Powerful systems
For trimming complex plastic components

Engineering Passion

KraussMaffei

Our machining processes at a glance

Machining processes


Punching


Milling


Flame treatment and deflashing


Cold-knife cut
(Scoring, ultrasonic cutting)

Final molded part machining in the automotive industry (interior)

Powerful systems for trimming complex plastic components

Stable, largely automated processes are indispensable for cost-effective series production. KraussMaffei offers you comprehensive solutions for trimming your products. Our portfolio ranges from pre-engineering and prototyping to delivery of premium-quality individual holders, tools and systems, as well as creating reliable complete solutions that can be integrated.

We are specialists in all types of punching and trimming and in linking trimming systems to complete, automated production lines. You benefit from our comprehensive expertise. Our core competence is systems for precise punching and for flexible trimming. This includes milling, scoring, deflashing and ultrasonic trimming.

Your benefits at a glance:

– Worldwide experience in the automotive industry
– Individual, process-neutral advice
– Optimal solutions for each task description

Our complete solutions for molded part trimming
Chaining systems

Automation of trimming systems

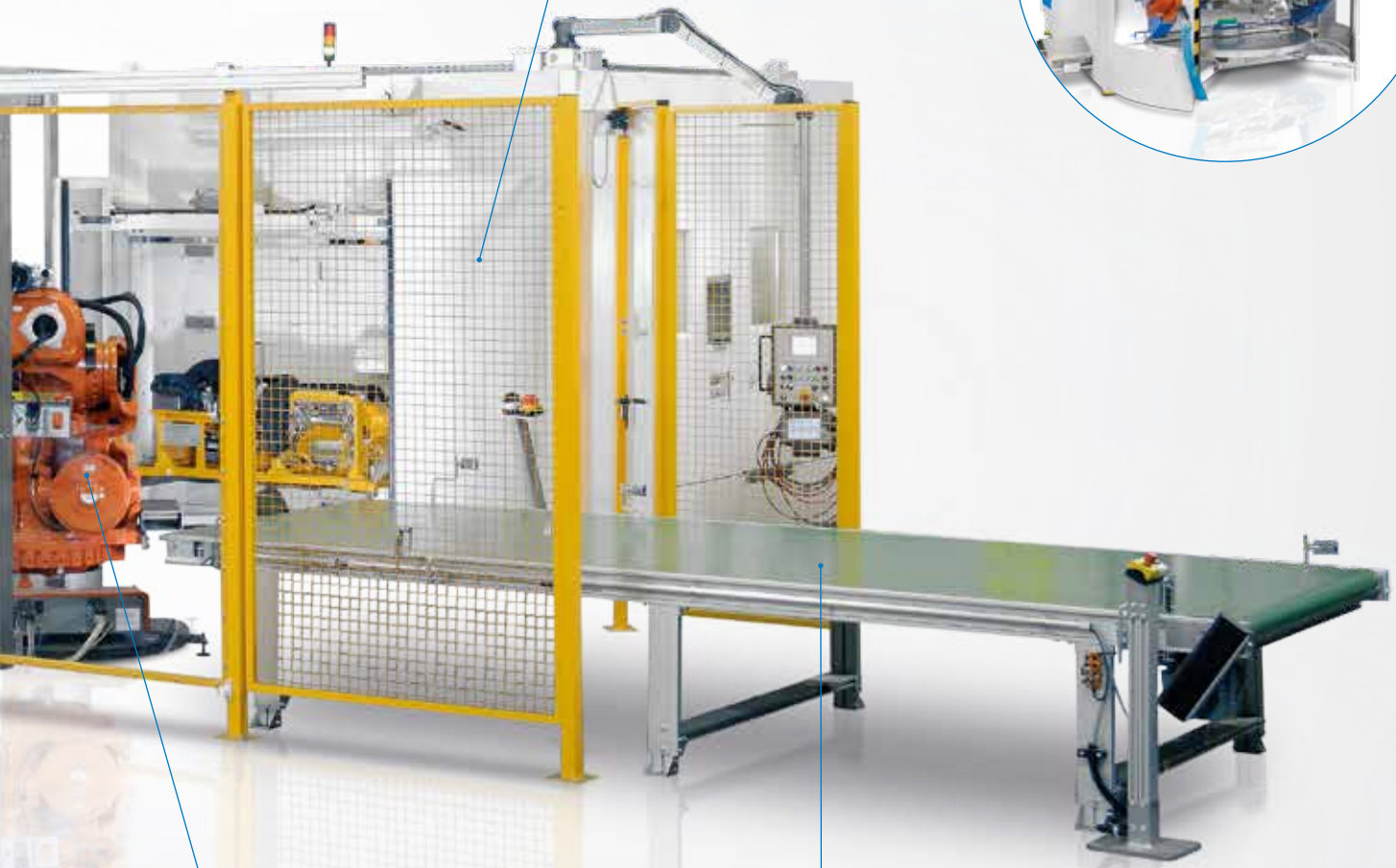
Example for a linked trimming system for an instrument panel. The first robot feeds the punch press. The second robot extracts the workpiece and loads the milling cell for the remaining trim and the film weakening for the airbag system. Conveyor belts transport parts automatically to workstations.

Trimming technology process

- Handling using two industrial robots
- Punch press with four slide cycles
- Fully automated waste disposal
- Airbag weakening using milling process
- Component transfer to follow-up processes
- Cycle time for this system: 33 seconds

TrimStar ECO
Punching machine with punch tool

RoutingStar
Milling cell with holder



Handling robot

Transport of finished components

Punching technology by KraussMaffei
Accurate solutions for premium quality components

Reliability, precision and ergonomic design are the basic requirements for the design of our punching machines. Customized for your product, we offer an extensive line of various punching machines. Linking our products and technologies results in advanced production lines for mass production.

Punching series	Locking force (kN)	Clamping area in mm (width x depth)	Ram punch presses	Punch slides	Tool, integrated	Tool changing	Waste management
CutStar	locked	(1700) 1540 x 840		●	●		Conveyor sidewards R/L or backwards **option:** drawer
CutStar S	locked	(1200) 1040 x 840		●	●		Conveyor sidewards R/L **option:** drawer
CutStar XL	locked	(2200) 2040 x 840		●	●		Conveyor sidewards R/L or backwards **option:** drawer
TrimStar	200	(1700) 1500 x 800	●	●	●		Conveyor sidewards R/L or backwards **option:** drawer
TrimStar Eco	200	2550 x 1300	●	●	●		Conveyor sidewards R/L
PunchStar 200 Compact	220	2600 x 1200	●	●		●	Conveyor sidewards R/L
PunchStar	500	2700 x 1200	●	●		●	Conveyor sidewards R/L
PunchStar RA, rotary table system	500	(2200) 2040 x 840	●	●		fully auto-mated 120 sec.	Conveyor sidewards R/L
Compact punch-ing device	variable	variable	●	●	●		integrated, manual

Flexible cutting technology
Alternative and addition to the punched cut

KraussMaffei offers milling and trimming with ultrasonic cutters. Both processes are suitable for trimming complicated contours. Systems for deburring and for surface activation (flame treatment) complement our offer.

Series for flexible cutting technology	Processing method	Robot	Clamping dimensions in mm (width x depth)	Suitable for composites	Flexible path programming	Tool changing	Waste management
RoutingStar	Milling	Up to 3	2 clamping positions, each at (1630) 1760 x D960		●	●	Conveyor / **option:** extractor, integrated at product intake
RoutingStar CXL	Milling	2	2000 x 2500	●	●	●	Cabin extraction / spot extraction at the milling head
RoutingStar Light	Milling	1	(1480) 1350 x 600		●	●	integrated, manual
ScoringStar	Film weakening	1	2 clamping positions, each at 1650 x 590		●	●	
ScoringStar RA	Film weakening	2	3 clamping positions, each at 1650 x 460		●	●	
SonicStar	Ultrasonic cutting	1	2 clamping positions, each at 1650 x 590		●	●	integrated, manual
SonicStar CXL	Ultrasonic cutting	Up to 2	2080 x 1480	●	●	●	integrated, manual
RobDeflash (single cabin)	Deflashing	1	up to 2 clamping positions, each at 230 x 700		●	●	Extractor, integrated in product intake
FlameStar	Flame treatment	1	(2000) 1500 x 650		●	●	

Compact, mobile, ergonomic – the TrimStar series
Automatic punching presses with integrated tool

The TrimStar has a zero-degree trim and slide-guided punching knives. The tool is integrated into the drive unit and does not have to be replaced. The simpler CutStar version cannot do the zero-degree trim.

TrimStar – compact design, ergonomics and reliability

Unlike large punch presses, the TrimStar is a compact unit which can be quickly moved as a mobile cell. The tool technology is identical to the proven design of our punch tools.

Compact quality

The feed unit runs ergonomically on the downward folded pickup table. The pickup table swivels upwards approximately 60° into the punching position for the punching process and then locks.

The zero-degree trim then takes place using the ram. Splitters then apply the remaining trim.

Your benefits:
- Compact, space-saving design
- Short cycle times
- Single-purpose machine
- Moves quickly
- Low maintenance costs
- Flexible waste guide

Ergonomic: punch tool for instrument panel in loading position

Easy to service: hydraulic system and electrical system are clear and easily accessible

TrimStar: Compact design with integrated tool

PunchStar – for industrial operations
Precision punching with interchangeable tool

PunchStar is a specially designed machine for the punch process with a high base accuracy. The molds can be replaced manually, semi-automatically or in the case of PunchStar RA (rotary table system) even fully automatically with this series.

Accurate trimming

This machine is guided by means of a proven block column system. In combination with the tool guidance, this punching machine allows for an accurate trimming with a cutting gap of 0.02 mm following a 1,200 mm stroke.

Ergonomic and low-maintenance

The punch tools have a solid graphite cast structure which accommodates matrices and splitters. The splitters are maintenance-free and high-precision.

The bottom part of the tool can optionally be equipped with a swivel mechanism which allows for an ergonomic feed unit.

For industrial applications

PunchStar punch presses are excellent for an automatic feed unit and their use in fully automated production lines. This requires the waste to fall through reliably. KraussMaffei already factors in this requirement when designing the components.

Your benefits:
- High accuracy and cutting quality
- Short cycle times
- Low maintenance costs
- Low punching tool wear
- Fast tool change is possible, even fully automated
- Automation and linked machines with other systems are possible

PunchStar RA (rotary table system) for fully automated tool change.

Column block system for accurate punching of plastic components (punch tool for an instrument panel)

PunchStar – changeable tool
for flexible production

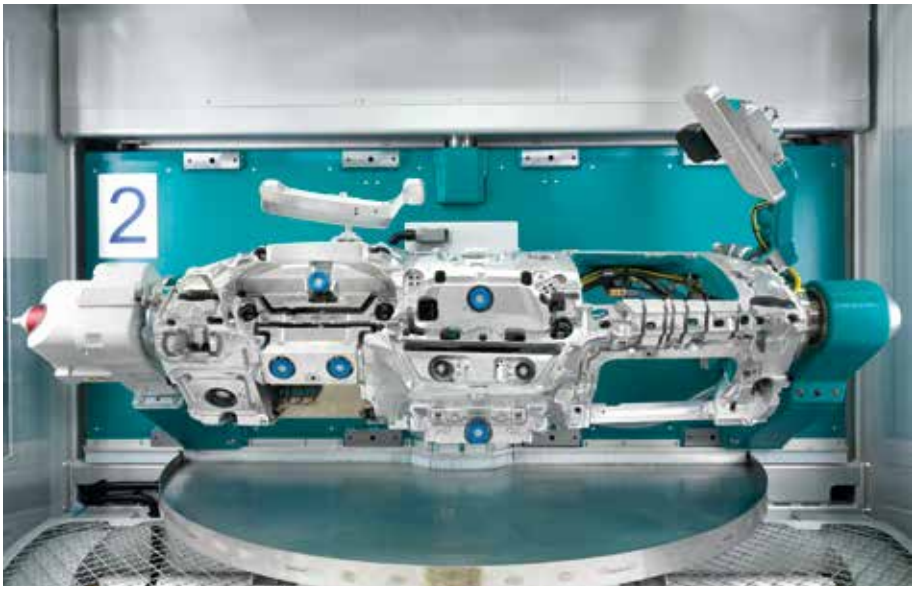
RoutingStar – Precision in sync
Robot milling cell for flexibly trimming complex plastic components

Mobile system for complex milling
The RoutingStar robot milling cell is perfectly designed for milling complex, three-dimensional plastic components. The RoutingStar offers maximum flexibility and precision with very short cycle times. The RoutingStar can quickly be modified for new tasks. As a mobile cell, the system can be quickly repositioned in production and can be used again within the shortest possible time.

Premium quality equipment
The RoutingStar is modularly designed with proven components. Standard equipment includes the swinging door and the waste tray in the front. There is also an optional version with a rolling door. The vertical turntable allows a feed unit to run parallel to the process. There are support arms in requirements-based types for the product intakes. The components are automatically gripped. The system can be fed either manually or using a robot handling system. A central waste material system is integrated into the cell.

Robots that cooperate
The interior can be equipped with up to three cooperating industrial robots. Product intakes are customized to your product. Customers who wish to omit the changeover process like to fall back on our proven duplex holders. In addition, the product intakes are activated using additional rotary axes. This allows multiple holder positions for each table side. The changeover conveniently takes place using the operating panel.

Preparing series production together
We will be happy to support the development of milling projects. You are also welcome to use our TechCenter to produce the prototype (pre-batch production) components. Please contact us.



Full trimming arbor including airbag clamping system

Ergonomically located control panel at the swivel arm

Compact and powerful. RoutingStar milling cell with pivoting receiver

Changeover magazine for automatic change of milling tools

Optional: three robots working parallel for short cycle times

Your benefits:

- Compact and mobile system design
- Features process reliability and repeatability
- Flexibility in the definition of the trimming task
- Ability to process complex geometries
- Milling head breakage monitoring and milling head length measurement
- Many optional extension options
- High productivity and noise protection
- Feed unit that runs parallel to the process (vertical turntable)
- Multiple use of robots
- Automatic setup possible

ScoringStar – for accurate air bag weakening
Patented cold-knife system with highest accuracy

The ScoringStar is a compact industrial robot system for weakening the airbag section in the decorated film of instrument panels. To do this, a robot-guided tool developed by KraussMaffei is used to weaken the film in a cold-knife process to a defined residual wall thickness.

Design basics

A contour holder, a mechanical flap and a vacuum hold the film in place. ScoringStar has a proven track record all over the world as a rotary table system. This design allows the machine to be loaded while it continues to process the material. The roll-down gate has a large viewing window where you keep an eye on the current process. Depending on requirements, various products can also be produced on one system. You save unnecessary distances and benefit from an optimal material flow thanks to the central loading area. Individual systems or multiple systems are available depending on your needs.

Reliability component after component

The tolerance compensation for the robot and with the holding technology of the scoring tool make ScoringStar particularly reliable and ensure a uniform processing quality.

Your benefits:

- Process-reliable and cost-effective
- Feed unit that runs parallel to the process
- Patented scoring tool
- Reliable technology with complete process monitoring and documentation
- Dispensing of release agents possible

ScoringStar: holder position with product part

Patented scoring tool

ScoringStar RA, scoring and release agent dispensing in one system

SonicStar – for unique requirements
Trimming state-of-the-art materials with ultrasound

Ultrasonic composite cell SonicStar CXL

SonicStar is suitable for trimming reinforced and unreinforced plastics.

Proven design principle
SonicStar differs from ScoringStar only in the product intakes and the robot tool. You can feed parallel to the process using the vertical rotary table. This allows for low operation costs and unit costs.

Solutions for special requirements
The ultrasonic technology is suitable, for example, for trimming preforms to manufacture CFRP components.

Your benefits:
- Process-reliable and cost-effective
- High repetition accuracy
- Clean trim surfaces
- Changeable blades/knives
- Short cycle times
- Rotary table or slide table design

Surface activation with the FlameStar
Flame treatment system for foam preparation

The flame treatment helps with surface activation of components which are to be back-foamed. KraussMaffei offers an automated, robot-guided solution with the FlameStar system which can be optionally combined with further technologies.

Accurate masking

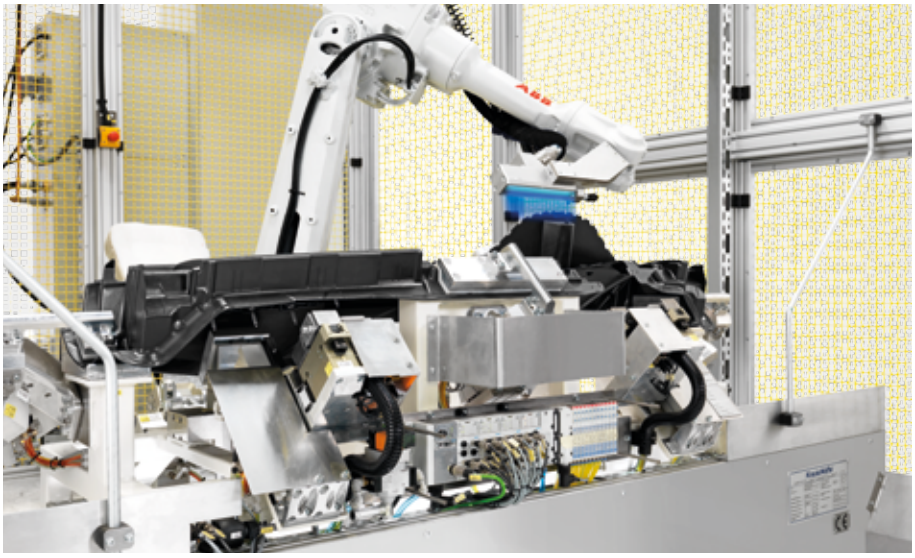
Areas where foam adhesion is not desired are covered with masks that are partly driven individually. Sealing takes place with flame-resistant, molded, impression-free plastic seals (masking) at this point. The contour accurately follows the specifications of the CAD data.

Compact and flexible use

The system is designed as a compact cell. The cell can be transferred in the production without great expense. The programming needs no adjustment afterwards.

We would be happy to discuss with you additional alternatives for deflashing your components.

Your benefits:
- Uniform surface treatment
- Accurate masking
- Mobile system for flexible installation



Scoring holder

Flame treatment over the masking

FlameStar's flaming system with integrated sprue punch

RobDeflash – fully automated deflashing
For optimal quality of premium-quality plastic components

Intake of deflashing component

RobDeflash for fully automated deflashing

When deflashing components that are back-injected with foil, protruding coating flakes are removed fully in an entirely automated process. This cooling trim procedure is suitable for even the most sensitive components as well as for simple and complex geometries. As an option, you can expand the RobDeflash with a UV irradiation for finish hardening. The system enclosure is equipped by default with a hanging robot.

Parallel processes

When using two product holding carriages for each robot, a feed that runs parallel to the process is possible.

Your benefits:

- Optimal ergonomics
- Compact and mobile system design
- Automatic extraction
- Large-format enclosure ionization
- Quick tool change
- Compact, modular design
- Linking machines with injection molding systems is possible

Further information
which might also interest you

Are you looking for complementary solutions for final molded part machining or information on the following topics?

- Hydraulic or pneumatic compact punching systems for small batch parts
- Composite systems
- Robot handling systems
- Processing non-automotive components for:
  - Major appliances
  - Medical technology
  - Miscellaneous household products

Then please contact us. We would be glad to create individual concepts for your products.

You can find the products from this brochure online at: www.kraussmaffei.com/Beschnitt. On request, we would also be happy to send you the 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.

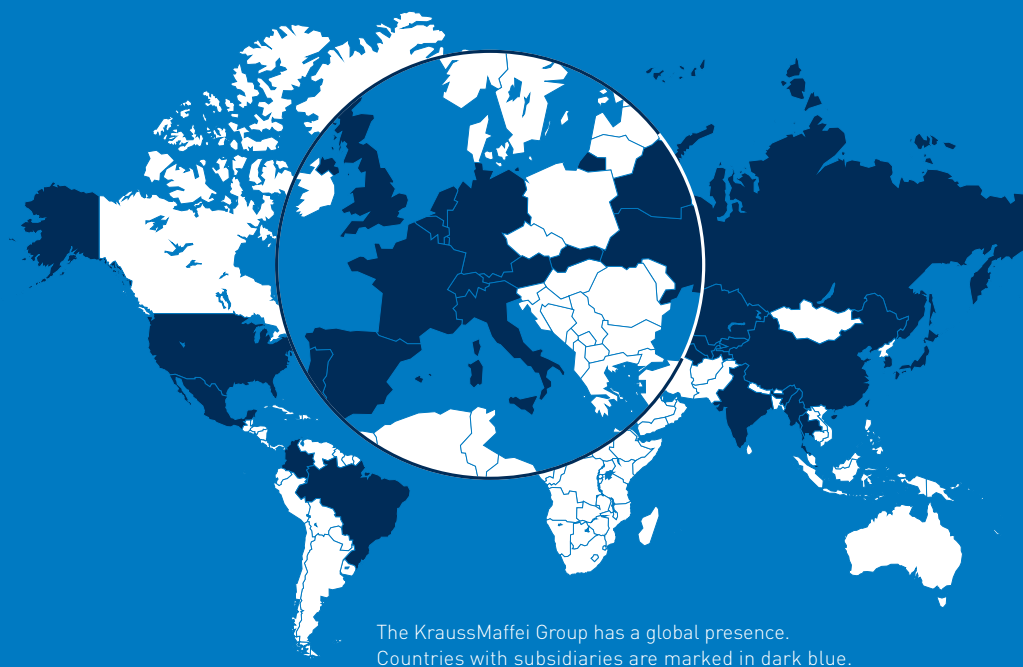
You can find additional information about KraussMaffei at: www.kraussmaffei.com

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.

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