

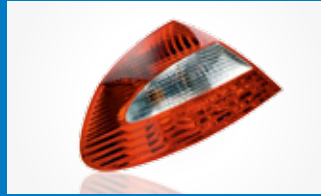
Always in good hands with  
Multinject technology  
Adding components to add  
value

*Engineering Passion*

***Krauss Maffei***

## Facts and figures regarding Multinject technology

# Applications



## Clamping/injection matrix

Machine/ clamping force in t	Distance be- tween tiebars (h x v) in mm	Turntable dia- meter in mm (with/without distribution plate)		Primary injection unit								
				SP 180	SP 380	SP 750	SP 1000	SP 1400	SP 2000	SP 3000	SP 4300	
CX 65 / 80	470 x 420	514 / 635	Secondary injection unit	SP 55	Z / L / V	Z / L / V						
				SP 180	L / V	Z / L / V						
				SP 55	Z / L / V	Z / L / V	L					
CX 110 / 130	530 x 470	610 / 710		SP 180	V	Z / L / V	Z / L / V					
				SP 380		L / V	Z / L / V					
CX 160	570 x 520	715 / 780		SP 55	Z / V	Z / V	Z					
				SP 180		Z / L / V	Z / L / V					
				SP 380		Z / V	Z / L / V					
CX 200	630 x 560	715 / 840		SP 55	V	V						
				SP 180		Z / V	Z / V	Z				
				SP 380			Z / L / V	Z / L / V	L			
				SP 750				L				
				SP 55		V						
CX 250 / 300	710 x 630	890		SP 180			Z	Z	Z			
				SP 380			Z / V	Z / L / V	Z / L	V		
				SP 750				Z	Z			
				SP 55								
CX 350	800 x 710	1010		SP 180				Z				
				SP 380			V	Z / V	Z / L	Z / V		
				SP 750				Z	Z / L	Z		
			SP 180				L / V	L / V	L / V	V		
GX 450	920 x 830	1200	SP 380			Z / H	Z / L / V / H	Z / L / V / H	Z / L / V / H	Z / L / V	L	
			SP 750			H	Z / L / H	Z / L / H	Z / L / H	Z / L	Z / L	
			SP 1000				H	H	Z / H	Z / L	Z / L	
			SP 1400					H	Z / H	Z	Z	
			SP 180				L	L	L			
			SP 380			H	Z / L / V / H	Z / L / V / H	Z / L / V / H	Z / L / V / H	L	
GX 550	1040 x 910	1300	SP 750			H	Z / L / V / H	Z / L / V / H	Z / L / V / H	Z / L / V / H	Z / L	
			SP 1000				H	H	Z / H	Z / L / H	Z / L	
			SP 1400					H	Z / H	Z / L / H	Z / L	
			SP 380			H	Z / L / H	Z / L / V / H	Z / L / V / H	Z / L / V / H	L / V	
			SP 750			H	Z / L / H	Z / L / V / H	Z / L / V / H	Z / L / V / H	Z / L / V	
GX 650	1110 x 960	1400	SP 1000				H	H	Z / H	Z / L / H	Z / L	
			SP 1400					H	Z / H	Z / L / H	Z / L	
			SP 2000						H	H		

## **Always in good hands with Multinject technology**

### **Adding components to add value**

When it comes to selecting the right Multinject technology, a detailed analysis of the individual task at hand is just as important as the ability to choose the ideal components from a wide range of machines. With its many years of experience in mold and process technologies and its end-to-end machine portfolio, KraussMaffei is able to offer both of these from a single source. Any multicomponent technology is supported – the possibilities are endless. Whichever technology is ultimately best suited to the application, we will find the right solution in order to combine two or more plastics in a single step to create a multi-functional part.

The highlights of Multinject technology at a glance:

- Excellent integration of functions
- Combined material properties
- Integrated workflows
- Improved quality
- Significant design freedom

# Multinject technology

## Versatility in shape, color, and function



**Cordless screwdriver**  
Hard/soft material combination  
for nonslip gripper

**Filter housing**  
Injected seals for lasting  
functional integration



**Toothbrush**  
Colorful soft-touch surface  
for pleasant haptics

**Coffee machine**  
Refined plastic surfaces  
thanks to the use of effect  
pigments



**Electrical outlet**  
Color combinations  
for a refined look

**TV housing**  
Clear layer with 3D effect  
for special surface effects

## Comparison with common process variants

### The mold technology is determined by the geometry of the product

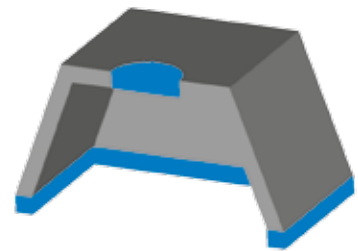
With the Multinject or multi-component technology, the same or different thermoplastics can be combined in a single pass. Various types of plastic can be combined (thermoplastics with elastomers or polyurethane systems), for example.

High bond strengths which are as resistant to external influences as the single-component equivalent can be achieved depending on the material combination and type of bonding. A typical multicomponent injection molding machine combines a clamping unit with several injection units working independently. As a result, the process variants are as wide and varied as the different materials and possible combinations.

When it comes to selecting the right process, a detailed analysis of the individual task at hand is just as important as the ability to choose the ideal components from a wide range of machines. With its many years of experience in mold and process technologies and its end-to-end machine portfolio, KraussMaffei is able to offer both of these from a single source, serving all manner of industrial sectors.



**Design grade 0:**  
Preform not exposed



**Design grade 1:**  
Preform partially exposed

Sandwich pane technology

Sliding split technology

Sliding table and turntable technologies

Swivel plate technology

Indexing

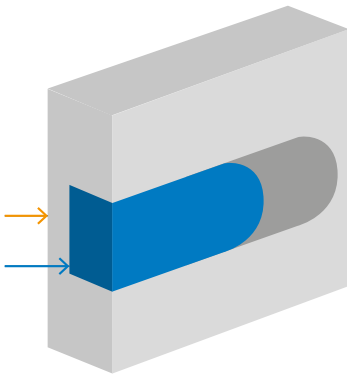
Transfer technology



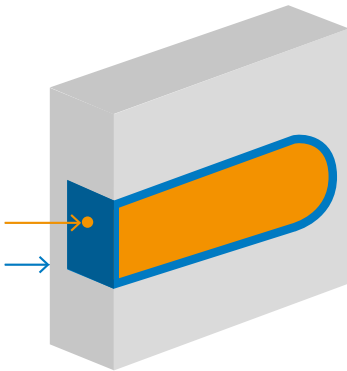


## Flexibility afforded by adapter plate or sandwich head

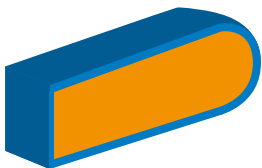
### Sandwich pane technology



Injection of the outer component = skin



Injection of the core material into the core of the first component



Finished product, shown in cross-sectional view

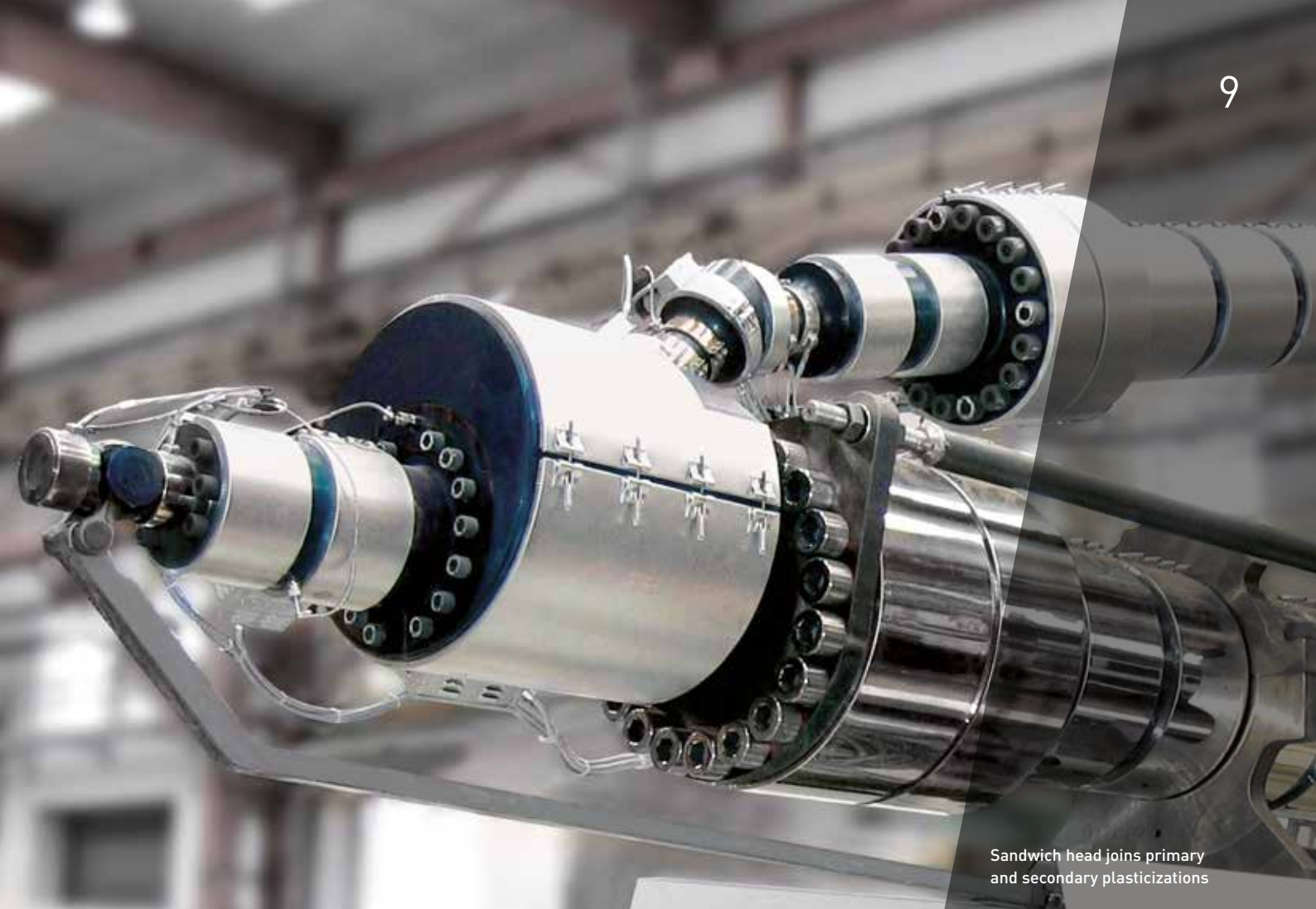
Sandwich technology is suitable for all two-component parts that consist of an outer and an inner component. In applications of this type, the parts are design grade 0 (see table), in which the preform does not need to be exposed.

The outer component usually forms a premium quality skin. Either recycle, a filled material, a foam core, or another cost-effective option can be selected as the inner component.

In the case of sandwich pane technology, the process starts with the mold being partially filled with material 1 for the outer skin. Following a brief simultaneous phase during which both materials are flowing, the core material (material 2) is injected into the core of the outer material.

Marbled effects can be achieved by injecting the same material alternately in different colors.





Sandwich head joins primary and secondary plasticizations

#### Adapter plate for small shot weights

The use of an adapter plate is recommended for small- to medium-sized machines. The plate is attached to the fixed platen. In this "sandwich plate", the melt flow is bundled under controlled conditions. The adapter plate can easily be removed, making the machine very flexible in application. Conventional cold runner technology is usually used for the molds.

#### Sandwich head for larger shot weights

The use of a sandwich head is more cost-effective in large machines. The sandwich head joins the primary and secondary plasticizations by means of piggy-backing. This technique enables the shot weights from the primary and secondary plasticizations (some of which can vary significantly) to be used for single-component applications either separately or together alongside standard sandwich injection molding.

#### Your benefits:

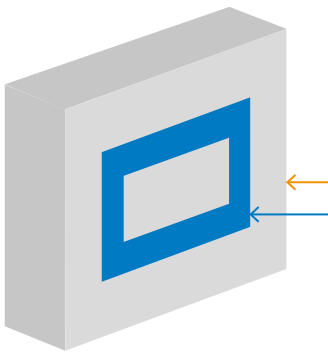
- Economical thanks to the use of cost-effective filler materials
- Can be used with cold runner technology with standard molds
- Sandwich plate for straightforward retrofitting of existing two-component machines
- Sandwich head flexible for use in single-component applications
- Adapter plates can be used for all machine configurations (Z, L, and V)



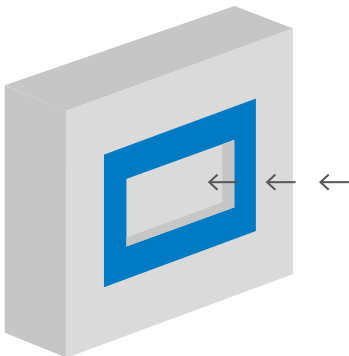
Example application for Y supply lines:  
Resistant to media thanks to a combination of specific materials; produced synchronized with water injection technology

## Compact and cost-effective solution

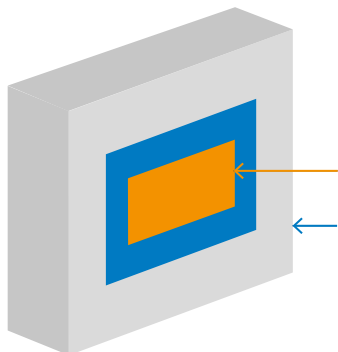
### Sliding split technology



Injection of the first component



Pulling the sliding split

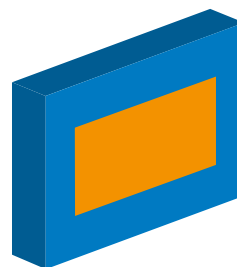


Sequential injection of the first component

Sliding split technology is suitable for all design grade 1 parts in which the preform must be partially exposed. A standard multicomponent machine without swivel unit can be used for this purpose.

The major advantage is that the molds are very compact and cost-effective by design, as only one cavity is needed for a finished part. In terms of the process, once the main component has been injected into the mold and the preform has cooled down, the sliding split from which the technology gets its name (also called the blocking slide) is pulled to release the zone for the second component.

Next, the second component is injected sequentially. The mold remains closed throughout the process; only the clamping force is reduced before the core is pulled.



Finished part – full view





Compact production unit with unloading robot for the production of wind deflectors using sliding split technology

### Freely programmable core-retractions

Thanks to the design of the mold and the way in which the second component is joined, in this process, there is no need to transfer the preform or rotate the mold. The freely programmable core-retractions with standardized interface mean that the splitters can be programmed flexibly and run according to the settings with an MC6 control system.

The touchscreen version of the MC6 control system provides a variable user interface on which only the functions that are necessary for the prevailing application are displayed. This prevents data entry errors during programming. The splitter function can easily be assigned to each core-retraction.

### Your benefits:

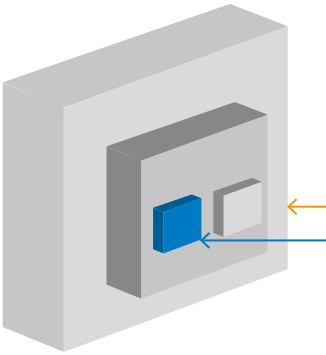
- Optimum sealing against second component as first component remains in the cavity
- The mold does not need to be transferred or rotated
- Compact and cost-effective mold design
- Flexible and straightforward programming of core-retraction functions with MC6 control system



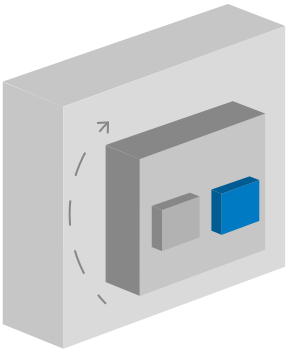
Example application, wind deflectors: Integrated seal does away with the need for assembly work

# Traditional turning with modern technology

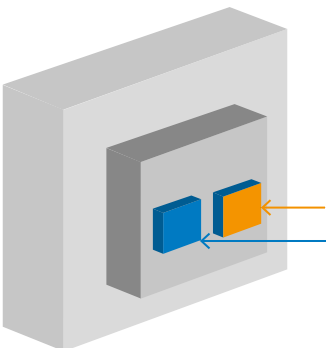
## Turntable technology



Injection of the first component



Turning of the mold half on the moving side with a turntable



Injection of the second component with simultaneous injection of the first component

Turntable technology is by far the most common technology used to produce multicomponent parts. It is suitable for design grade 1 and 2 parts, i.e., parts with single-side or partial exposure.

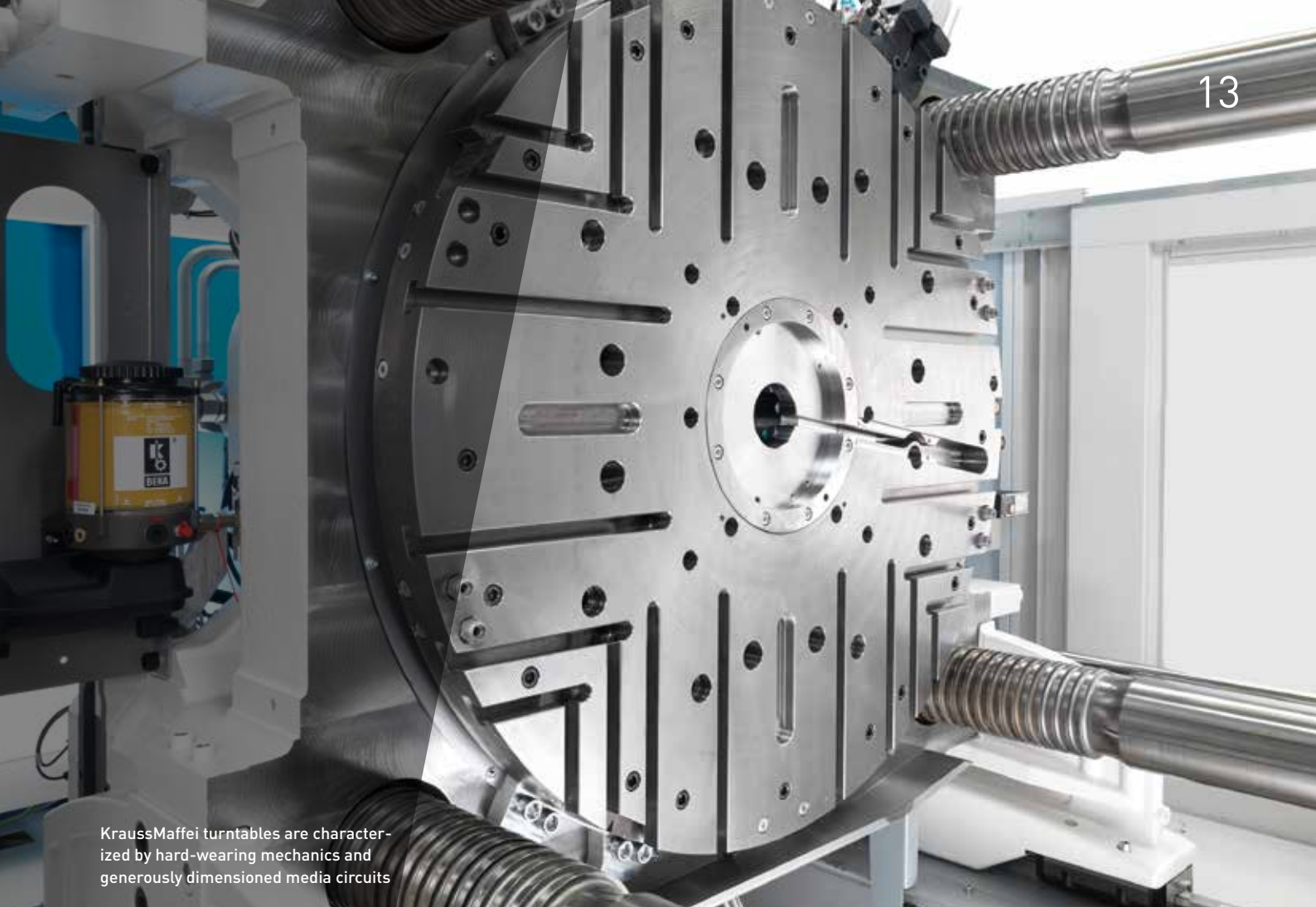
This technology is used if parts have to be overmolded from one side and higher production rates need to be achieved.

In the turntable technology process, once component 1 has been injected, the mold is opened and rotated by the turntable on the moving platen before being closed again. After this, the second component is injected at the same time as the first component is injected into the other cavity.

Ejection takes place before or after turning. Depending on prevailing requirements, the process will involve two ( $0^\circ$ - $180^\circ$ - $0^\circ$ ), three ( $0^\circ$ - $120^\circ$ - $240^\circ$ - $360^\circ$ ), or four ( $0^\circ$ - $90^\circ$ - $180^\circ$ - $270^\circ$ - $360^\circ$ ) turning cycles.



Finished part – full view



KraussMaffei turntables are characterized by hard-wearing mechanics and generously dimensioned media circuits

#### Turntables with servomotor as standard

As standard, all KraussMaffei turntables are equipped with a servomotor to turn the mold. They are capable of high-precision movement at high levels of dynamism. As the machine hydraulics are independent, turning can take place in parallel with the opening motion of the mold. The turntables benefit from centralized lubrication and are mounted on bearings which have been dimensioned to support heavy molds.

The clamping force determines whether built-on or built-in turntables are recommended. Built-on is the recommended option for small to medium clamping forces from 650 to 2000 kN, and built-in for clamping forces above 2000 kN.

#### Generously dimensioned media flow

Built-on turntables are equipped with up to six inputs and six outputs for media flow. They can be configured for water and oil circuits. Built-in turntables have twelve media circuits: 8–10 for water and

2–4 for hydraulic oil. This provides sufficient capacity even for applications which use significant amounts of cooling water.

#### Your benefits:

- Optimum sealing against second component as first component remains in the cavity
- Parallel process for high production rates
- Low-maintenance thanks to hard-wearing mechanics and automatic centralized lubrication
- Short cycle times thanks to effective mold cooling and electric hand axis

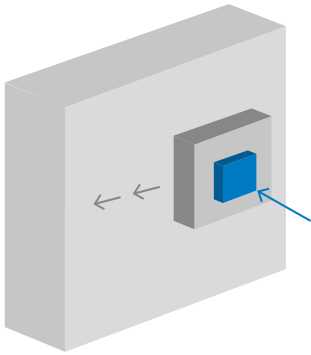


Example application, grinder housing:  
Hard/soft combination for improved haptics

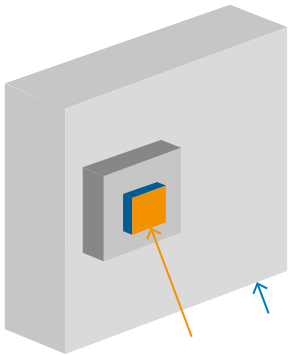


## Simple mold technology for low investment costs

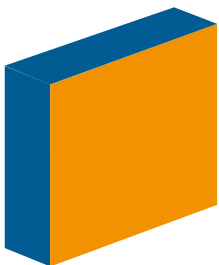
### Sliding table technology



Injection of the first component with subsequent movement of the core side to cavity 2



Injection of the second component

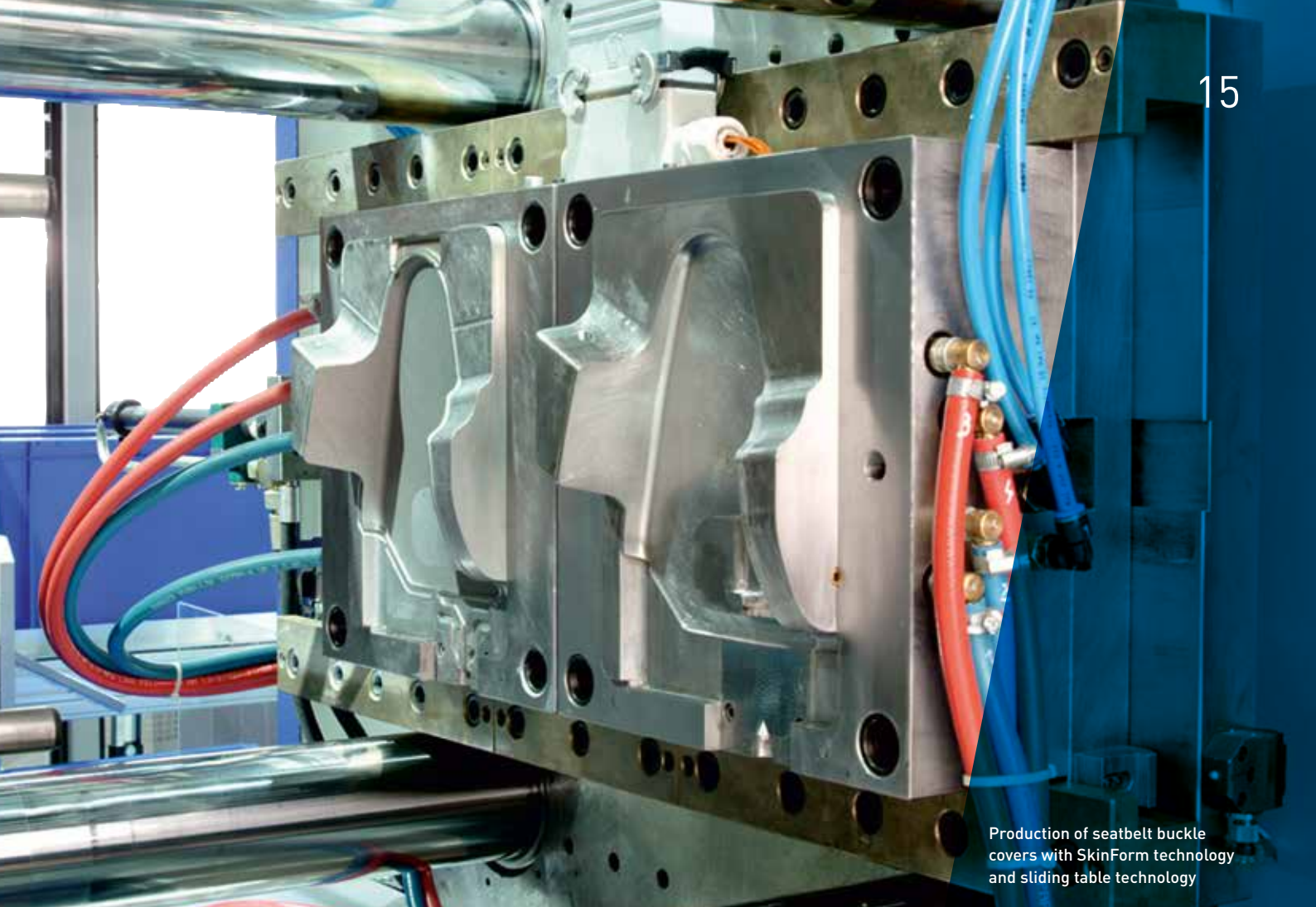


Finished part – full view

Like turntable technology, sliding table technology is also suitable for design grade 1 and 2 parts, i.e., parts with single-side or partial exposure.

However, unlike the frequently encountered turntable technology, sliding table technology is more suitable for lower production rates, such as those found in prototype manufacturing or small batches, as the sequential nature of the individual stages of the process necessitates a longer cycle time. One advantage is the straightforward nature of the mold technology used for sliding table technology.

In sliding table technology, the mold consists of one core side and two cavity sides, with one component representing the contour of the second component. The sliding table technology process starts with the first component being injected into the mold. After this, the mold is opened and the core side is slid onto the second half of the cavity. The mold is closed and the second component is injected. Material 1 and material 2 are injected sequentially.



Production of seatbelt buckle covers with SkinForm technology and sliding table technology

### Flexible mold configuration

The sliding mechanism is an integral component of the mold. The sliding table moves in the same way as in sliding split technology, based on freely programmable core-retractions controlled by the proven MC6 control system. The machine can be equipped with components from the extensive CX, GX, and MX Series portfolio.



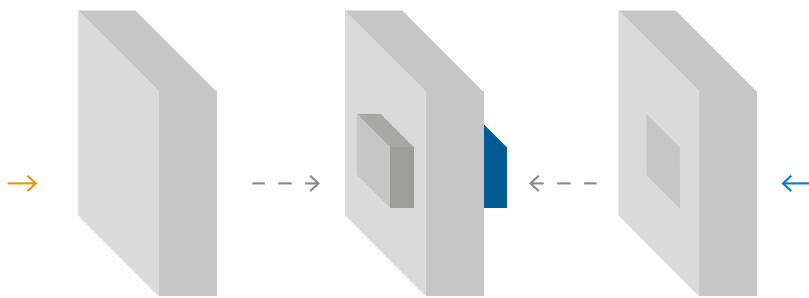
Sample application, seat belt buckle cover:  
Change of color from shot to shot achieved by combining sliding table and SkinForm techniques

### Your benefits:

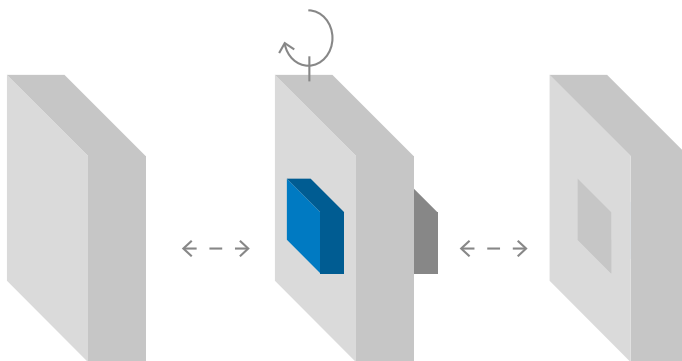
- Optimum sealing against second component as first component remains in the cavity
- Simple mold technology for low investment costs
- Unrestricted cooling of both halves of the mold is possible as rotation is not required
- Straightforward and precise process control thanks to the clear structure of the MC6 control system



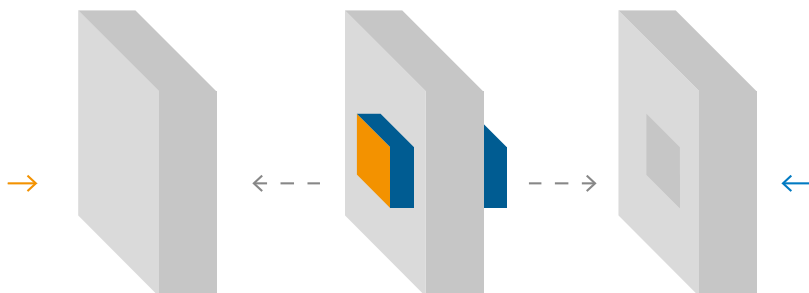
## Double production rate with same size machine SpinForm technology



Close mold, injection of the first component



Open tool and rotate spin unit. Mold is closed.



Injection of the second component. The first component for the next part is injected at the same time. Finished part is ejected

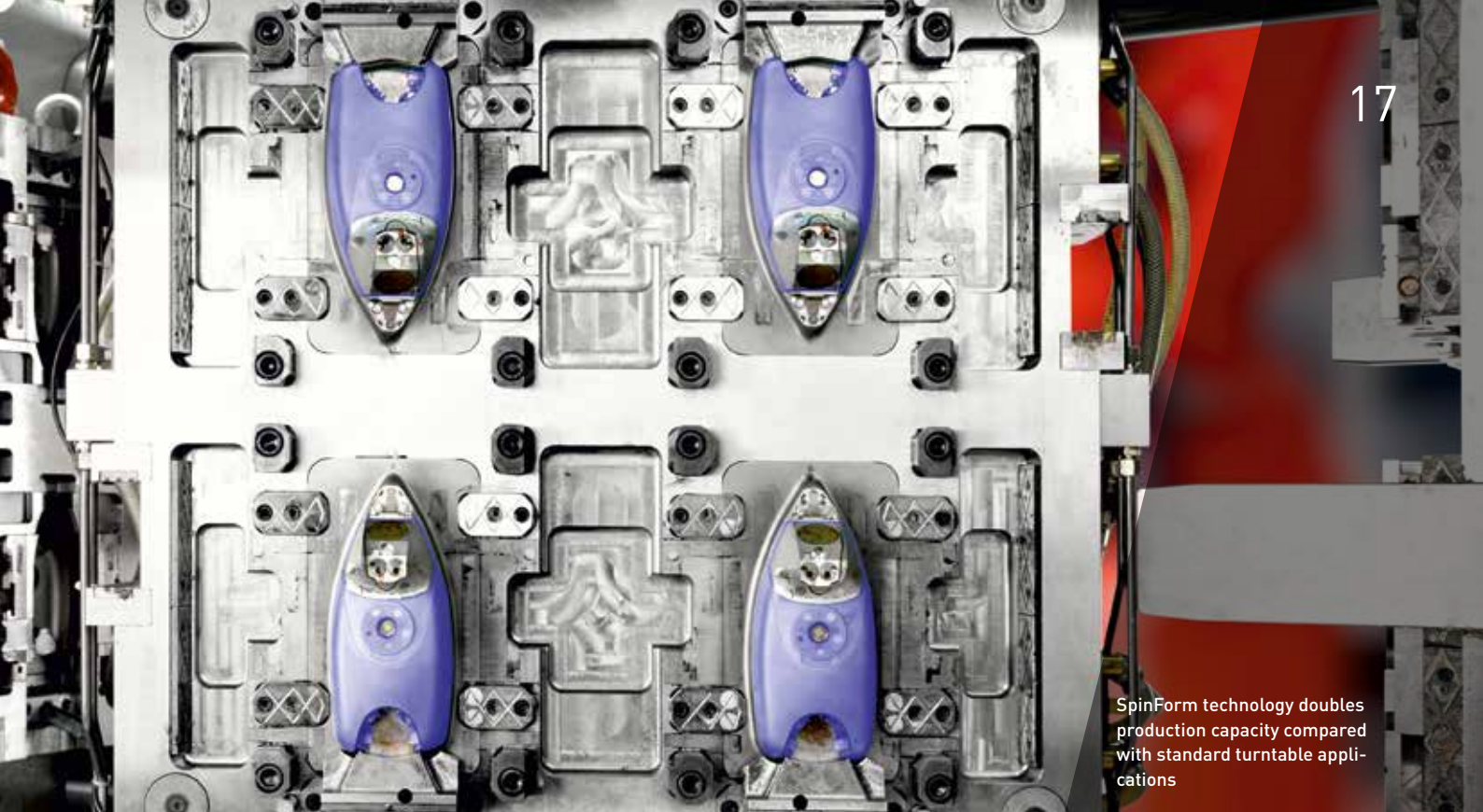
SpinForm technology is particularly suitable for large-format, contoured parts or applications with high numbers of cavities. Like the turntable and sliding table technologies, SpinForm is also suitable for design grade 1 or 2 parts.

In SpinForm technology, the knitpath parting lines are located one behind the other and the injection units are opposite one another on the machine axis. A turntable, known as the spin unit, which rotates about the vertical machine axis, is located in the center.

The SpinForm technology starts with the first component being injected into the mold. The resulting preforms are fixed on the core of the spin unit when the mold is subsequently opened. Next, the spin unit turns through 90° for cube molds or 180° for mounting stack swivel-platen molds and the preforms are overmolded with the second component in the new cavity. The next preform is created in parallel with this process.



Finished part – full view



SpinForm technology doubles production capacity compared with standard turntable applications

#### Suitable for heavy molds

With this mold technology, the spin units are mounted on a sliding table which sits on the machine bed. Heavy molds can thus be supported and the vertical distance between tiebars can be optimized as appropriate for the mold concept. Like the turntables, all spin units are driven by servomotors and benefit from centralized lubrication. Media are supplied from below through the rotary distributor in the machine bed. This leaves space for generously dimensioned media circuits with a hose diameter of up to 2".

#### Open for cubes and peripherals

Optimized access from the side makes interfacing with automation and peripherals easy. Intermediate steps such as the addition of inserts, pre-processing of

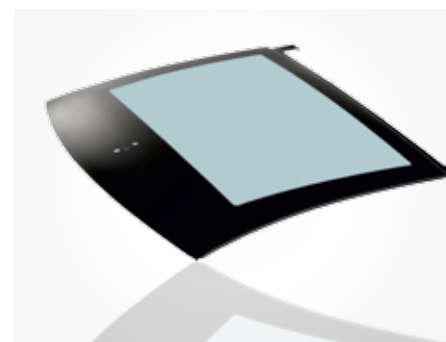
the preform or demolding of parts from the side, can be introduced, for example. For this purpose, molds known as cube molds with four mold halves are used on the spin unit.

#### Zero stress in the part

Large-format, contoured parts are often compression-molded to reduce stresses and achieve longer flow paths. Necessary processes such as expansion compression, SGI, and glazing can be integrated into any SpinForm solution. In this type of application, compression molding can take place sequentially in each half of the mold.

#### Suitable for cleanrooms as standard

SpinForm machines can be used in cleanrooms due to their two-platen technology. Special features of the motor design minimize air turbulence and temperature fluctuations. The housing concept used for the clamping unit facilitates easy definition of the cleanroom.



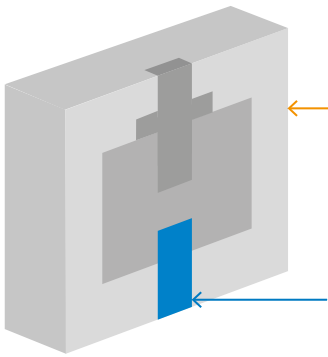
Sample application, sun roof:  
Assembly parts are integrated in the part

#### Your benefits:

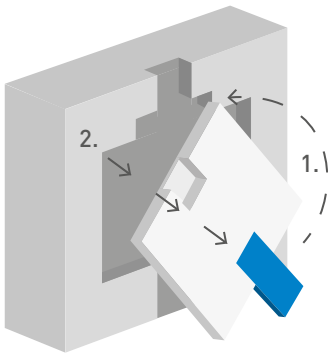
- Double production capacity with machine of the same size
- Improved cooling performance thanks to generously dimensioned media circuits
- No limitation on large-format, contoured parts
- Suitable for cleanrooms
- Compression molding processes can be integrated

## Lifting to increase design freedom

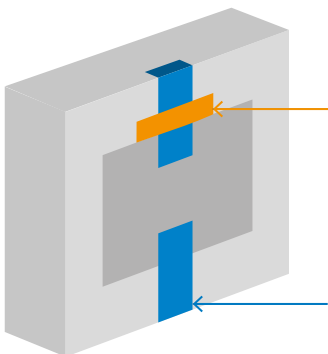
### Index plate technology



Injection of the first component



Lifting, turning, and pulling back of the index plate

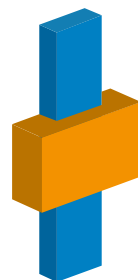


Injection of the second component.  
The next preform is injected in parallel

For design grade 3 parts, the preform has to be lifted during the production process. As this cannot be done with a turntable, index plate technology is recommended.

This technology covers design grades 1 to 3. It has the advantage over transfer in that the preform remains partially in the cavity and can thus be more effectively sealed against the second component.

In index plate technology, the first component is injected into the cavity, which is part of the index plate. Next, the preform and index plate are pushed forward and out of the mold half by the machine and turned through 90°, 120°, or 180°. When the index plate moves back, the preform is set down on the core of the second component. It is then overmolded from both sides with the second component (the ejector side can only be partially insert-molded).



Finished part – full view



Compact positioning of the index drive unit behind the ejector

### Intelligent machine technology reduces mold costs

In indexing applications, the index shaft and drive have traditionally been component parts of the mold, resulting in both high mold costs and large mold assemblies. The KraussMaffei solution uses production cells with the index drive unit and/or index shaft integrated on the machine side. The two-platen clamping concept provides sufficient space for the index drive motor, which is installed behind the ejector plate so that no instal-

lation height is lost. The drive unit is a servo motor and thus operates independently of the machine hydraulics. The index shaft has four water circuits and the hoses are connected via a separate energy chain.

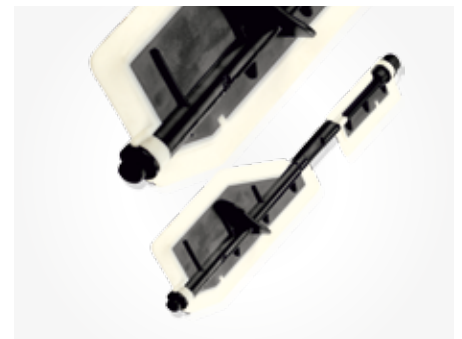
### High availability thanks to fast set-up times

At the moving platen, a media and torque transfer point provides the interface to the mold. As the mold does not have to feature an index shaft, its design dimen-

sions can be reduced accordingly. Work to maintain and change molds can thus be carried out quickly and easily. Mold investment costs are reduced, because the molds can share a common drive and shaft.

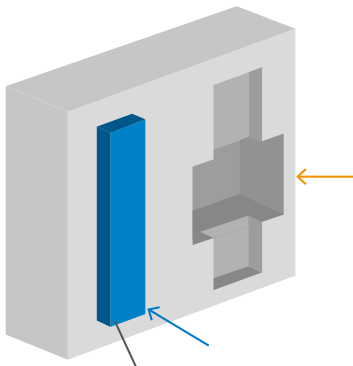
#### Your benefits:

- The drive technology is a unique part of the machine. Follow-up costs for molds are significantly reduced.
- Improved access and rapid mold changing thanks to the simple interface
- Effective cooling of the part due to four cooling circuits
- Short cycle times achieved through optimized rotational speed of the index shaft in parallel with movement of the mold

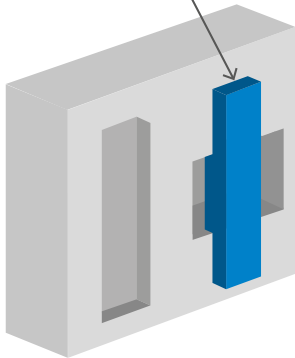


Sample application, ventilation flap:  
Integrated seal renders rework unnecessary

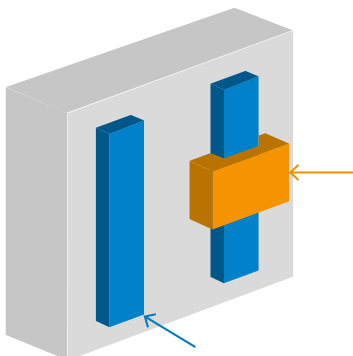
## Two become one Transfer technology



Injection of the first component



Transfer of the preform to a new cavity

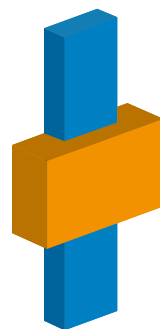


Injection of the second component.  
The next preform is injected in parallel

Design grade 4 parts can only be produced with transfer technology, as the second component is distributed on the first component in such a way that the preform cannot remain in the first cavity.

This mold technology is the most flexible multicomponent technology which can cover all design grades. This process is also used, for example, in the production of thermoplastic/rubber compounds to achieve thermal separation of both components.

In the transfer technology process, the preform is taken out of the first component using a robot, and it is transferred to a new cavity or other injection molding machine, where the second component is injected. Meanwhile, the new preform is already taking shape in the first cavity.



Finished part – full view





Production of a preform on injection molding machine 1, demolding with automation, buffering and insertion with automation in injection molding machine 2 for overmolding of the second component

#### Unit comprising machine and automation

KraussMaffei uses robots from its own IR and LRX Series for transfer tasks. These automation solutions have long been established on the market and are capable of precision repeatability at high speeds. At the core of each one are hard-wearing mechanics with high-performance servo drives.

Rapid closing movements and accurate part insertion can thus be assured without the usual axle vibration, even when traveling at high speeds.

#### Faster thanks to BUS technology

High-resolution signal processing and thus extraordinary precision in transfer technology is assured by high-speed VARAN bus systems combined with the MC6 control system working in master/

slave operation. Programming is quick and easy thanks to the intuitive learning operating concept. Maximum accuracy is assured by the absolute position measuring system of the robots, which is a standard feature. A common control system minimizes interfaces and operator errors. The systems conform to CE as standard and demonstrate the philosophy of "machine and automation as a single unit" in practice.

#### Your benefits:

- Can be used for many multicomponent parts with design grade 1 to 4
- Two single-component machines can be combined to create a multicomponent production cell
- Maximum precision thanks to VARAN bus technology
- No hot/cold separation in the mold required for thermoplastic/rubber compounds



Sample application, perfume bottles: Part geometry requires the use of transfer technology

## The ideal machine configuration for each and every task

### Flexible machine arrangement

Thanks to the flexible arrangement of the injection units, KraussMaffei injection molding machines are able to support numerous options for the production of multicomponent injection-molded parts.

As the machines are so easy to access, injection units for the second component can be freely configured as appropriate for the prevailing infrastructure and available mold technology. All machines are very compact by design.





**H configuration – Parallel arrangement**

- Both injectors and the mold are easy to access
- Lowest design
- Less melt distribution in the mold

**V configuration – Vertical arrangement**

- Primary injection unit is easy to access
- V injection unit can move fully out of the clamping zone
- Molds can be changed quickly

**Z configuration – Piggyback arrangement**

- Extremely compact design
- Does not require a specific ceiling height
- Ideal for applications where space is at a premium
- Ideal for cleanroom applications

**L configuration – Lateral horizontal arrangement**

- Both injection units are easy to access
- Low design so particularly suitable for low ceiling heights
- Easy to retrofit

**W configuration – Horizontal arrangement**

- For SpinForm technology with swivel plate or cube mold
- Alternative to turntable for high output
- For large parts



## With ColorForm and SkinForm coating in closed mold Integration of functions beyond process boundaries

ColorForm and SkinForm are production concepts which enable complex multicomponent parts with leather-look soft-touch or high-gloss surface finishes to be produced cost-effectively in a single step. They have been developed in the context of collaborative projects involving KraussMaffei and industrial partners. They can be combined with thermoplastic, duroplastic, and polyurethane substrates.

The process starts with the injection of the substrate. Next, the mold is turned and then closed again. The PUR system is injected in a second cavity which partially or fully covers the surface of the substrate. This is how high-gloss surface finishes are achieved with ColorForm.

The SkinForm process is all about leather-look surfaces which can be lent additional soft-touch property patterns covering part of or all of their surface.

Furthermore, the ColorForm and SkinForm processes can be combined with multicomponent processes. Depending on the part, more plastic components are injected for even more extensive functional integration.



Sample application, tool box:  
High-gloss surfaces can be produced  
cost-effectively with ColorForm

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### Your benefits:

- High-gloss surfaces in one process cycle
  - Cost-effective thanks to single-stage production with high degree of automation
  - Uses less material than downstream paint finishes
  - Highly resistant to scratches and adjustable surface hardness
  - Flexible color management with impressive 3D effects
-

MXW 1600-8100/3000  
injection molding  
machine

### Hard-wearing two-component injection molding cell with SpinForm technology

ColorForm and SkinForm parts are usually produced with fully integrated production cells. The basis is usually provided by a swivel plate injection molding machine with PUR metering machine which is additionally equipped with handling robots and other peripheral devices. Particular emphasis is placed on the mold technology, since the process will only succeed if the fit is exact and parallel. This is ensured by the optimized

geometry of the two-platen clamping unit. The very low-viscose PUR system can thus be applied to the thermoplastic substrate with high precision, even in thin layers. The PUR systems harden while the mold is closed.

### Metering machine and mixing head for precision and low volumes

The application of the PUR system involves a RimStar Nano metering machine with a new in-house pump design. This metering machine has

been dimensioned specifically for low volumes. The self-cleaning mixing head, which is fixed to the mold, safeguards the precision pour from the PUR system while also providing excellent protection against abrasion and optimum mixing throughout lengthy production runs.



Sample application, parts for vehicle interiors:  
Cost-effective production with SkinForm soft-touch surfaces

### Your benefits:

- Leather-look and soft-touch surfaces in a single step
- Cost-effective thanks to single-stage production with high degree of automation
- Simple logistics when compared with downstream paint finishing/laminating
- High scratch and abrasion resistance
- Flexible color management
- High dimensional accuracy of the surface structure

## Further information which might also interest you



### Would you like to find out which injection molding machine and automation solution would be suitable for your application?

KraussMaffei can offer you a wide selection of injection molding machines. We would be delighted to tell you more about our hydraulic CX, GX, and MX Series, or about our all-electric PX Series. We can offer you the right robot for every production task. You can even select mold clamping systems or other accessories to provide the perfect complement for your injection molding machines.



### We have also compiled extensive information on the subject of service for you.

We can provide service and maintenance to help you to increase the flexibility of your injection molding machines in the face of constantly changing process requirements and permanently extend their performance level. We are happy to provide you with detailed information on this.

### Ask us for information about the following, for example:

- Basis for economical production –  
Linear robots in the LRX/LRX-S Series
- Flexible molds for productive automation – Industrial robots in the IR Series
- Teleservice – The expert network at the push of a button
- Life Cycle Service – Production partner

You can find our brochures and flyers on other topics online at: [www.kraussmaffei.com](http://www.kraussmaffei.com). On request, we would also be happy to send you information and technical data for our products free of charge.



# KraussMaffei

## A strong brand in a unique global group

### Cross-technology system and process solutions

Whether in Injection Molding, Reaction Process Machinery or Automation – the KraussMaffei brand stands for pioneering and cross-technology system and process solutions in plastics processing worldwide. For decades, our expertise, innovative ability and passionate commitment to plastics engineering have been your competitive edge. As a cross-industry system provider, we offer you modular and standardized systems as well as solutions customized to your needs.

### There for you around the world

With our worldwide sales and service network, we offer our international customers an excellent basis for a successful business relationship. Due to the close proximity to our customers, we are able to answer your individual inquiries very quickly. We work out the best possible technical and economical solution for your product and production requirements together with you. Test our machine technology for your applications and let our experts put together an individualized service package for you.

### Individualized service

Our employees from customer service, application technology and service help you with your questions and needs on every topic dealing with machines, systems and processes – around the globe, quickly and with a high level of expertise. We have developed an extensive customized service spectrum with our lifecycle design, which accompanies you throughout the entire lifecycle of your machines and systems. Take advantage of the personal interaction and flexibility we offer in our practically oriented seminars. We carry out customer-specific trainings either at your location or at our sales and service locations.

## KraussMaffei Group

### Comprehensive expertise

#### Unique selling proposition Technology<sup>3</sup>

The KraussMaffei Group is the only provider in the world to possess the essential machine technologies for plastics and rubber processing with its KraussMaffei, KraussMaffei Berstorff and Netstal brands: Injection Molding Machinery, Automation, Reaction Process Machinery and Extrusion Technology.

The group is represented internationally with more than 30 subsidiaries and over ten production plants as well as about 570 commercial and service partners. This is what makes us your highly skilled and integrated partner. Use our comprehensive and unique expertise in the industry.

You can find additional information at:  
[www.kraussmaffeigroup.com](http://www.kraussmaffeigroup.com)

You can find additional information about KraussMaffei at: [www.kraussmaffeicom](http://www.kraussmaffeicom)



The KraussMaffei Group has a global presence. Countries with subsidiaries are marked in dark blue. In the white-colored regions, the Group is represented by over 570 sales and service partners.

# Always in good hands with Multinject technology

## Adding components to add value

When it comes to selecting the right Multinject technology, a detailed analysis of the individual task at hand is just as important as the ability to choose the ideal components from a wide range of machines. With its many years of experience in mold and process technologies and its end-to-end machine portfolio, KraussMaffei is able to offer both of these from a single source. Any mold technology can be supported and any injection combination selected – the possibilities are endless. We can find the right solution for your individual requirement, combining two or more plastics in a single cost-effective step to create a multi-functional part.

