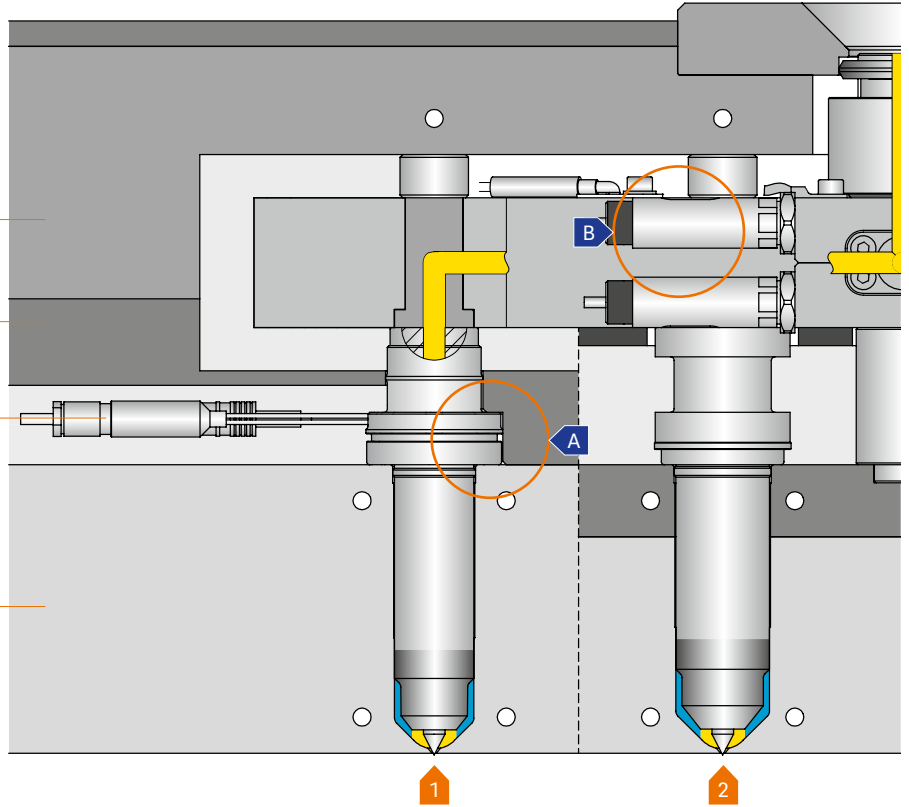
Open system height

Clamping plate

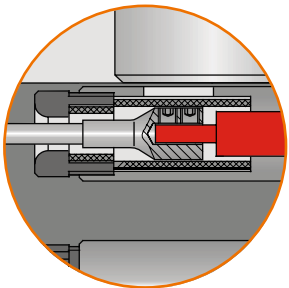
Nozzle holding plate

Plug-in type power and thermocouple plug connections

Cavity plate



A Two fits for precise positioning and greater protection against leaks



B Protected heating connections

Gate geometry
Open nozzle with tip

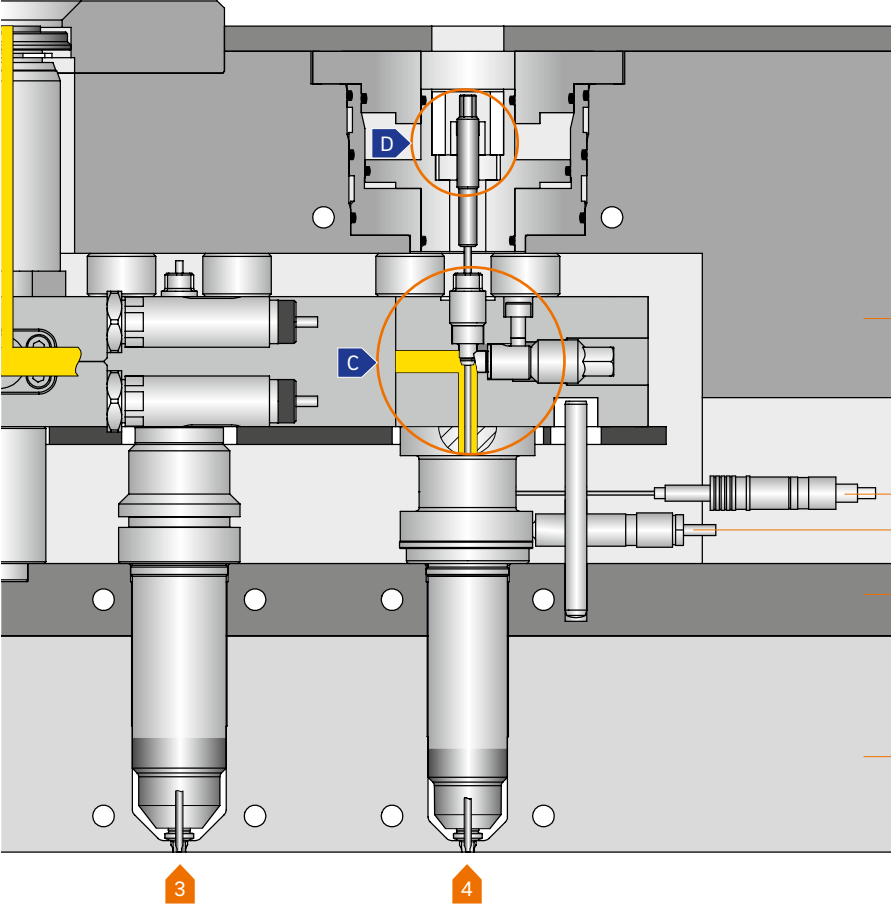


Gate geometry
Open nozzle with straight outlet





Valve gate system height



Clamping plate

Plug-in type thermocouple and power plug connections

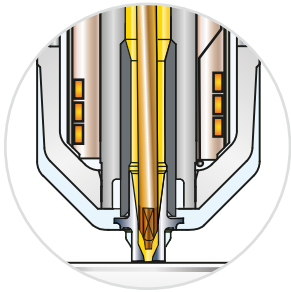
Nozzle holding plate

Cavity plate

3

4

Gate geometry
Valve gate nozzle

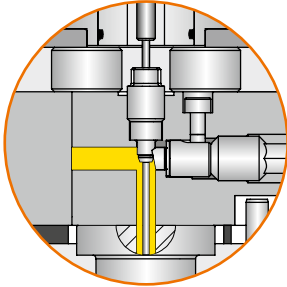


- 1 STT nozzle
 - With two part shaft
 - Screwed from the parting line

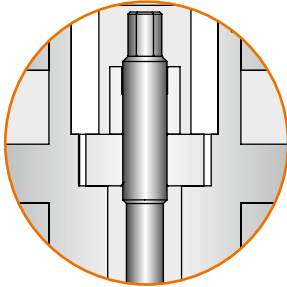
- 2 SHT nozzle
 - With two part shaft
 - Screwed to the manifold

- 3 NMT valve gate nozzle
 - With two part shaft
 - For minimal spacing
 - Not screwed to the manifold

- 4 BlueFlow® NHF valve gate nozzle
 - With two part shaft
 - Thick-film heating element
 - Screwed to the manifold



C Needle guide and sealing in the manifold



D Needle adjustment

GÜNTHER are a technological leader in the field of hot runner technology. With over 220 employees, we produce innovative and user-friendly hot runner nozzles and systems for the plastics industry at our location in Frankenberg, Germany and sell them at more than 40 representative locations around the world.

Our international customers include leading companies in the car, electrical/electronic, medical technology, packaging and consumer goods industries. Whether it is modular standard systems or one-off special solutions, we develop and manufacture custom-tailored solutions aligned with our customers' applications.



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