



# ROBOTIC SYSTEMS

Getting straight to the point:  
automation for efficient  
parts handling

**ARBURG**

# FACILI- TATORS

One hundred percent integration:  
perfect coordination of machine  
and robot technology.

Productivity and reliability really count. That's why our ALLROUNDER machines and robotic systems work hand in hand. Adapted to your specific requirements. Precise, fast and reliable. Integrated complete solutions that allow you to start production directly. We make everything possible. You also have a single contact - from the customised design of a production unit, to commissioning and worldwide service offerings!

**WIR SIND DA.**



High-performance drive technology: simultaneous, rapid and precise movements thanks to servo motors with separate regulators.

## AT A GLANCE

// Modularity is the distinguishing feature of our unique injection moulding technology. And this, of course, also applies to our robotic systems. Whether you need pickers, linear or multi-axis robots for horizontal or vertical mould entry: we always adapt our complete solutions to your precise needs. This is also assured by a variety of designs, special versions, practical configuration options and, last but not least, far-reaching integration that enables you to manage and synchronise sequences on a centralised basis. This is the only way to ensure highly efficient and cost-effective robotic technology. //

### Highlights

- Wide product range
- Complete solution consisting of machine and robotic system
- Extended real-time communication
- Consistent operating philosophy
- Worldwide service

## Plug and work

Space-saving design and fast production readiness: the ALLROUNDER and robotic system form a fully functional CE-certified unit. As a primary contractor, ARBURG guarantees perfectly coordinated interfaces and safety features – both mechanical and electrical.

## Cost-efficiency

Top quality and performance: we also implement these principles consistently with our robotic systems. The robust, low-maintenance technology ensures a long service life and high availability. Extensive integration simplifies set-up and reduces intervention times.

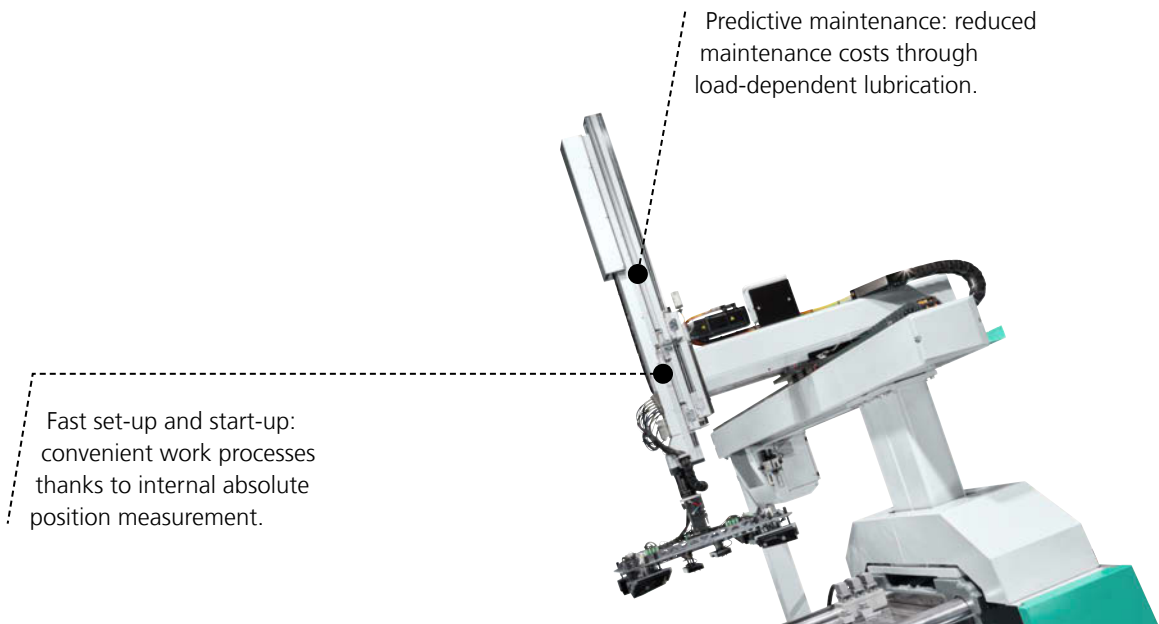
## Flexibility

Can robotic technology be precisely coordinated to every handling task? Yes, it can! Our product range extends from a simple picker to versatile linear robots and multi-functional multi-axis robots. Moreover, various designs and special versions with practical configuration options are also available in terms of size, axes, axis drives and lengths. Also available: extensive interfaces for gripper and peripheral technology. Greater flexibility is not possible.

## Ease of operation

As with ALLROUNDERS, robotic systems can be configured using typical ARBURG sequence programming. The signal exchange goes well beyond the range of functions of a EUROMAP interface. This has clear benefits for you:

- one data set – no adaptation required
- Synchronous process control – short cycle times
- Assistance functions – easy set-up, fast start-up
- Little training required – same approach for all machines



TYPE	MOULD ENTRY	PRODUCT	LOAD WEIGHT	ALLROUNDER
Picker	Vertical	INTEGRALPICKER V	1 kg	270 - 570
	Horizontal	MULTILIFT H	3 - 5 kg	270 - 820
Linear robot	Vertical	MULTILIFT SELECT	6 - 25 kg	270 - 920
		MULTILIFT V	6 - 40 kg	270 - 1120
			KUKA powered by ARBURG	6 - 120 kg
Multi-axis robot	Horizontal/vertical			
			Yaskawa Powered by ARBURG	12 - 25 kg

# PRODUCT RANGE: ALWAYS THE RIGHT CHOICE!

// You need to reliably separate sprues, remove parts without damaging them or prepare inserts for complex applications? A small installation height or a large operating zone is important for you? You want to reduce mould opening times or avoid interfering edges in the mould? Thanks to the wide product range of our modular robotic systems, as well as our modular ALLROUNDERS, we always achieve perfectly fitting, complete solutions. High-end technology. Convincing cost-effectiveness. This is flexibility at its best. //

TASK	PICKERS	LINEAR ROBOTS		MULTI-AXIS ROBOTS
		Horizontal	Vertical	
Remove finished parts/sprue	■	■	■	■
Remove finished part with function/force	–	–	■	■
Separate finished part	–	■	■	■
Stack finished part/set-down in pattern	–	–	■	■
Set down finished part on sloping surface	–	–	–	■
Turn over finished part/overhead handling	–	–	–	■
Near-contour reworking of finished part	–	–	–	■
Pick up insert	–	■	■	■
Pick up insert from pattern	–	–	■	■
Pick up insert from sloping surface	–	–	–	■
Individual positioning of insert	–	–	■	■
2D operating zone - e.g. integration of peripherals	–	–	■	■
3D operating zone - e.g. visual part inspection	–	–	–	■
Linking of machines	–	–	■	■
Clean production conditions	–	■	–	■

**100,000,000**  
**KILOMETRES**    
- the distance covered by  
ARBURG robotic systems each year







Freely programmable: any number of axis positions, for example intermediate stops, can be programmed.



Fast mould-entry axis with  
**20 m/s<sup>2</sup>**  
ACCELERATION

Dynamic, reproducible and energy-efficient: electric drive technology as a basis.

## INTEGRALPICKER V: EFFICIENT ENTRY LEVEL

// Simple, fast, reliable: these are the characteristics of our electric picker solution. This makes the devices ideal for automated sprue removal. The INTEGRALPICKER V reduces set-up and start-up effort to a minimum, is space-saving and does not interfere with mould installation from above. It can be used as a stand-alone device with its own control system, or can also be retrofitted or deployed flexibly on several machines. We see this as genuine added value for you. //



## Reliable sprue removal

Our picker enters the mould vertically and impresses thanks to its high-performance drive technology with three servo-electric movement axes. It is immediately ready for use at the start of production and at every mould change. What this means for you: a high degree of operating convenience with few sources of error.

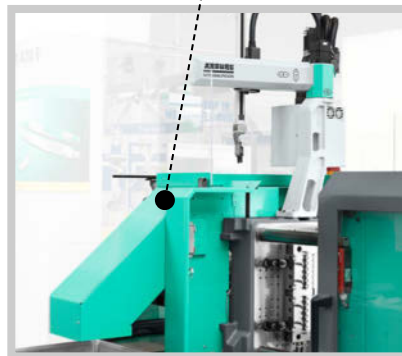
## Short mould-entry times

You are looking to significantly reduce cycle times? Simultaneous, stroke-dependent movements are possible both with regard to the robotic sequences and between the picker and machine. The mould-entry movement, for example, can be performed while the mould is opening and the removal and ejection movements can be synchronised.

## Clever overall concept

The combination of ALLROUNDER and INTEGRALPICKER V forms a compact, CE-certified production unit. The ejection chute, for example, is integrated directly into the safety enclosure of the machine. This saves installation space and allows free access to the mould.

CE-certified: ejection chute integrated in the machine guard.



Retrofittable: stand-alone device with separate control system for ALLROUNDER machines built from the year 2000.

Modular expansion: pneumatic gripper axis (optional) for the demoulding and set-down stroke.



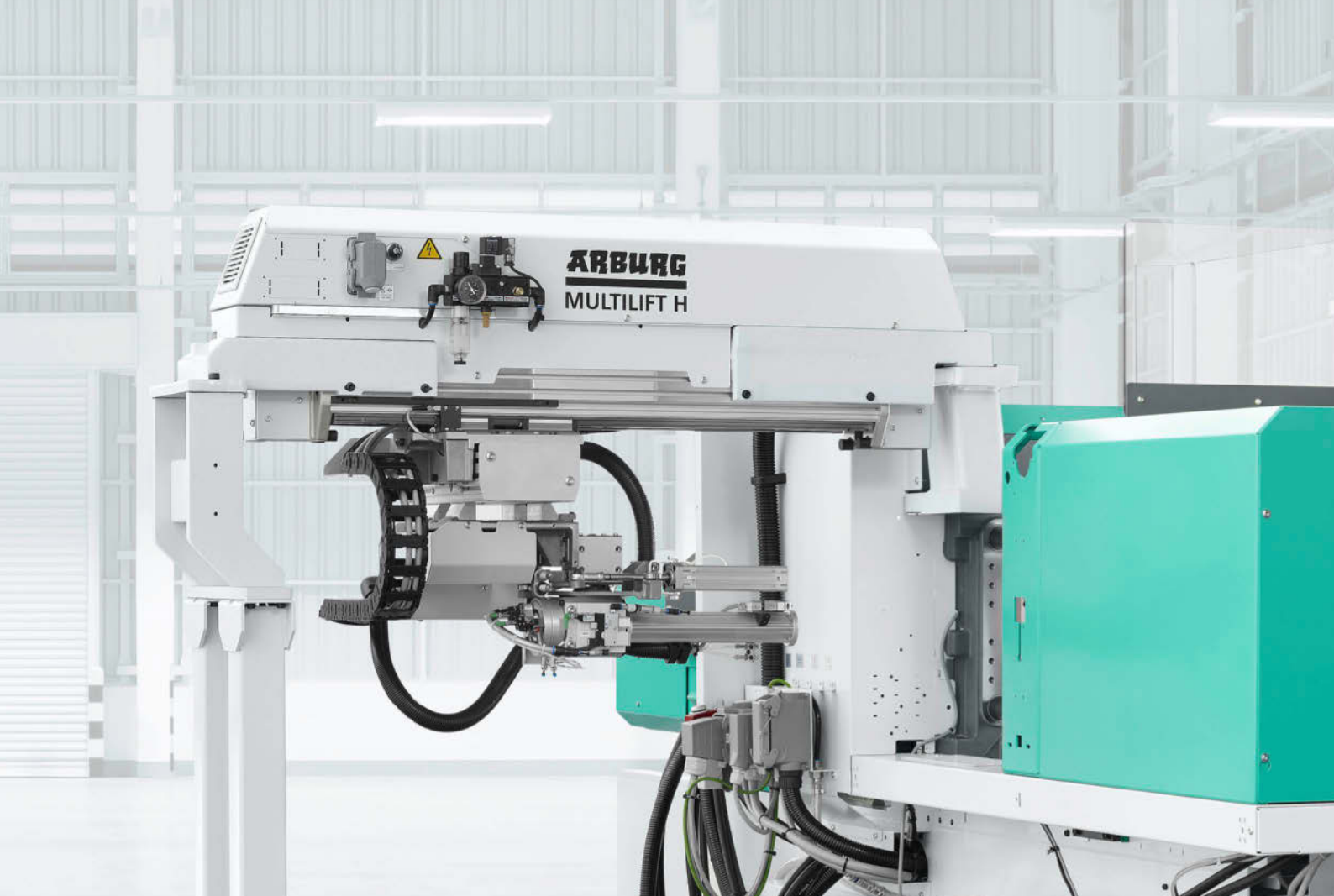
Practical: horizontal mould entry offers interesting benefits for multi-component injection moulding.



Version: MULTILIFT H 3+1 with two horizontal mould entry axes – predestined for micro injection moulding.

## MULTILIFT H: SPECIALISED HIGH PERFORMANCE

// Designed for fast, secure removal and set-down: our MULTILIFT H enters the mould horizontally. It impresses thanks to short mould-entry times and more gentle parts handling compared with free-fall. Your production sequence runs failure-free and high availability of the entire system is ensured. The wide-ranging options enable adaptation to individual tasks. //



### **Low overall height**

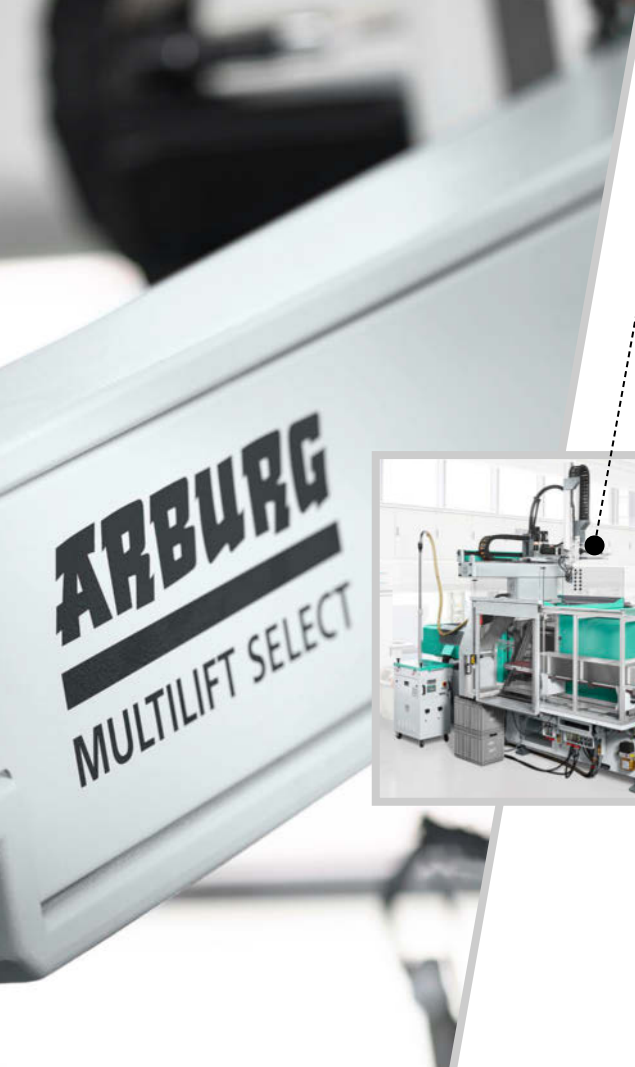
Ideal for low-ceiling factories: horizontal entry in the mould from the rear of the machine leaves the space above the clamping unit free for mould installation. The MULTILIFT H is ideally suited to vertical injection into the parting line as used in multi-component injection moulding, for example, and for mounting vertically operating peripherals on the clamping unit.

### **Fast, reliable part removal**

Looking to save time and energy? The basic equipment of your MULTILIFT H has minimal moving masses. The pick-up and set-down positions are freely programmable with a servo-electric mould-entry axis and a swivelling pneumatic gripper axis. The result: fast part removal for a failure-free production process.

### **Wide-ranging options**

As an alternative, the MULTILIFT H is also available with two horizontal entry axes for the simultaneous removal of moulded parts and sprue. Modular expansion options round off our range. These include, for example, a servo-electric axis for gentle part removal in synchrony with the ejector or the pneumatic swivel action of the gripper through 90° for more working space and a smaller footprint.



Special version: MULTILIFT SELECT  
with space-optimised design.



## MULTILIFT SELECT: COMPACT, STANDARDISED

// Suitable for a wide variety of handling tasks with pick-up and set-down patterns: the classic robotic system with vertical mould entry is called the MULTILIFT SELECT. It features a compact, consistently standardised design. This reduces the space required while also keeping down investment costs. Every time! //

## Preconfigured technology

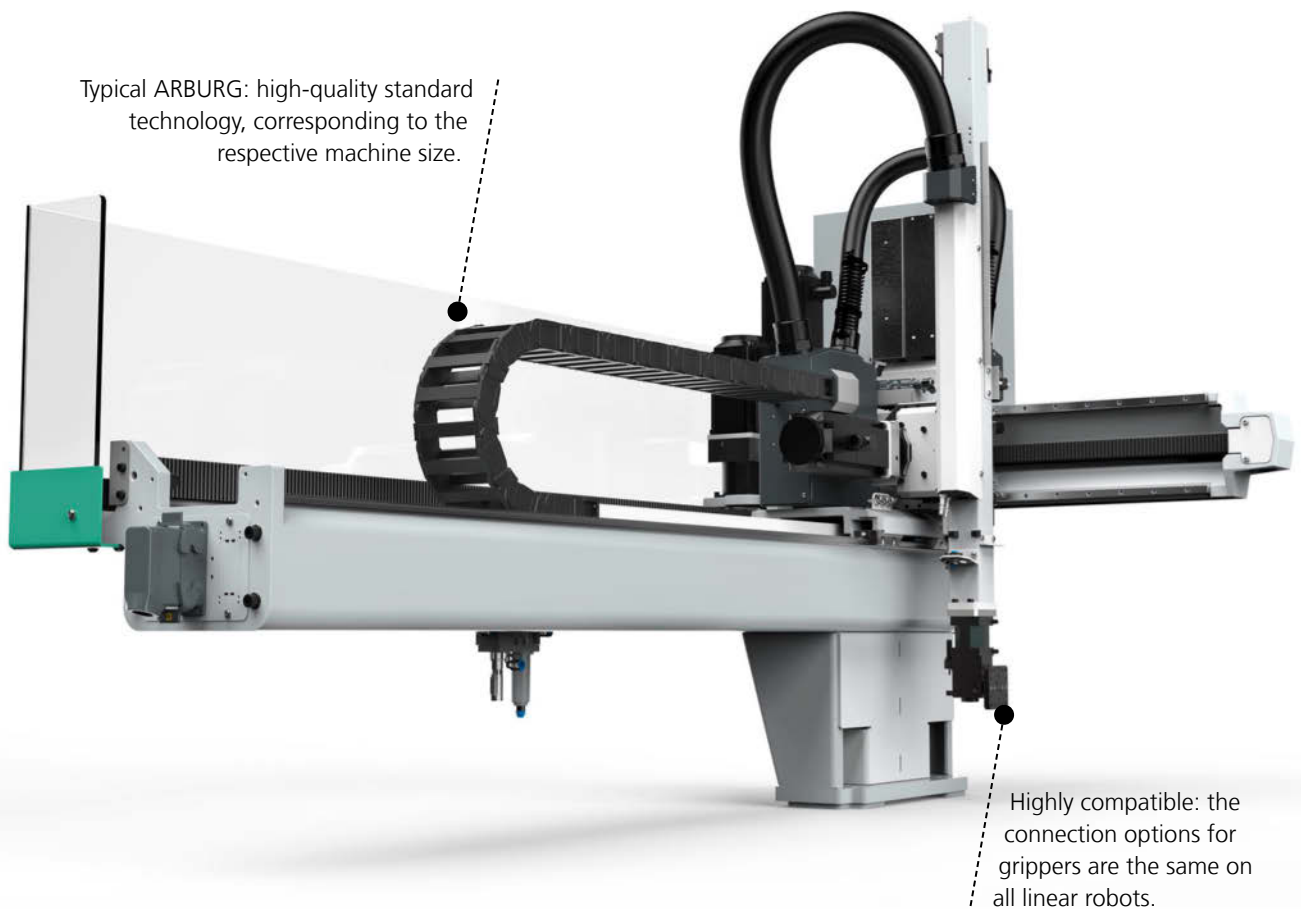
CE-compliant production unit: Our MULTILIFT SELECT is pre-configured according to the machine size and the axis lengths are accordingly coordinated and compact. Particularly in the case of these linear robots, these and other consistent standardisation measures result in an extremely attractive price/performance ratio.

## Flexible pick-up and set-down

High-quality basic equipment: Three servo-electric movement axes and one swivelling pneumatic gripper axis permit freely programmable pick-up and set-down patterns. Gripper changes are simple to perform thanks to standardised adapter plates with rapid release couplings and compact connectors.

## Practical selection

An additional gripper axis for setting down the finished parts in various rotational positions increases the flexibility of the part handling system. It also has a space-optimised design. The safety enclosure and conveyor belt are attached directly to the machine so that their footprints are minimised.






# MULTILIFT V: GROUND-BREAKING VERSATILITY

// A generous working area makes it ideal for integration in complex production cells: our MULTILIFT V is a highly versatile robotic system with vertical mould entry. Both inserts and moulded parts can be handled precisely and reliably. Tailor-made options, different configurations and special designs enable highly precise adjustment to your individual task. //

The optional dynamic vertical mould entry axis  
enables an approximately

 **0.5 s**  
**SHORTER**  
**MOULD ENTRY TIME**



Energy-efficient drive technology:  
servo motors with brake  
energy recovery.



Energy-efficient vacuum regulation:  
programmable vacuum generator  
with air saving function.



## Large working area

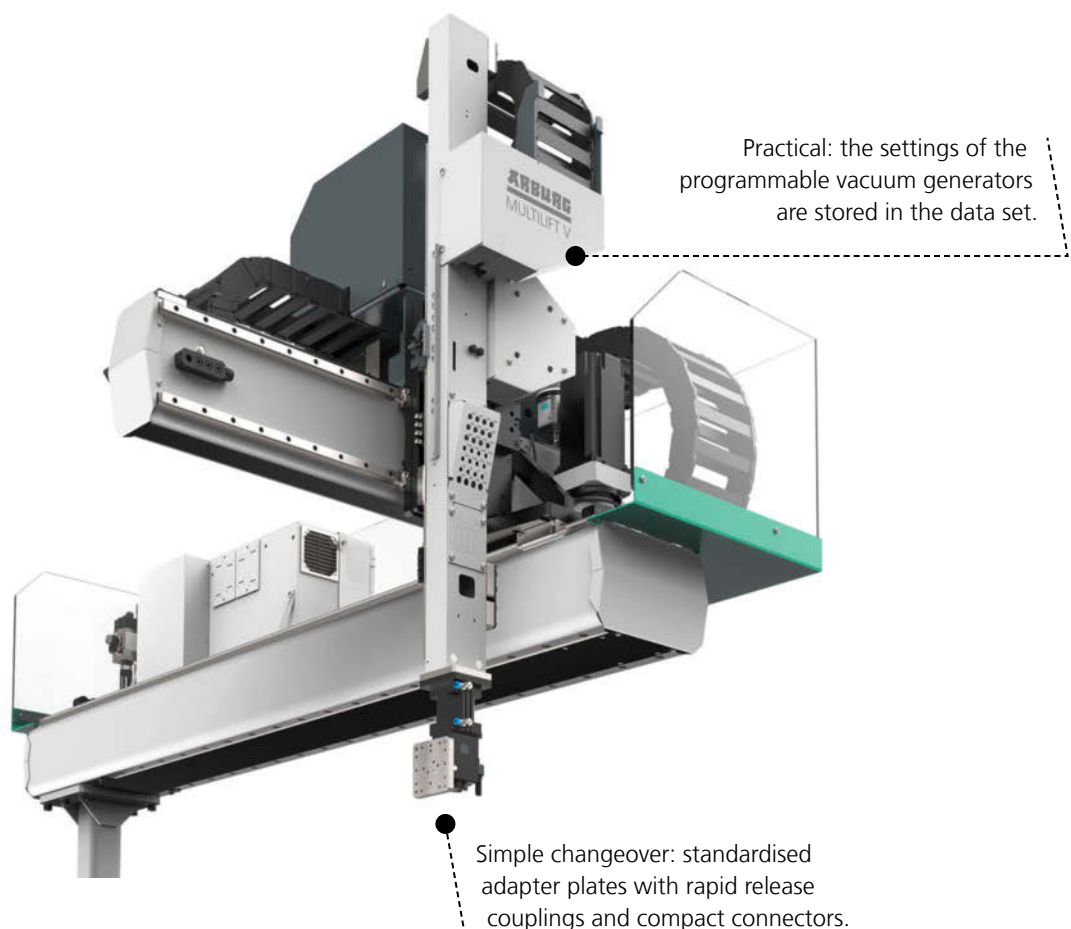
Generous, variable axis length as an important feature: The customizable workspace allows for easy placement and extremely flexible integration of peripherals. This makes the linear robots ideal for demanding turnkey solutions.

## Flexible pick-up and set-down

As with the MULTILIFT SELECT, three servo-electric movement axes and a swivelling pneumatic gripper axis form the basis. For pivoting in unlimited angles of rotation, however, the gripper axis can also be driven servo-electrically. This makes even more flexible pick-up and set-down patterns possible.

## Tailor-made options

The dynamic vertical axis enables even shorter mould entry times. Its telescopic design reduces the overall height. Additional gripper axes can pick up and set down finished parts in different rotational positions. Extensive interfaces for gripper and peripheral technology complete the offerings.



## Special versions

You have special requirements or tasks? If so, you can choose from numerous different versions of the MULTILIFT V:

**Longitudinal design:** solution for special conditions at the place of installation, as well as for multi-component machines with injection unit in L-position or vertical.

**Installation above a moving mounting platen:** solution for multi-component machines with injection unit in L-position or vertical.

**Removal on the operator side:** solution for special conditions at the place of installation and for integrating manual activities.

**Set-up for vertical machines:** solution with special support. The operating zone can be adapted to enable peripheral equipment to be integrated.

**Human/robot cooperation:** solution for the economically efficient automation of small unit volumes through collaboration between human and robot. Simple gripper technology and the absence of peripheral equipment for supplying inserts reduces investment costs and makes changeover easier.

**Linking of machines:** solution for the manufacture and assembly of component assemblies, production of right and left parts with packaging or multi-component injection moulding on two machines.



Linking of machines: individual implementation of production-related special features.

Longitudinal design: space-saving design with unimpeded access to the mould even from the rear of the machine.



Installation above a moving mounting platen: adapted to a vertical injection unit.

Set-up for vertical machines: flexible adaptation of the operating zone.



Removal on the operator side: incorporation of manual activities - for example quality control of moulded parts.

Human-robot cooperation: human and robot work hand-in-hand.



Preconfigured: valve technology and connection options as on the MULTILIFT V.

Clever: standardised interfaces simplify the integration of peripheral equipment in robotic cells.

powered by  
**ARBURG**

## MULTI-AXIS ROBOTIC SYSTEM: FLEXIBLE, MULTI-TALENT

// Perfectly suited for complex handling tasks: multi-axis robots offer highly flexible perfection in motion and feature high functionality on a small footprint. Our “plug and work” packages for KUKA robots “powered by ARBURG” make entry into this high-end automation technology interesting for you too: simplified integration, faster set-up and shorter cycle times. This makes the use of robotic systems highly efficient for you. //

### Important features of our plug and work packages

- Preconfigured equipment through to complete robot cells
- Implemented ARBURG user interface
- Extended real-time communication

## High level of functionality

turning inserts, avoiding interfering edges in the mould or near-contour reworking of moulded parts: Robots can be relied upon to perform even extremely complex tasks. Their mobility also opens up scope for reducing the complexity and costs of grippers, as well as reducing peripherals. Workstations can be more easily aligned or arranged one above the other in order to save space.

## Wide product range

Several variants, finely graduated sizes up into high load-bearing capacities, as well as compact design: multi-axis robots are extremely flexible in use. They are ideally suited for vertical machines, multi-component applications, clean rooms, as well as for pre-processing and re-working, making them the perfect choice for turnkey solutions.

## Adaptable robot cells

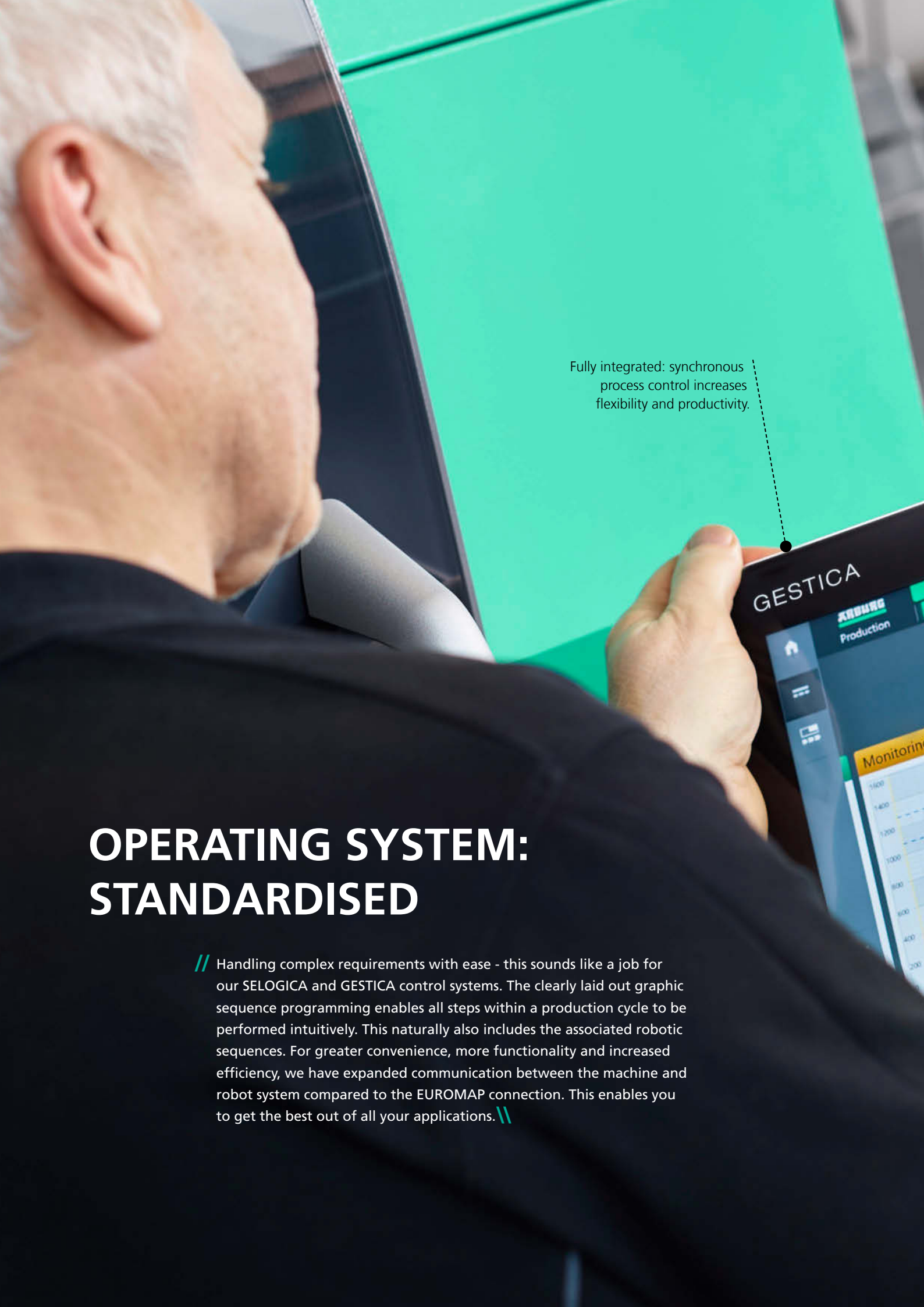
Robot cells are characterised by a basic structure with standardised interfaces that can be expanded on a modular basis. Additional peripherals can be individually configured, easily integrated and quickly set up. This allows the cost-effective automation of even small unit volumes.



From simple to special: robot cells available in a number of different versions.

From small to large: the loads handled by multi-axis robots range from 6 to 120 kg.





Fully integrated: synchronous process control increases flexibility and productivity.

## OPERATING SYSTEM: STANDARDISED

// Handling complex requirements with ease - this sounds like a job for our SELOGICA and GESTICA control systems. The clearly laid out graphic sequence programming enables all steps within a production cycle to be performed intuitively. This naturally also includes the associated robotic sequences. For greater convenience, more functionality and increased efficiency, we have expanded communication between the machine and robot system compared to the EUROMAP connection. This enables you to get the best out of all your applications. //



Fully compatible: intuitive user interface reduces training and set-up effort.



# ” ONE LANGUAGE FOR EVERYTHING! “

## Central management

Switching mode, starting/stopping production, acknowledging alarms: universal actions for production units can be conveniently managed and monitored using the machine control system. The management of settings data is simpler than ever: there is only one data set for the entire production unit.

## Intuitive operation

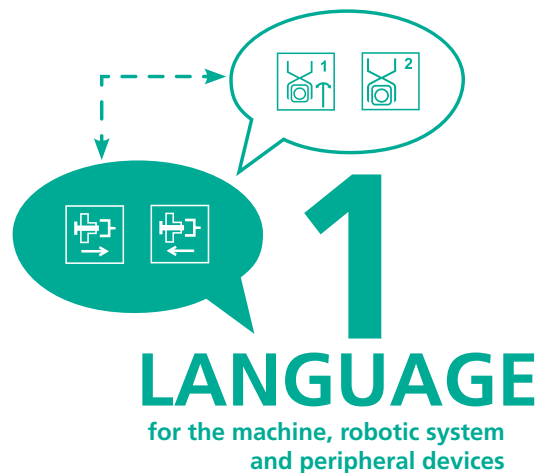
Transparent and intuitive: next to the ALLROUNDERS, the sequence programming with graphical symbols also provides the basis for the robotic systems. This allows you to set up automation steps in the usual way. Programming movements, for example, is even more intuitive with the radius moving function, and does not require any rethinking. Fast, safe and convenient.

## More efficient operation

Extended real-time communication means more functionality. This is demonstrated for example:

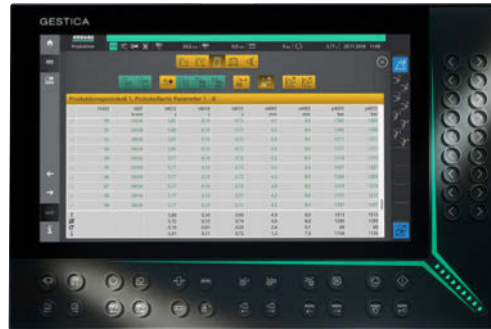
- During coordinated movement to home position
- When separating random samples, good and reject parts
- When creating independent sequences for the first or last cycle

Compared to the EUROMAP connection, the operation of robot systems is simpler, faster and thus more efficient. This is particularly the case when it really counts: in complex processes, such as multi-component injection moulding or overmoulding of inserts.



### Machine control system

Our standard: pickers and linear robots fully integrated. Movements are fully synchronisable. Common data record for the entire production unit.



### Control panel for pickers

Option for the upgrading or flexible use of pickers. Exclusively used for the operation of the relevant picker. Restricted range of functions – as with the EUROMAP interface.



### Control panel for multi-axis robots

Our standard: ARBURG user interface implemented. Exclusively used for the operation of the relevant robot.



### Mobile control system

Option for a mobile operating position. The same range of functions as the machine control system. Universally usable for several machines and robotic systems.



**ARBURG**

95.70 mm 0.00 mm 0 bar 0.00 s

**Selectable options for asynchronous sequences**

Start condition:	Description:
1 Start with automatic operating mode	Lamp control
2 Start with key	QA point
3 Start via symbol	Box changer
4 Start via input condition S1100 <input type="radio"/> <input checked="" type="radio"/>	Reset counter
5 Start via input condition K1062 <input type="radio"/> <input type="radio"/>	Parts evaluation extern
6 Start via symbol	Camera verification
7 Inactive	
8 Inactive	

Maschinenabhängige asynchrone Abläufe  No

Start of asynchronous sequence 1  
f12601 = Start with automatic operating mode

Integrated: from teaching to the control of peripheral processes - the control system covers all bases.

# NOTHING IS IMPOSSIBLE!

## Synchronous control

The robot sequences can be programmed in accordance with machine and mould sequences. Simultaneous, position-related movements can be used to optimise processes and cycle times in a targeted way. For example, because the X-axis moves in synchrony with the ejector, or the demoulding of components starts as soon as the injection mould is opened. Furthermore, the machine controller optimises the speed and the acceleration of the robotic system to the cycle time. In this way, emissions and wear are reduced – fully automatically.

## Interactive set-up

Set-up without programming – the teach-in function means that the movements of your robotic system only need to be executed and confirmed in sequence. All the parameter entries, as well as creation of the robotic sequence, its plausibility check and its integration into the machine sequence are handled by the control system.

## Automatic continuation

Simply start production after interruptions - without manually running to empty and without moving to starting position. Our “part status” feature saves you a lot of time and money. The machine and robotic system always know the position of the inserts, pre-moulded parts and finished parts - not only in the mould, but also in the gripper. The system components automatically detect their position within the process sequence in the event of an interruption and resume operation at exactly the right place.

## Controlling peripherals

Whether changing crates or mounting component assemblies: in the context of automated injection moulding production, it is important to manage a wide range of process steps in a coordinated manner. Our machine control system also allows you to create and monitor peripheral processes in the usual way. This means there is often no need for a separate additional control system.

With no additional investment costs:  
synchronous sequences for up to

**10 %**

**HIGHER  
PRODUCTIVITY**



# APPLICATIONS: IN PRACTICE

// Reducing unit costs or increasing added value, thanks to individual automation. The high flexibility of our combination of modular ALLROUNDERS and modular robotic systems covers all your individual applications to perfection. As a technology and system partner, we offer you comprehensive project management for turnkey solutions: from the right design of the system and its procurement, through to commissioning and worldwide service. We provide everything you need from a single source. //

Precise insertion: continuous independent process, even with delicate or hot inserts.



Fast part removal: dynamic robotic sequences synchronised with the mould are highly productive.



Further information:  
Turnkey projects brochure



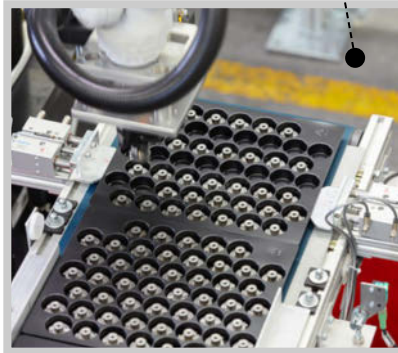
Three part variants:  
fully automated efficient  
manufacturing.



Flexible palletising:  
position-oriented  
provision of parts for  
efficient material flow.



Reliable separation:  
cavity-specific feedback on  
the quality of the part.



Efficient pre-processing/reworking:  
direct dispatch or installation-ready  
parts, produced in a single step.





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captivating, entertaining.

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**WIR SIND DA.**

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