MORE COMPONENTS

Individual solutions bring greater cost efficiency

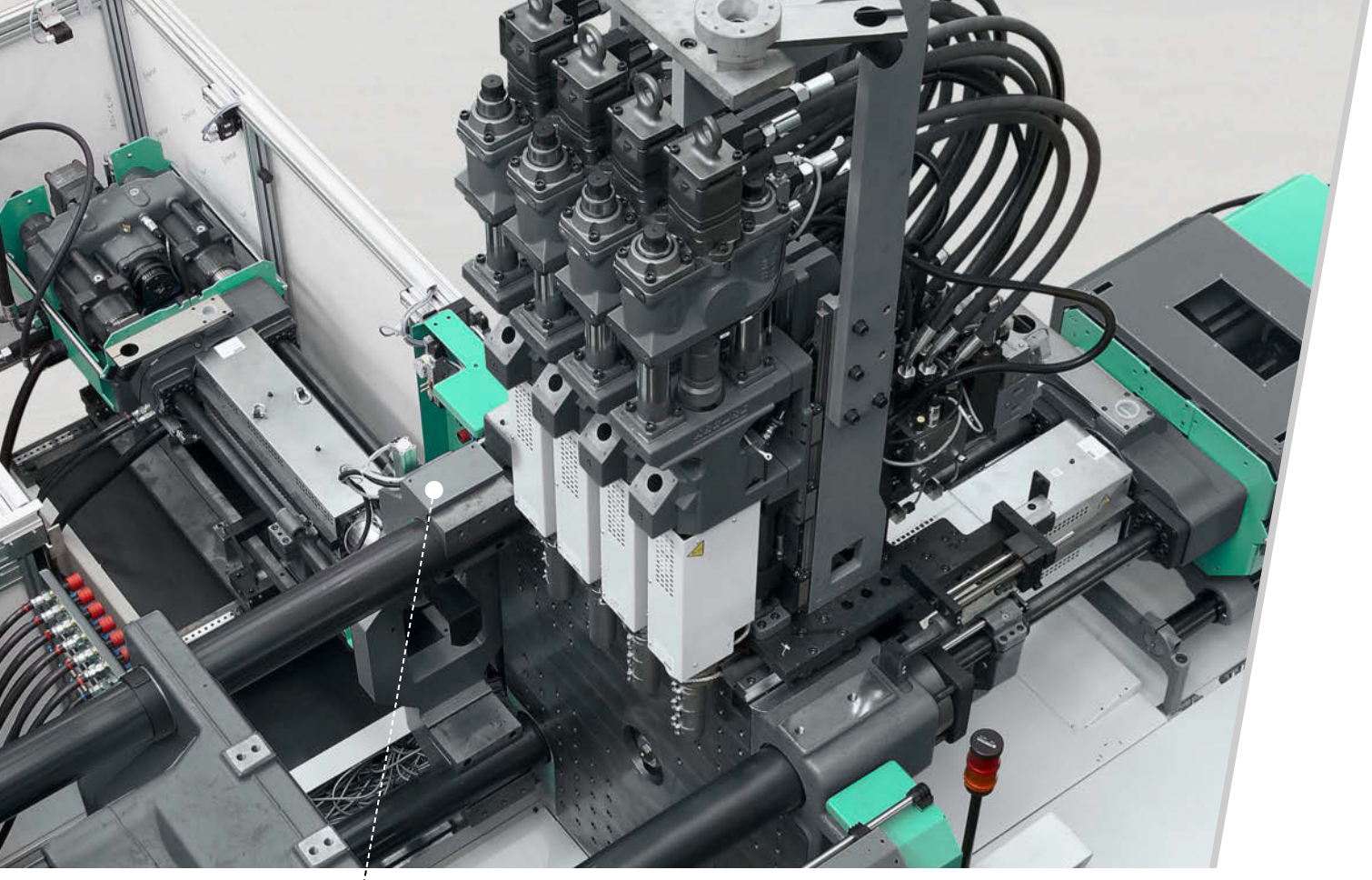
ARBURG

ADDED VALUE

With more expertise for the perfect multi-component solution.

Multi-component application: we have a great deal to offer you in this area – as a technological pioneer with some 60 years of experience! From small to large, from hydraulic and electric to vertical, with a wide variety of configuration options, not only for our injection units. That's how broad our spectrum is. That's what really counts!

WIR SIND DA.



Process technology to make anything possible: we are not limited to one rigid concept when it comes to finding the best solution for you.

AT A GLANCE

// We have been successfully involved in the production of multi-component moulded parts since as early as 1962. Our extensive knowledge of application technology already benefits you in several ways: as machine concepts that are perfectly tailored to your requirements, but also as well-founded consulting services. Thus, working with ARBURG also means higher process reliability and quality during multi-component injection moulding. For maximum production efficiency. \\

Multi-component injection moulding – Made by ARBURG

- Hydraulic, electric and vertical machines
- Special ALLROUNDER MORE and CUBE
- Fully integrated mould technology
- Automation and complete turnkey systems

Perfectly harmonised technology

Based on standard solutions for processing several components, machine technology from ARBURG can always be adapted precisely to the relevant injection moulding task:

- Wide selection of series, sizes and injection units
- Flexible arrangement of the injection units, just as the mould or process requires
- Numerous equipment and configuration options, e.g. for silicone processing

Reliable process control

Even sophisticated injection moulding processes always remain clear thanks to our outstanding control technology. Graphic sequence programming makes the co-ordination of several injection units and mould functions and the integration of peripheral equipment easy to understand and clear at all times. Numerous functions for process optimisation, monitoring and documentation ensure top quality moulded part production.

Utilising unique know-how

Our application technicians can provide all-round competent consulting – across all process versions. Any questions about the relevant machine and process technology? Need help with moulded part design and mould design? These are things that we take for granted. Alternatives are always conceivable thanks to our modular product range and are also explicitly included in the overall evaluation of the best technology concepts.

MULTI-COMPONENT EQUIPMENT

■ Flexible arrangement of independent injection units	■ Near-mould core pull connections
■ Reproducible injection with aXw Control ScrewPilot (servo-electric or hydraulic)	☐ Accessories including interval, rotary and index units
☐ Special cylinder modules, for example for marbling or for silicone processing	■ Central control of all injection units and mould and robotic sequences

■ Standard ☐ Optional

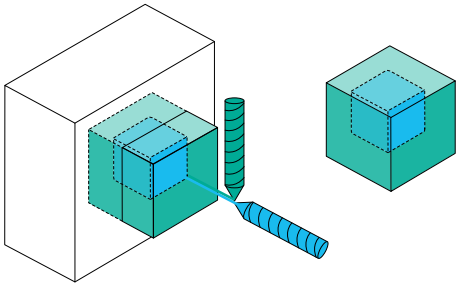
THE PROCESS: VERSATILE

// Need to implement special design solutions? Want to optimise product properties in a targeted approach? Looking to integrate functional elements? The combination of different materials and colours in a single moulded part can produce interesting options. There is a wide range of process techniques is available for this that differ in the way in which the components are combined. Fully automated production without additional assembly steps or reworking minimises unit costs. Your profitability rises as the number of units produced increases. \\

CLASSIFICATION	PROCESSES	Addition of second component			
		mixed	partial	from one side	from both sides
One sprue system	Interval injection moulding	■	–	–	–
	Sandwich injection moulding	■	–	–	–
	Marbling	■	–	–	–
Multiple sprue systems	Core-back process	–	■	–	–
	Turning stack mould technology	–	■	■	–
	Rotation technology - mould half	–	■	■	–
	Rotation technology - mould platen	–	■	■	■
	Rotation technology - mould insert	–	■	■	■
	Transfer technology	–	■	■	■

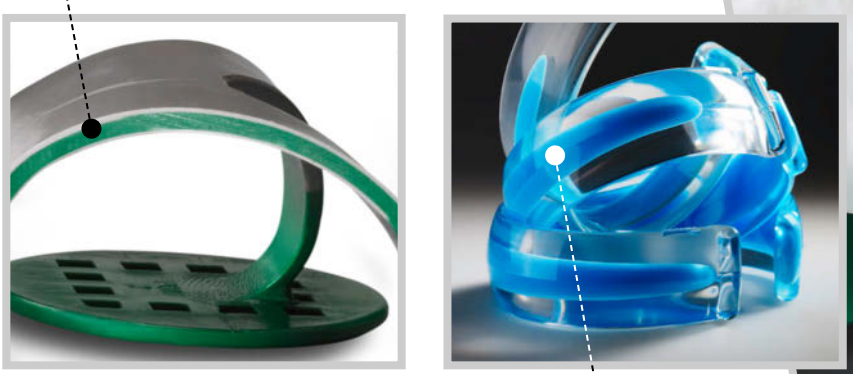
Sandwich injection moulding

Functional core with an attractive looking/feeling exterior: Sandwich structures can be achieved with single-component moulds through an orderly injection sequence involving two injection units. The typical three-layer structure is achieved with the aid of an interval unit as an accessory. Independent injection units are required in order to be able to work simultaneously and inject in a programmable sequence.



Interval injection moulding

This process enables coloured surface effects to be reproduced through targeted timing control of two injection units. There is no clear colour boundary between the components. As in sandwich injection moulding, you can use cost-effective, single-component moulds. In order to link the two injection units, an interval unit is required as an accessory.



Sandwich structures in the component: with two specifically timed injection units.

Reproducible colour effects: with a special interval unit.

Simple combination of two materials:
the core-back process and freely
programmable core pulls.

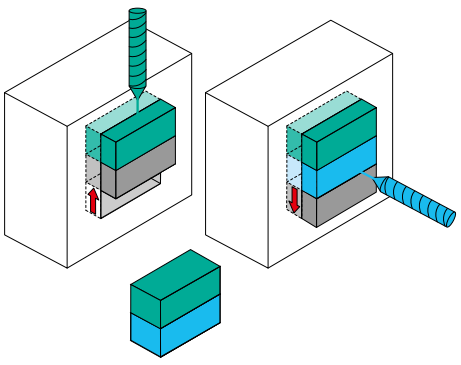
Low-cost colour effects:
with single-component machine
technology and marbling cylinder.

Marbling

During marbling, coloured surface effects are achieved by inhomogeneous mixing of several plastics in one injection unit. Consequently, there is no clear colour boundary and the colour effects are not reproducible. ARBURG supplies a special cylinder module with a piston injection unit for marbling. A mixing section provides the required colour mixture.

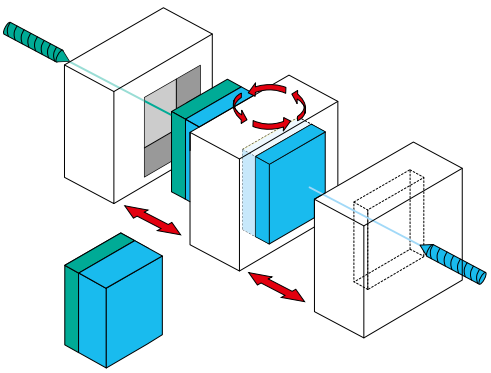
Core-back process

In the core-back process, the cavity is extended by pulling a slide, enabling a second component to be injected. The sequential cycle is especially suitable for moulded parts with simple geometries. As well as involving less complex tool technology without further transport of the pre-moulded part, this process also offers you a large number of cavities per mounting surface.

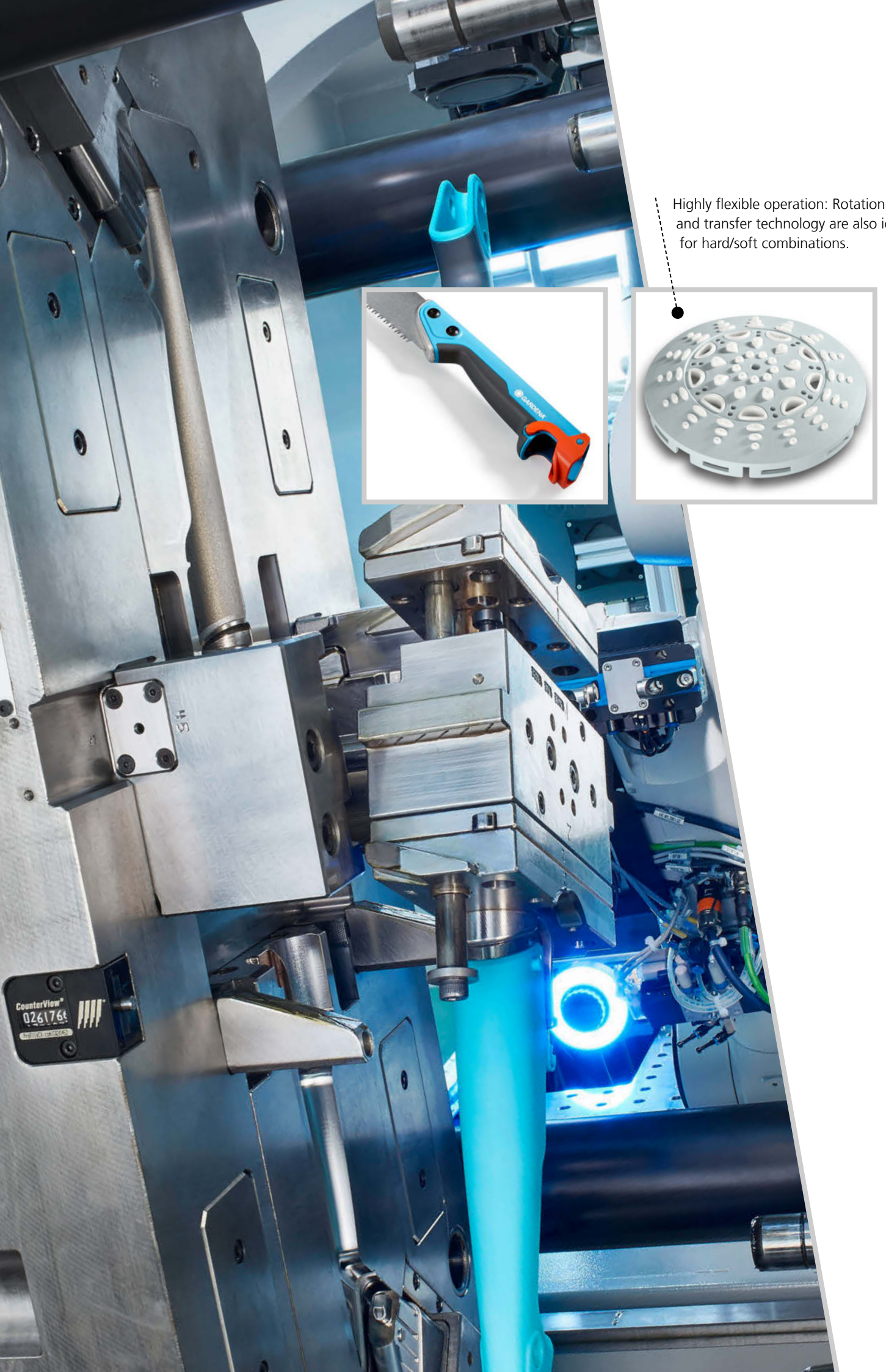


Stack-turning mould technology

A large number of cavities with a small clamping area and low locking forces: using stack moulds, pre-moulded part and finished moulded parts can be produced simultaneously in parting lines positioned one in front of the other. As well as two-station moulds, cube moulds with four stations are also used. These also have the advantage that additional process steps, such as insertion, testing or removal can be integrated without increasing the cycle time. Based on a specially designed ALLROUNDER CUBE mould, ARBURG can implement tailor-made complete solutions for you.



Further information:
ALLROUNDER CUBE brochure



Highly flexible operation: Rotation and transfer technology are also ideal for hard/soft combinations.

Rotation technology

The pre-moulded parts are transferred to the second station via a horizontal rotary movement. They remain in the part of the mould that is rotated and are not demoulded. Internal or external mould rotary devices are required as accessories for this purpose. A distinction is made between rotation of a mould half, a platen or an insert. Our consistently high-quality multi-component technology also enables you to fully exploit the potential of the process:

- Simultaneous injection moulding facilitates short cycle times
- Four positions/components and more possible

Transfer technology

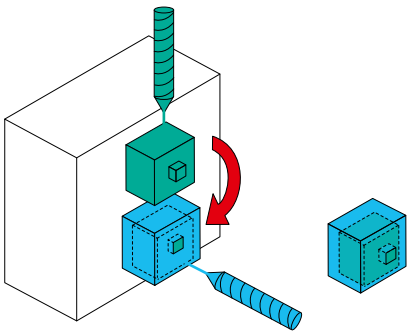
With this process, the transfer of pre-moulded parts to the second station via a robotic system takes place directly in the mould, or in a second machine. Preform and finished moulded parts are also produced simultaneously in this process. This leads to short cycle times. However, the transfer technology offers you even more interesting advantages:

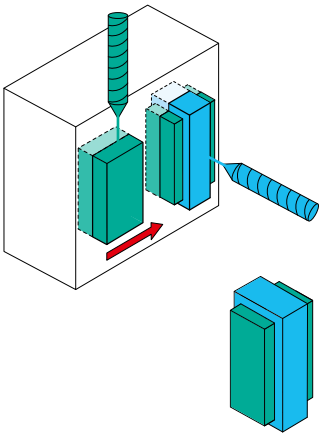
- Simple mould technology
- Thermally separate mould areas can be implemented
- Robotic systems can be used for further upstream and downstream production steps
- Production steps can be integrated in the pre-moulded part
- Ideal for bulky inserts

Assembly injection moulding

This includes all processes with transfer, rotation or stack-turning mould technology in which assembly steps are integrated directly in the injection moulding process. Assembly takes place either in the mould following injection, or two incompatible components are combined without a positive material bond using the injection moulding process. This procedure offers a great deal of added value:

- The finished product is created in a single step
- No downstream joining or assembly - fewer parts
- Fully functional products with moving elements



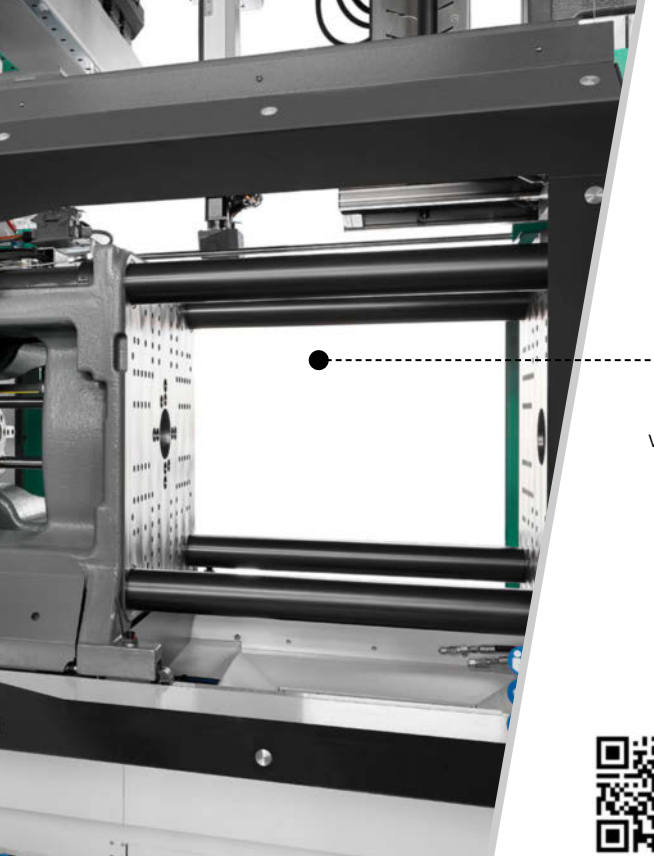



ARBURG
MULTILIFT V
ARBURG
ALLROUNDER MORE 1600

TECHNOLOGY: ADAPTABLE

// If you opt for our multi-component injection moulding technology, you can draw on a detailed technology portfolio that leaves nothing to be desired in terms of configuration options. You are bound to find the right machine and equipment for your specific part requirements within this broad range. Our offering is completed by comprehensive application technology consulting and project planning. Everything from a competent source: ARBURG, your technology and system partner. \\

ALLROUNDER MORE: Modern multi-component injection moulding technology with added value.



More installation space, more convenience: The MORE offers optimal accessibility for complex moulds.

ALLROUNDER MORE
Take a look at our video.

Special ALLROUNDER MORE

With the ALLROUNDER MORE, we are offering you a series that is specifically tailored to multi-component processing. Its impressive design offers significantly more space for moulds and a convenient installation solution for rotary units and media connections. Another highlight is fast set-up – for example, through plug-in media couplings for electrics, water and hydraulics on the vertical injection unit.

Fully hydraulic to fully electric

Thanks to hydraulic accumulator technology on the ALLROUNDER S or servo-electric drives in the ALLDRIVE series, the axes of motion and therefore the injection units operate completely independently of one other. aXw Control ScrewPilot, which is fitted as standard, delivers reproducible mould filling and excellent moulded part quality.

MULTI-COMPONENT ALLROUNDER

Distance between tie bars:	**270 - 920 mm**
Clamping forces:	**400 – 5,000 kN**
Injection units:	**30 - 4600**

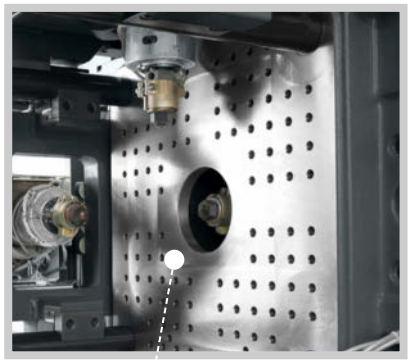
Wide variety of combinations

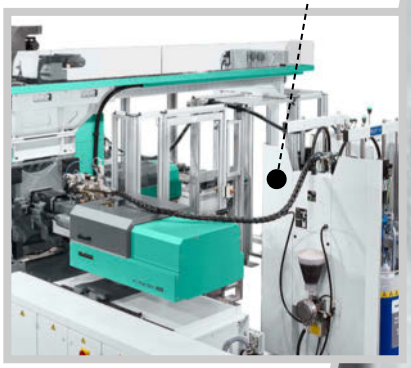
The cylinder modules are compatible with all series and are finely graded. Various versions ensure optimum protection against wear. In addition, screws in special geometries allow you to process all common plastics. Electric ejectors and core pulls are available as well as hydraulic ones for the clamping units.

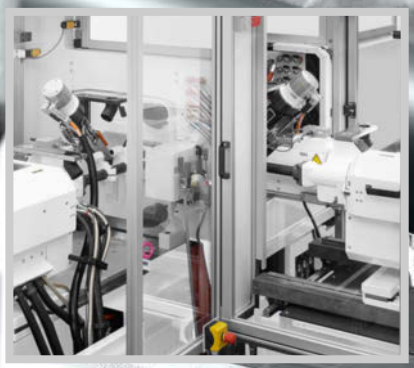
The alternative: Vertical machines

Our wide product range of machines for multi-component processing is supplemented by vertical and rotary table machines for overmoulding inserts. This means you are not limited to one rigid concept when it comes to finding the best solution. In addition to mould and process technology, we also consider aspects such as cost-effectiveness, automation and cycle times.

Adaptable: broad range, for example for silicone or clean room technology.







Repeat accuracy: customary high part quality thanks to independent injection units.

Further information:
Products and services brochure

The classic: horizontal and vertical

The horizontal-vertical arrangement of the injection units fulfils the majority of requirements with regard to multi-component technology. Practical equipment details, such as manually displaceable vertical injection units, effectively shorten set-up times. The installation space and opening stroke of the clamping units are also suitable for large moulds. Extended tie-bars are available as an option.

Flexible configuration

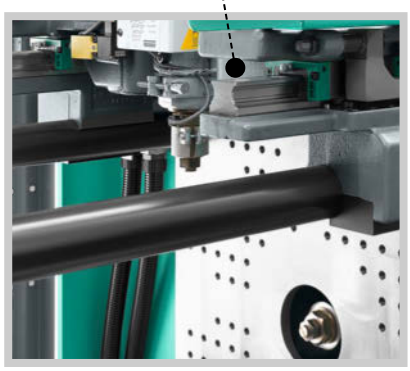
Several different positions of the injection units are possible with respect to one another. These can be flexibly arranged precisely in line with mould and process technology requirements. Solutions with up to six components have already been implemented. What this means for you is that individual, customised multi-component machine technology is available to suit every application.

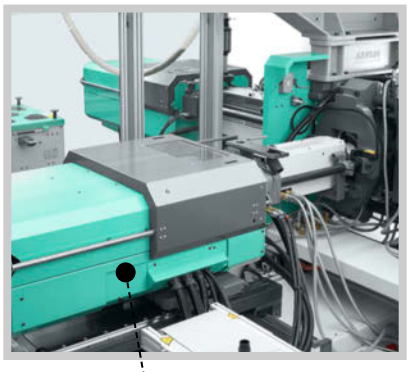
One ALLROUNDER can process up to

COMPONENTS

CLASSIFICATION	POSITION				
	V	L	P	W	M
Injection in the mould parting line	■	■	–	–	–
Small footprint	■	–	■	■	■
Low ceiling height	–	■	■	–	–
Good accessibility to the mould	■	–	■	■	■
Good accessibility for robotic system	–	■	■	■	■
Can be used as a single-component machine	■	■	■	■	■
Suitable for large injection units	–	■	–	–	■
Suitable for large machines	–	■	■	–	■

V position: vertical arrangement of the second injection unit above the mould.

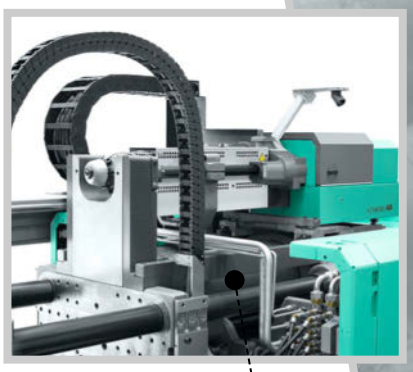




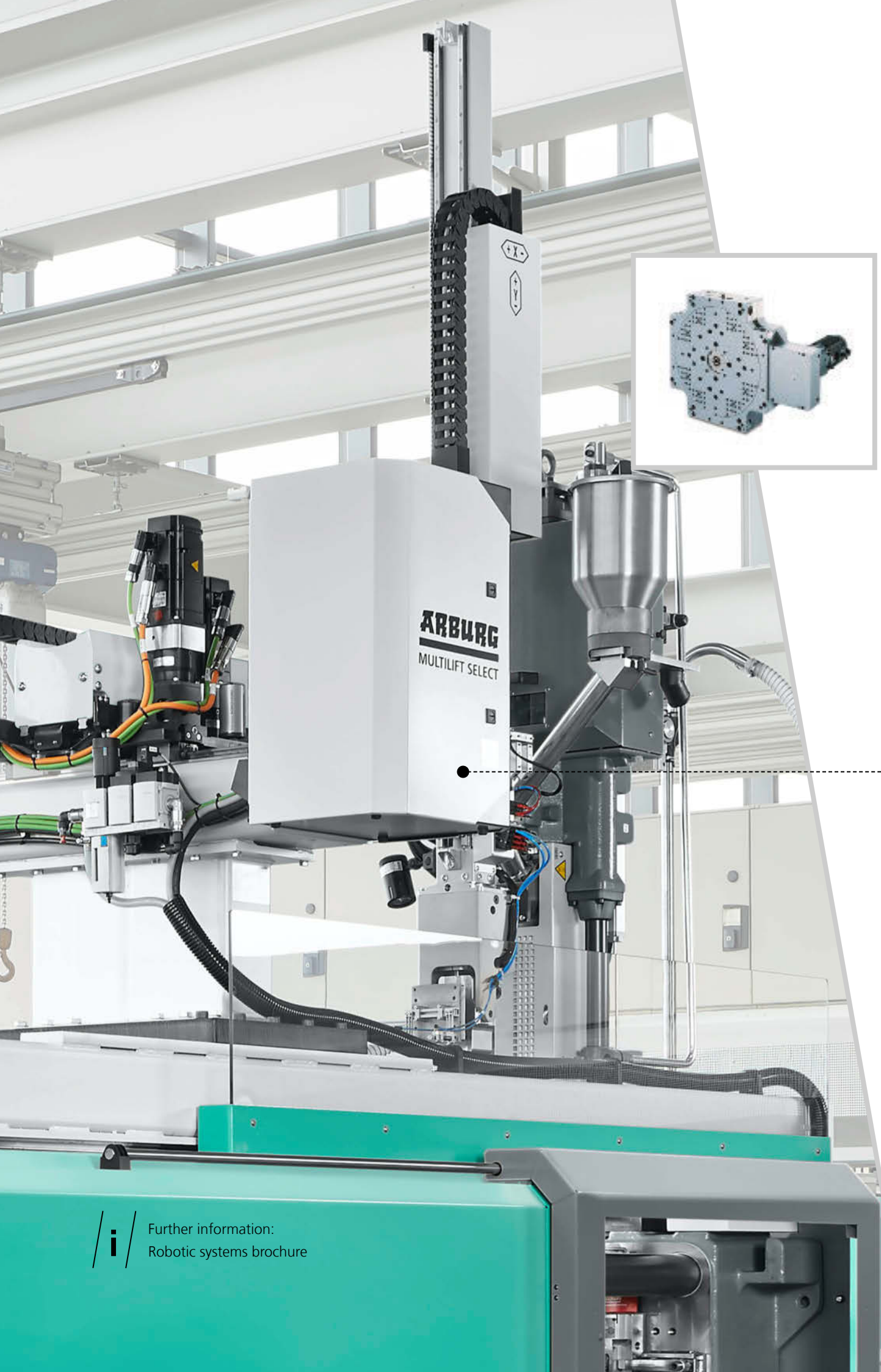
L position: second injection unit horizontal on the back of the machine.

P position: second injection unit horizontal and parallel to the first.

W position: second injection unit positioned at 45° angle above the horizontal unit.



M position: second moving injection unit is mounted above the moving mounting platen.



Further information:
Robotic systems brochure

WE MAKE THINGS SIMPLE AND COST EFFECTIVE.

Rotary units

Our rotary units are attached to the moving mounting platen. This makes them suitable for various moulds and easy to retrofit. Depending on the machine type and size, you can choose between hydraulic or servo-electric drives.

Indexing units

As an alternative, we can offer you servo-electric index units to rotate mould platens or inserts. These are integrated in the moving mounting platen and are ideally suited for large opening strokes.

Robotic systems

Complete solution with an ALLROUNDER: Our versatile robotic technology can be precisely adapted to your particular handling task. These are also ideal conditions for the multi-component injection moulding, for example of hard/soft combinations.

Interval units

Our interval unit allows a horizontal and a vertical injection unit to be connected. It is attached to the fixed mounting platen and can therefore be utilised universally for a number of different moulds. We achieve high process reliability as the melt flows are thermally coupled until immediately upstream of the sprue system.

Compatible with multi-component technology: linear robotic systems positioned above the moving mounting platen.

Servo-electric rotary and index units enable up to

2.3 s

SHORTER ROTATION TIMES

Nothing is impossible: multiple functions for specialised technology, with which even special sequences become standard for you.

CONTROL SYSTEM: SMART

// Maintaining control over machine, mould, robotic and peripheral technology requires a suitably powerful central control system. This calls for smart technology that offers extensive data integration options, monitors and adaptively controls your processes, and supports you in every operating situation. All the features of our SELOGICA and GESTICA control systems are designed for a fast, secure and comfortable set-up and operating process. This enables you to get the best out of all your applications. \\

Highlights

- SELOGICA and GESTICA – compatible
- Graphic sequence programming
- Real-time plausibility check
- Assistance packages and connectivity modules "Ready for Digitalisation"
- Central control system for complete production cells

i Further information:
GESTICA brochure

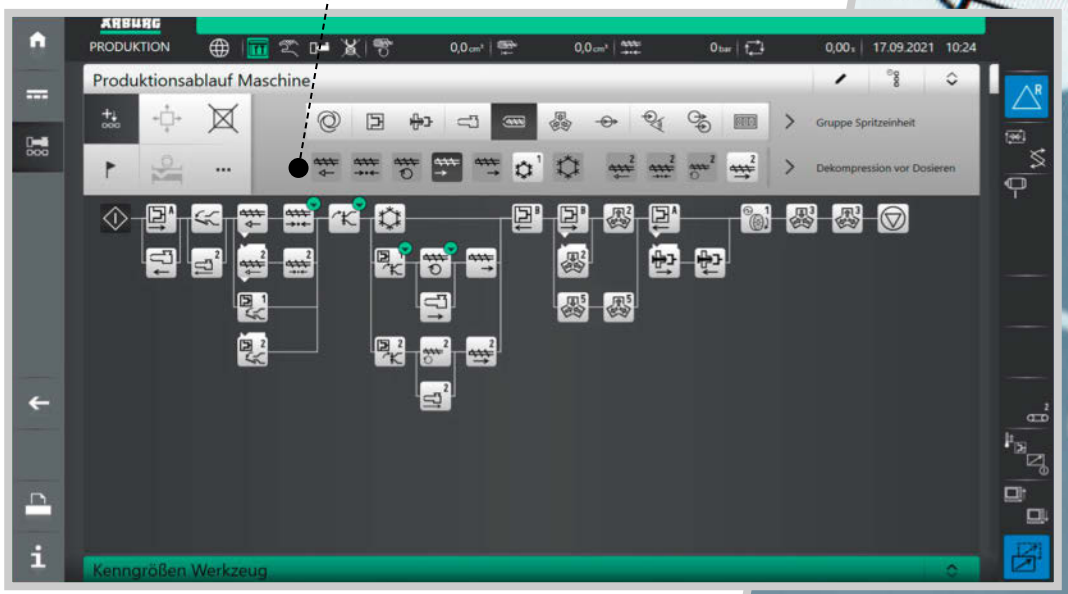
Integrated functions

Maximum flexibility during set-up and high process reliability: mould and robotic functions are fully integrated in the machine control system. All movements can be perfectly coordinated and comprehensively synchronised. This is assured by individual starting conditions, for example. Start-up and emptying cycles with multi-station moulds can be programmed with ease. This is also possible in combination with robotic systems or when not all injection units are in use.

Central user interface

Our machine control gives you direct access to all injection units. For example, in the freely configurable process graphics, the injection parameters can also be compared with one another in detail. Complex sequences are made transparent and comprehensive process optimisation and documentation are ensured.For quality assurance purposes, the parts status is communicated from station to station. Additional benefit: There is only one data record for the entire production unit, including accessories, such as rotary units or robotic systems.

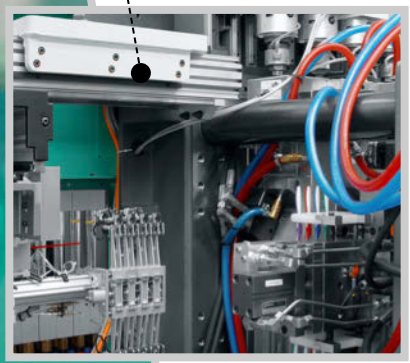
elective optimisation: all injection units can be accessed centrally and sequences are freely programmable.

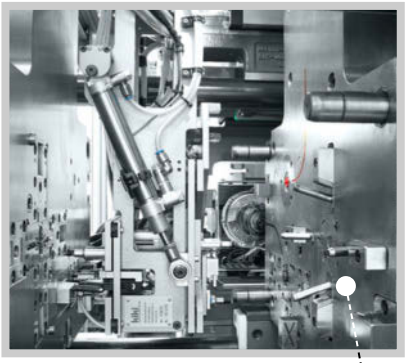


APPLICATIONS: IN PRACTICE

// From colour-coded toothbrushes, integrated soft-touch function for keypads or movable joints in action figures: multi-component technology allows you to produce functional products efficiently in a single cycle. When it comes to implementing your innovative production and product ideas, we are always the ideal technology and system partner! We can offer you machines and turnkey solutions precisely tailored to the individual case in hand. Professional advice, from the planning stage and installation on site through to service. Your all-round carefree package from ARBURG! \\

Efficient mould concept:
Injection moulding process and parts handling run simultaneously.

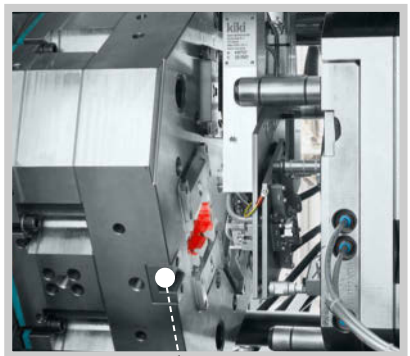


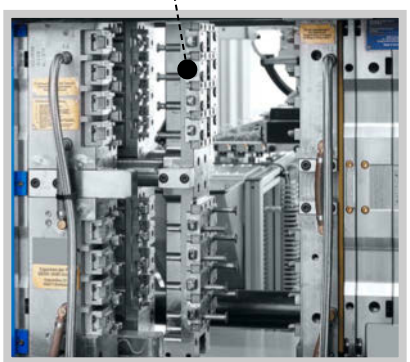


High process reliability: robot and mould processes programmed by a machine controller.

Control for automobile interior: stability, feel and functionality in a single step.

Functionally integrated: index unit turns out pre-moulded parts for dentures.





Fast and precise: the cavities of a multi-component mould are rotated by 120°.

Individual turnkey solution: work-piece carrier circulation system connects two ALLROUNDERs.

Further information:
turnkey projects brochure

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WIR SIND DA.

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