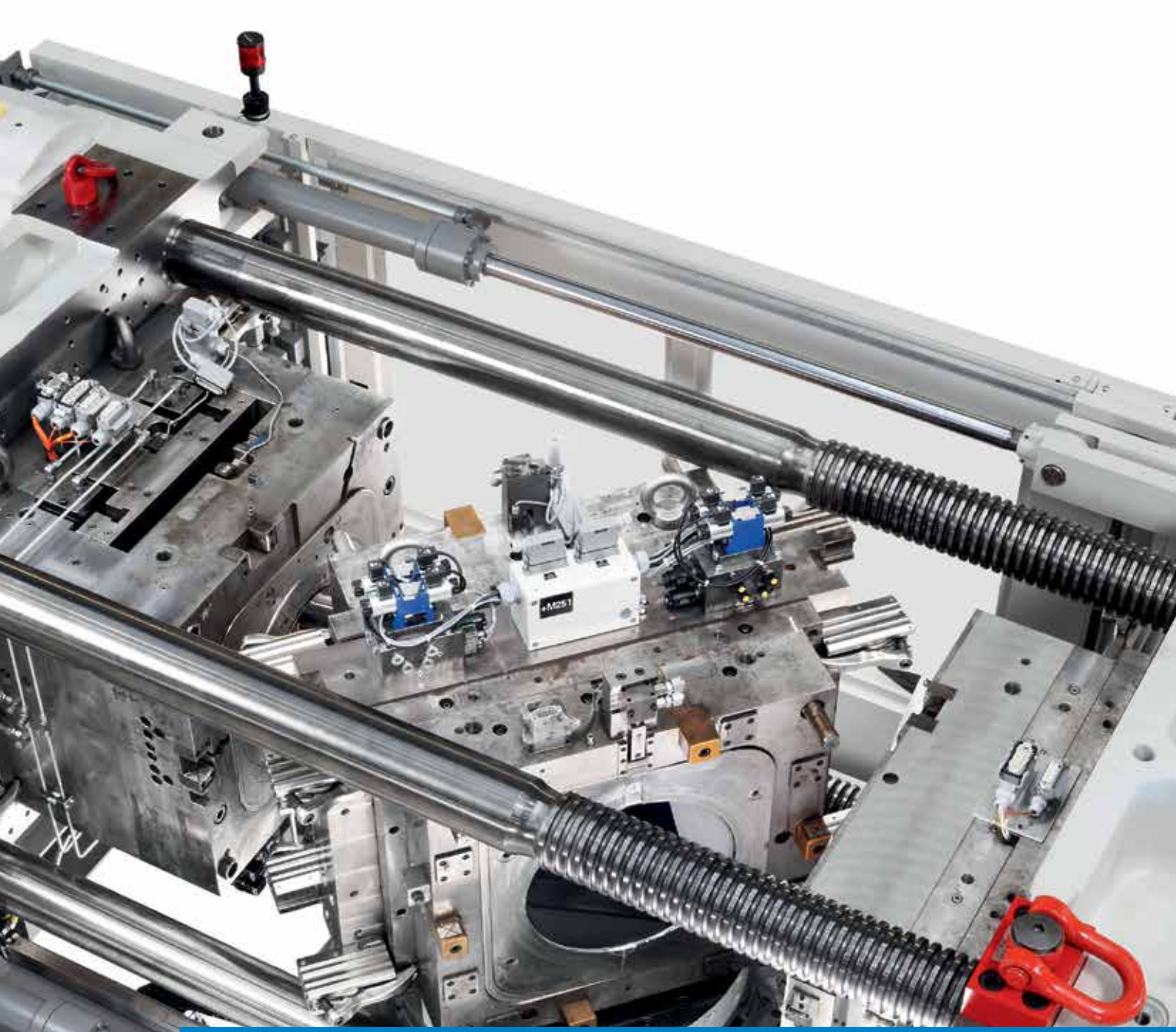


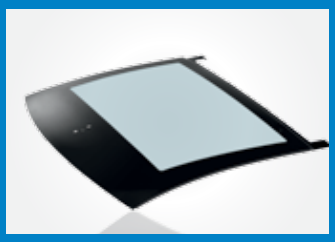
Cost-effective and flexible with SpinForm technology

Engineering Passion

KraussMaffei

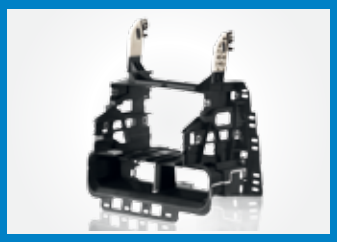
Facts and figures regarding SpinForm technology

Application areas



Automotive

Consumer goods



Automotive

Electrical/electronics

Clamping/injection matrix

Machine/ clamping force in to	Main injection unit	Secondary injection unit										
		180	380	750	1000	1400	2000	3000	4300	6100	8100	12,000
CXW 200	750	■	■	■								
	1000	■	■	■	■							
	1400	■	■	■	■							
CXW 300	1000	■	■	■	■							
	1400	■	■	■	■	■						
	2000	■	■	■	■	■						
GXW 450	750	■	■	■								
	1000	■	■	■	■							
	1400	■	■	■	■	■						
	2000	■	■	■	■	■						
	3000	■	■	■	■	■						
	4300	■	■	■	■	■						
GXW 550	1400		■	■	■	■						
	2000		■	■	■	■	■					
	3000		■	■	■	■	■					
	4300		■	■	■	■	■					
GXW 650	2000		■	■	■	■	■					
	3000		■	■	■	■	■					
	4300		■	■	■	■	■					
MX 850	2000			■		■	■					
	4300			■		■	■	■				
	8100						■	■	■			
MX 1000	2000			■		■	■					
	4300					■	■	■				
	8100						■	■	■			
MXW 1300	4300					■	■	■				
	8100						■	■	■	■		
	12,000							■	■		■	
MXW 1600	4300					■	■	■				
	8100						■	■	■	■		
	12,000							■	■		■	
	17,200								■		■	
MXW 2300	8100							■	■			
	12,000							■	■		■	
	17,200								■		■	■

Further combination options available on request

Cost-effective and flexible with SpinForm technology

Multicomponent parts can be manufactured particularly cost-effectively with the special SpinForm swivel-plate technology. It reaches its full potential whenever high numbers of cavities and quantities are required, especially when large-format, contoured parts are to be manufactured, or special processes such as compression are to be integrated.

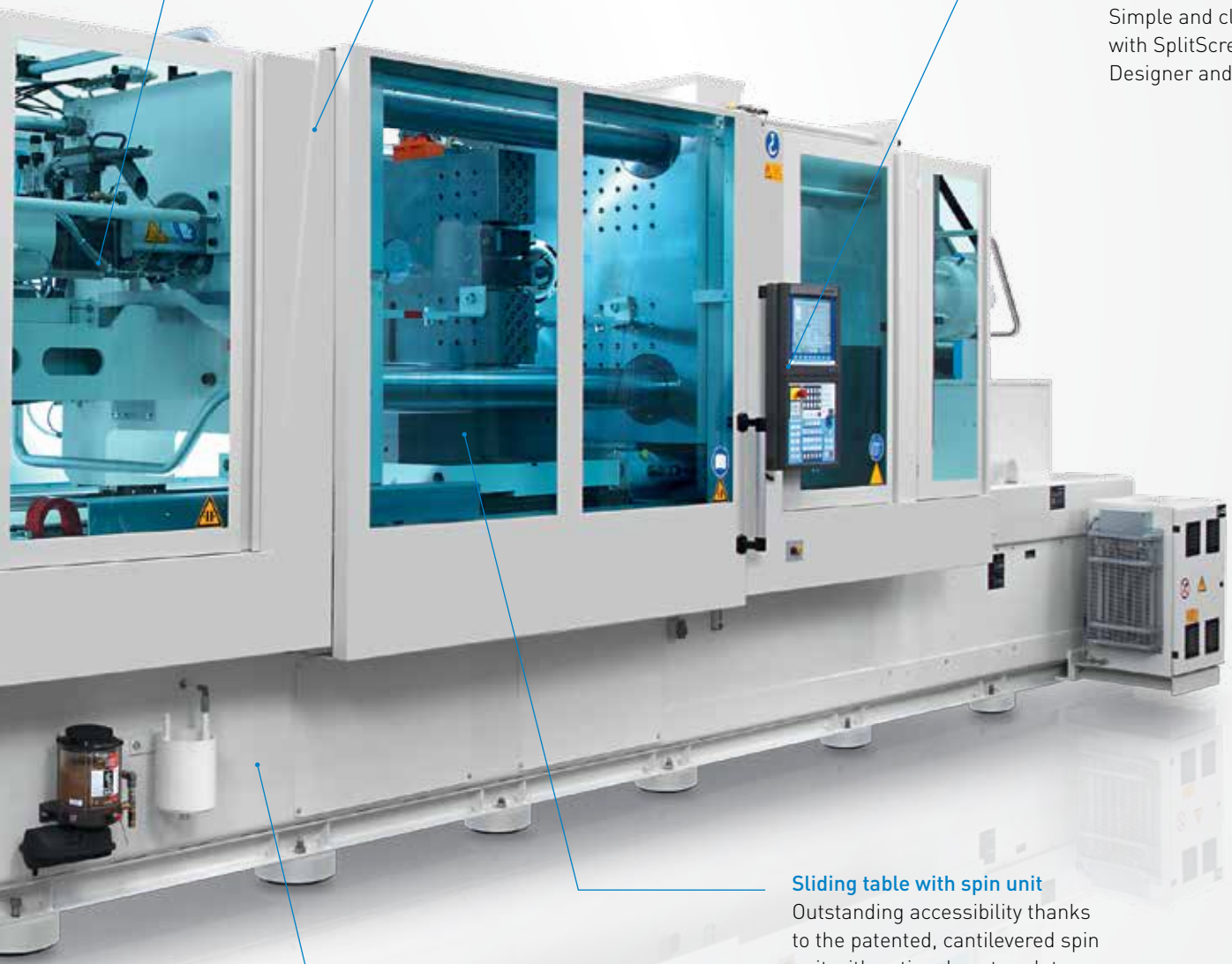
For all innovative two-component parts, KraussMaffei offers, independently of the clamping force, optimum machine concepts that are unbeatable when it comes to availability, precision and speed.

Your advantages:
– Continuous clamping forces from 200 t to 4000 t
– Suitable for high cavity numbers and quantities
– Ideal for large-format, contoured parts
– Particularly efficient with high quantities
– Simple integration of additional assembly steps

SpinForm technology
Overall unbeatable precision and speed

Comprehensive combination catalog
With a huge choice of standardized clamping/injection unit combinations

Moving platen
With larger dimensions to accommodate projecting molds



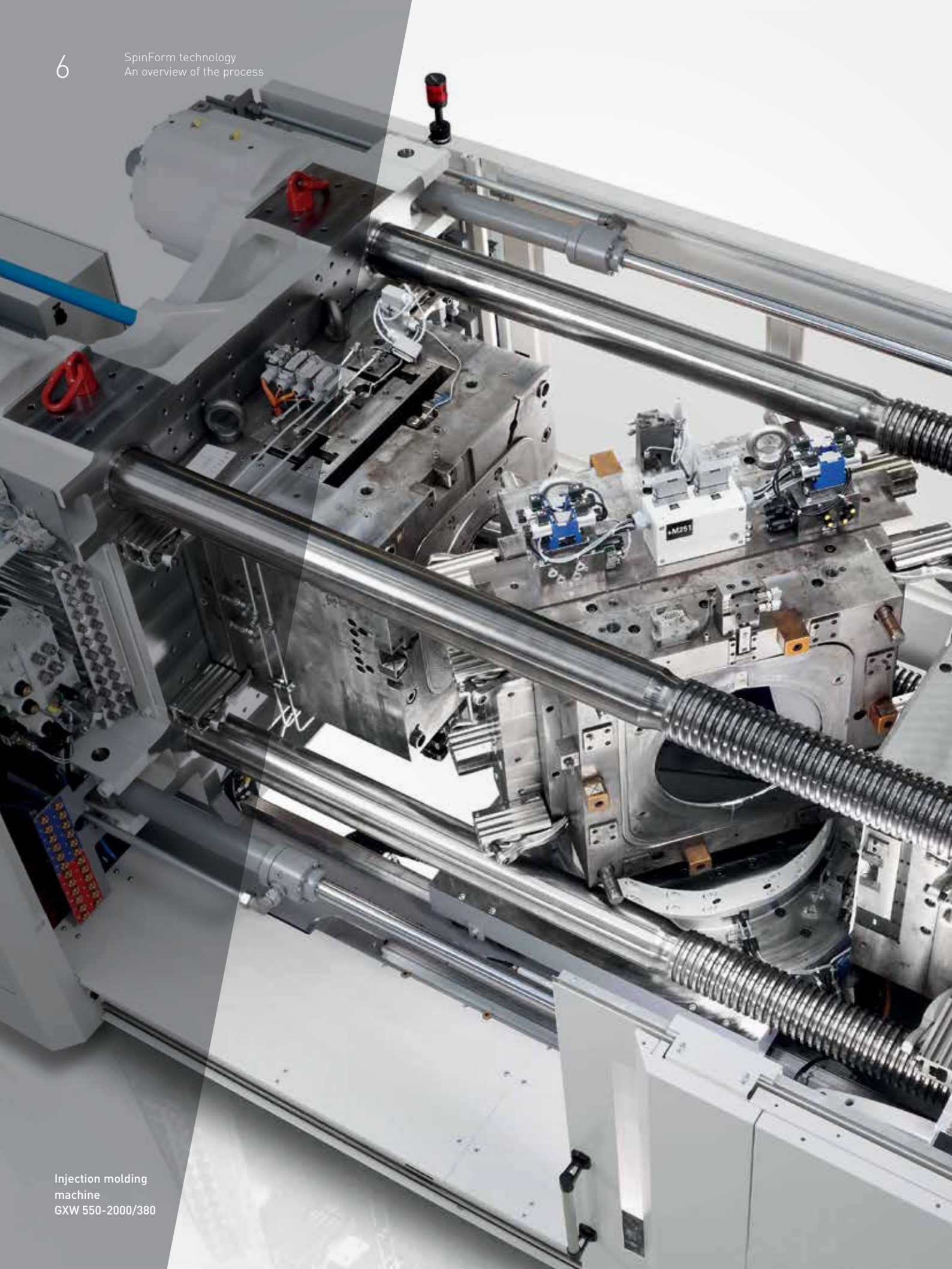
Powerful injection unit with proven plasticizing system
Maximum repeatability and high melt quality

Dual-platen clamping unit
Direct connection to the mold for both injection units – no detours and with good access to the injection units

Operator-friendly MC6 control unit
Simple and clear operation with SplitScreen, Process-Designer and Eco function

Sliding table with spin unit
Outstanding accessibility thanks to the patented, cantilevered spin unit with optional center platen

Solid machine bed
Typical KraussMaffei quality with high stiffness to accommodate high mold weights



Injection molding machine
GXW 550-2000/380

SpinForm technology
An overview of the process

SpinForm technology is particularly suitable for large-format, contoured parts or applications with high numbers of cavities. Using this technology, parts with cut-outs on one side can be produced, just as with turntable and sliding-table technology.

In this form of mold 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.

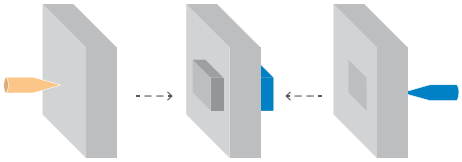
The SpinForm technology starts with the first and second component being injected into the mold in parallel. The resulting preform from the first component remains on the core of the spin unit's ejector side when the mold is subsequently opened. Next, the spin unit turns through 180°, the preform is turned into the new cavity and overmolded with the second component.

Cubes for increased productivity

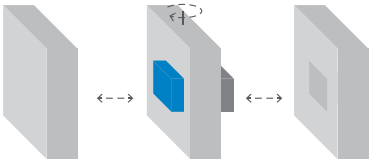
Using a cube mold, cooling processes can be carried out to a certain extent at the same time as the injection process. This is also true for the intermediate steps, such as adding inserts, pre-processing the preform or demolding parts from the side. It also makes it easy and cost-effective to integrate various assembly processes.

Increased flexibility with multi-daylight molds

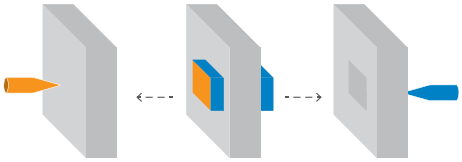
When using multi-daylight molds, it is possible to use the multicomponent injection molding machine for single-component parts too. Even when using the same clamping force, the cavity number is doubled.



The mold is closed, the first component is injected



The mold is opened and the spin unit rotated. Mold is closed



Second component is injected. The first component for the next part is injected at the same time. The finished part is ejected

Advantages of SpinForm technology
Boosting output

By positioning two knitpath parting lines one behind the other, SpinForm makes it possible to produce double the output of a conventional turntable system of the same tonnage. Moreover, as the molds swivel on a vertical axis between the tiebar pairs, a SpinForm machine can fit significantly larger molds.

The maximum number of cavities on the entire platen can therefore be used. Larger swivel units can deliver up to 13 times the cooling capacity; faster cooling cut cycle times. As described above, cycle times can be further reduced by using cube molds.

Your advantages:
- Maximum output thanks to higher cavity numbers and shorter cycle times
- Large and complex molds can be integrated without any problems
- No limit on the clamping unit size

More potential for large-format, contoured parts

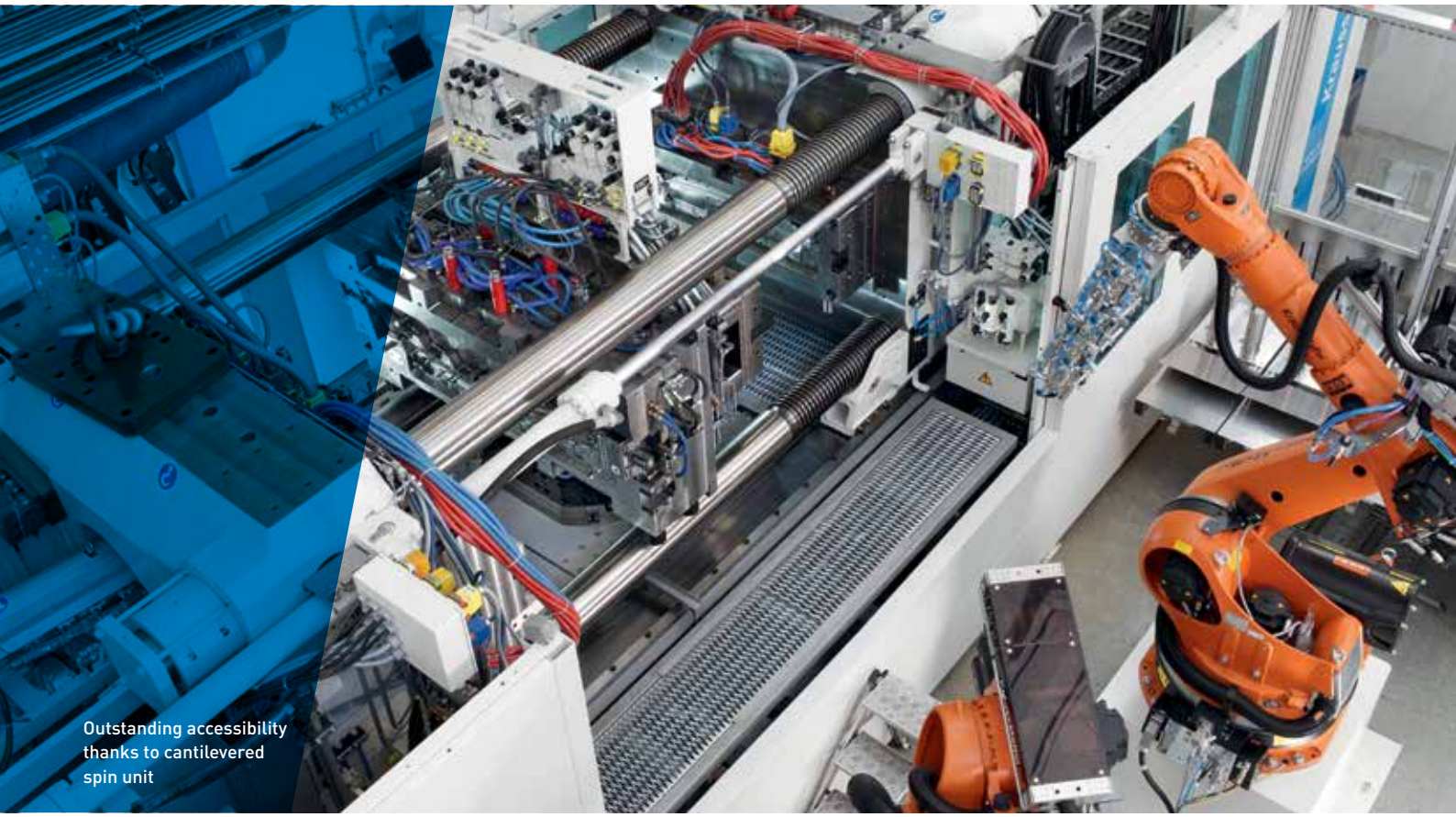
In contrast to turntable systems, the SpinForm machine concept can also be used with upper clamping forces without any difficulty. This is because the design of a SpinForm machine means there are no tilting moments even when heavy molds are turning, nor is there a problem with one-sided load on the tiebars. Thermal expansion can be more easily counteracted thanks to the machine concept. As a result, SpinForm technology is most suitable for long and large-format, contoured parts.

Compression of two-component parts only makes sense with SpinForm

For compression, a compression stroke by the machine is required, which should occur separately for each component. To do this, two knitpath parting lines are needed – a requirement that is only met by the swivel-plate machine.

SpinForm machines produce double the output from the same tonnage

Perfectly matched complete solutions
Two-platen system with cantilevered spin unit



Outstanding accessibility thanks to cantilevered spin unit

Each SpinForm solution is based on a standard injection molding machine from the CX, GX or MX Series, with an extended machine bed, extended tiebars, two opposite injection units and a cantilevered spin unit with optional center platen, which sits on a sliding table between the mold fixing platen.

Direct and without detours
Thanks to the two-platen technology and the opposite injection units, short flow-channel lengths are implemented without any detours. As a result, less pressure is lost, the cavities can be optimally charged and both injection units can be operated under the same conditions. This is particularly important when manufacturing identical parts on both knitpath parting lines.

Your advantages:
- Modular design for flexible, customer-specific adaptations
- Optimum accessibility
- Wide range of clamping-injection unit combinations
- Comprehensive machine- and process-engineering expertise from a single source

Comprehensive combination options from standardized clamping and injection units

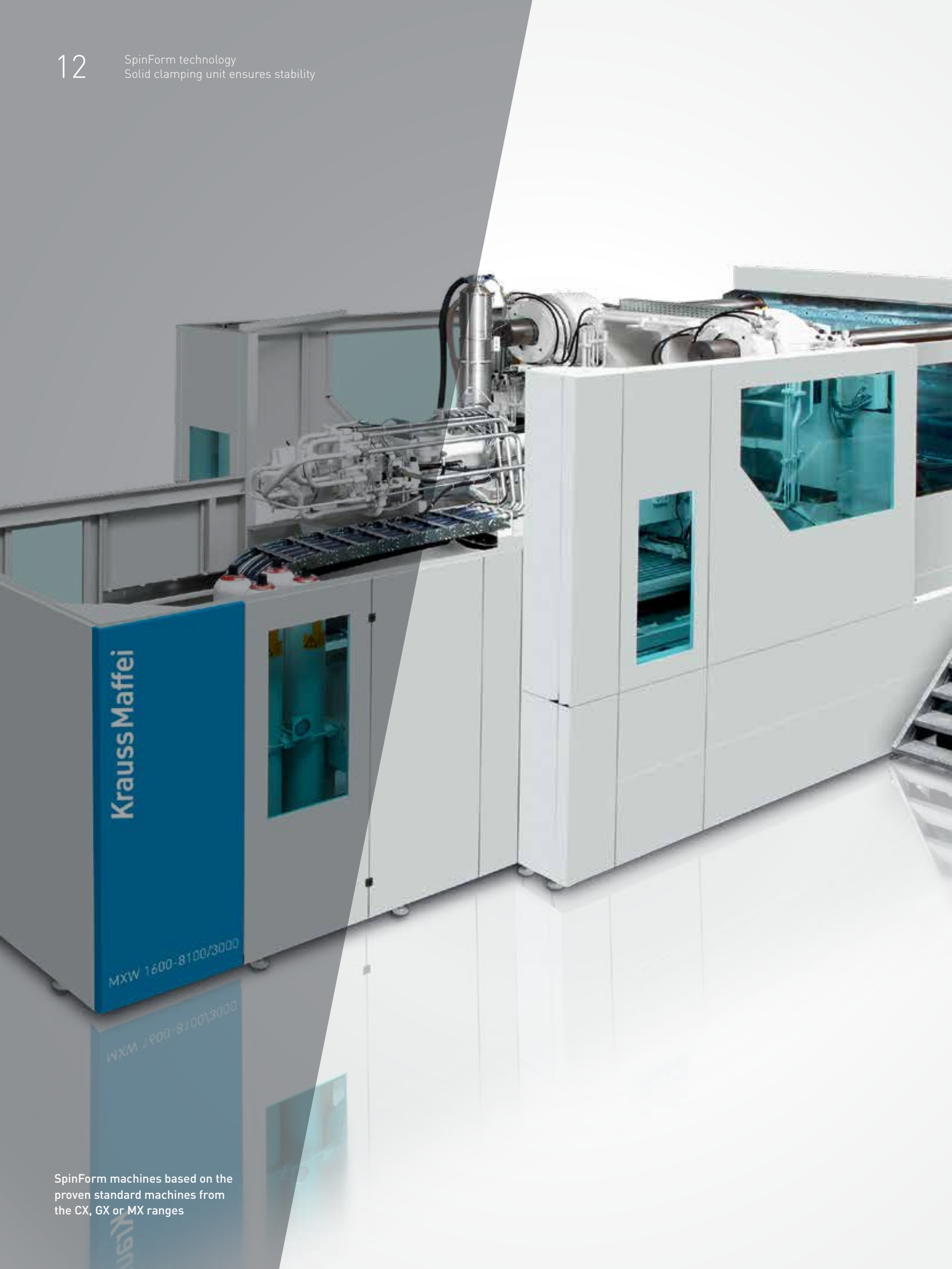
Open to everything

The patented, cantilevered spin unit guarantees outstanding access to deliver extra flexibility. Thanks to easy and fast mold changes, particularly for cube molds, this not only saves on set-up costs but also allows assembly appliances to be easily integrated.

A further benefit of this design is the simple use of articulated-arm robots and linear robots from all sides – even from above. The additional inclusion of polyurethane components, as is usual for SkinForm and ColorForm processes, is particularly easy on the SpinForm machine, thanks to both knitpath parting lines combined with the two-platen technology.

Complete portfolio – process-engineering expertise included

KraussMaffei is one of the few manufacturers that offers a complete portfolio of standardized systems, starting at a clamping force of 2000 kN, through to 40,000 kN. This means that you can not only fall back on process-engineering expertise, but everything comes from a single source.



SpinForm machines based on the proven standard machines from the CX, GX or MX ranges

Solid clamping unit ensures stability
A powerful starting point

High level thanks to platen parallelism
On the MXW Series, the solid and adjustable sliding shoes with column and lateral guides counterbalance the tilting moment when traveling; this is done by the linear precision guides on the CXW and GXW Series. The generous spacing between guides ensures absolute stability and platen parallelism for all series, particularly during opening and clamping movements.

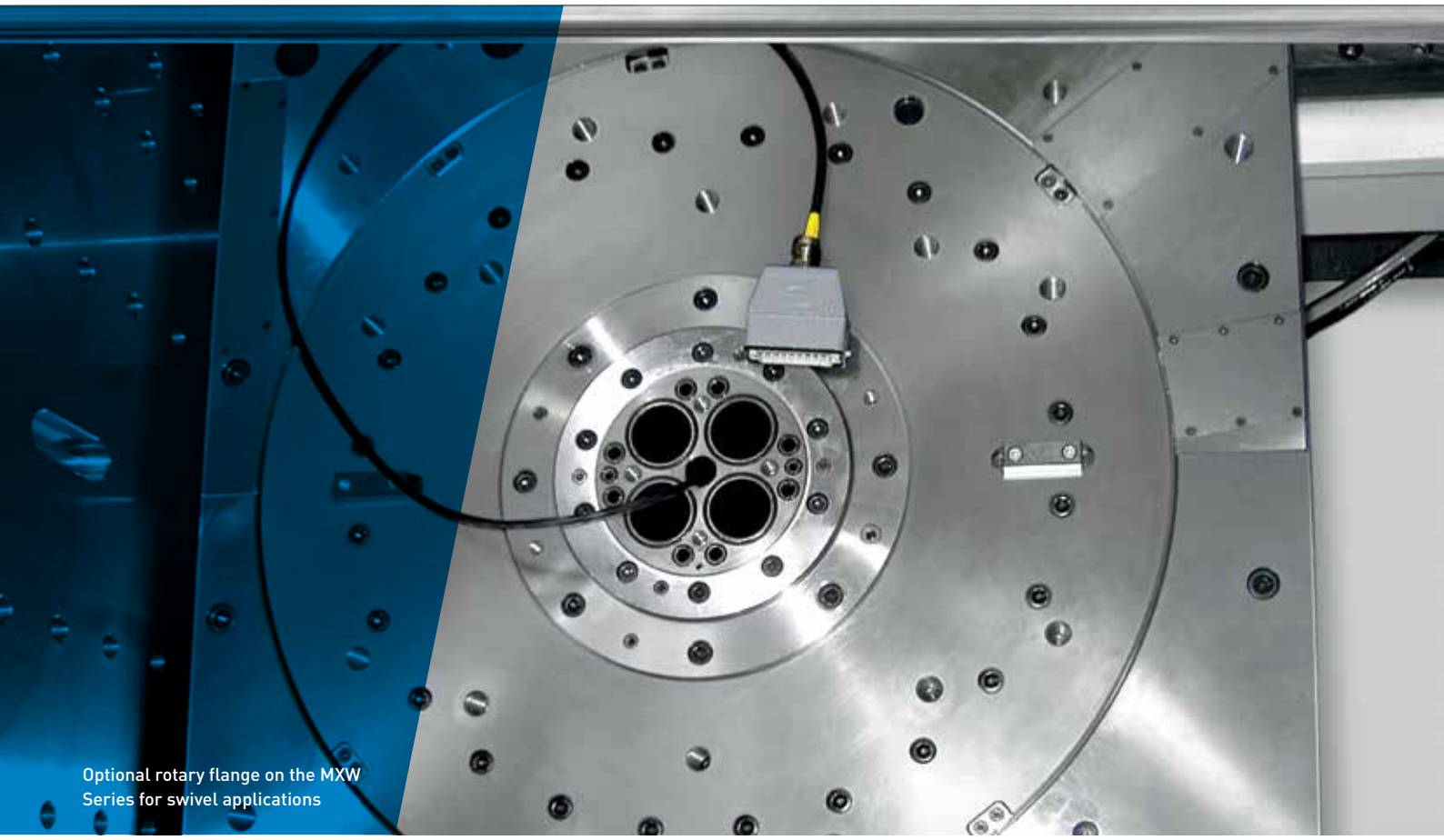
Mold fixing platens ensure precise mold closing
KraussMaffei mold fixing platens are optimized with the "finite element method" (FEM) and ensure safe force transmission with minimal deformation, even for large molds. The robust design ensures that the platen is free from deflection under the clamping force, which effectively preserves both the mold and the movable mold parts.

Suitable for large and heavy molds
The assembly consisting of a clamping unit, sliding table and spin unit provides large opening widths as standard, which can also be individually adjusted, if necessary. Large molds can thus be supported and the vertical distance between tiebars can be optimized as appropriate for the mold concept. The stable design combining the clamping unit and the splitter spin unit comes into full effect here.

Centralized lubrication in the clamping zone
Both the guides and the spin unit are lubricated centrally. Using the MC6 control unit, automatic lubrication cycles can be set easily, resulting in increased availability.

Your advantages:
- Tilting moments are safely counterbalanced to ensure maximum platen parallelism
- Minimal platen deformation thanks to robust design
- Large, heavy molds can be used without any problems
- Automatic lubrication cycles increase availability

Splitter spin unit as the focal point of the clamping unit
Central stability



Optional rotary flange on the MXW Series for swivel applications

Stable mold fixing platens and absolute platen parallelism are prerequisites for precise movement of the nozzle-side mold halves. The sliding table, spin unit and center platen are operated under the same conditions.

The sliding tables are very robust and are mounted on solid guide carriages, which have the largest possible distance between them. The contrary requirement for minimum installation heights must also be observed, however. Together with large roller-bearing diameters, the optimized splitter spin units ensure high bending stiffness and avoid all tipping – even in extreme situations, such as during compression.

To be able to ensure the exact platen parallelism to the clamping unit that is required and the tilting freedom, the center platen is also very solid.

More capacity for water and oil

Spin units from the CXW/GXW Series can accommodate up to eight media circuits: 2 x 2" or 4 x ¾" water circuits from 85 °C up to 120 °C (optional) and with four oil circuits/core retractions each. The MXW Series differentiates between 4 x 1" and 6 x 1" circuits. Here, the oil is supplied by two circuits, which can supply up to eight core retractions on the center platen. There are additional connections for power and air in the media transfer for all series.

In this way, an optimum media supply to the center platen can be ensured for maximum process speeds, even for applications that require large quantities of cooling water. For reverse operation (0° - 180° - 0°), low-maintenance hose flanges are available as standard. Alternatively, for reverse or swivel operation (0° - 180° - 360° or 0° - 90° - 180° - 270° - 360°), rotary flanges can be used.

Your advantages:

- Optimum cooling capacity thanks to generous media supply
- Electric drive unit for increased dynamism and efficiency
- Energy efficient thanks to lower oil volumes
- Shorter spin times thanks to increased acceleration
- Precise positioning of the spin unit

Servo drives for high level of dynamism

All spin units are driven by servo drives as standard. The sliding tables can also be equipped with electric spindle drives under certain circumstances, depending on the size and the cost-benefit ratio. This offers excellent position accuracy with a high level of dynamism. As the machine hydraulics are independent, turning can take place in parallel with the opening motion of the mold. A further advantage of this hybrid solution is its energy efficiency.

Center platen for more balance

Depending on the number of cavities and the size of the part, multi-daylight Spin-Form technology is often used with two opposite mold halves on the spin unit. In these cases, a center platen on the spin unit ensures simple mold installation, simple and clean provision of the media supply and uniform linear expansion of all four mold halves.

A solid spin unit and a robust sliding table with guide carriages provide the basis for the center platen

Electric turntable drives allow increased dynamism and short spin times

Particular requirement for large-format, contoured two-component parts in the field of view
For more perspective

Compression without stress on the part
Large-format, contoured parts are often compression-molded to reduce stresses, to create premium-quality surfaces and to achieve longer flow paths. Necessary processes, such as expansion compression, clamping compression in combination with two-component glazing, glazing, and many other compression variants, can be integrated into any SpinForm solution. As the requirements on platen parallelism and position accuracy are very high, KraussMaffei is using a platen parallelism control, which is not required as standard.

Suitable for cleanrooms as standard
SpinForm machines can be used in cleanrooms due to their two-platen technology. By using water-cooled motors, air turbulence and temperature fluctuations are minimized.

High throughputs with outstanding melt quality
Our plasticizing systems are characterized by their excellent melt quality and cover a wide range of applications for a wide variety of plastics. They ensure a high melt performance with corresponding throughputs and an optimal melt quality.

Maximum shot weight consistency with optimum repeatability
The proven in-line injection unit with its rotary piston design transmits the force centrally via the injection piston onto the screw. This direct path ensures absolute precision and excellent repeatability. Injection regulation guarantees maximum process stability.

The right screw for every plastic
In order to provide an ideal solution for the processing requirements of different polymers, we have developed material- and processing-specific plasticizing systems. In addition to outstanding melt quality and high throughputs, high-tech plastics mostly require additional wear resistance against adhesion, abrasion and corrosion in order to extend their service life. Depending on the part requirement, special plasticizing systems containing specific screws, check valves and cylinder fittings are available to you.

Your advantages:
- Proven screw technology
- All compression variants for two-component applications can be used
- Cleanroom-compliant

Powerful injection unit with proven plasticizing system for maximum repeatability and high melt quality

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 AX and EX Series. We can offer you the right robot for every production task. You can even select special 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.

Obtain information about the following, for example:
- Basis for cost-effective production – Linear robots in the LRX/LRX-S Series
- Flexible molds for productive automation – Industrial robots in the IR Series
- Our service expertise is the key to your production efficiency – Service & Solutions

You can find our brochures and flyers on other topics online at: 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.

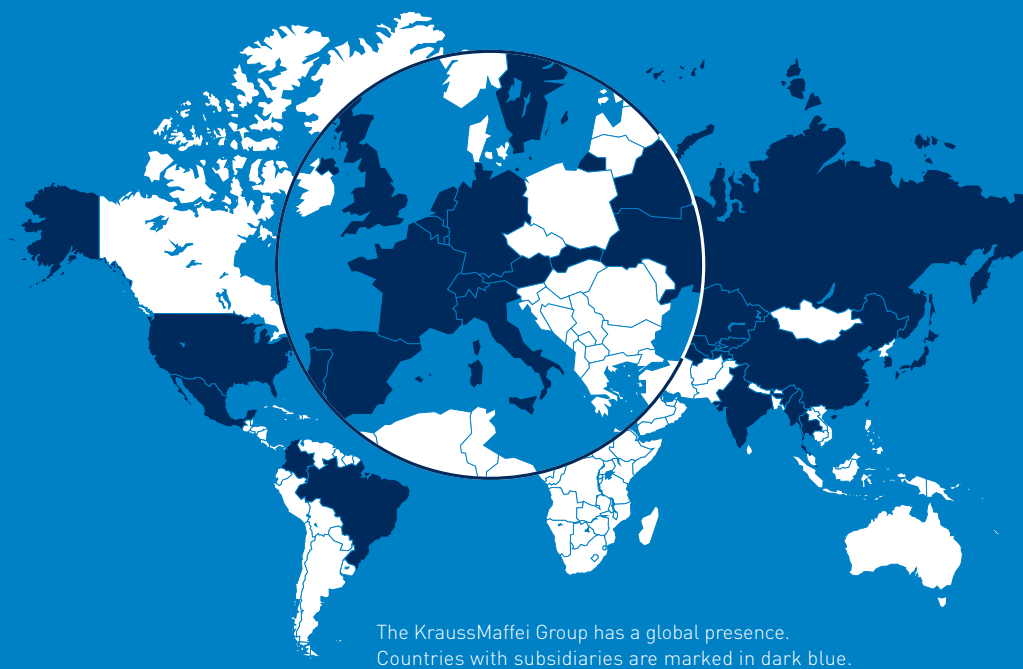
You can find additional information about KraussMaffei at: www.kraussmaffei.com

KraussMaffei Group
Comprehensive expertise

Unique selling proposition Technology[3]
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



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.

Cost-effective and flexible with SpinForm technology

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