



Powerful, reliable and  
cost-effective  
GE extruders and extrusion systems

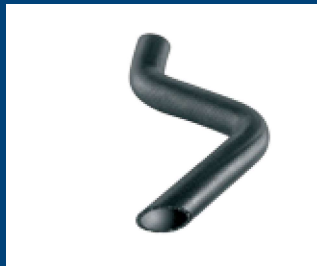
*Engineering value*

***Krauss Maffei***

## Practical examples Premium quality products from a wide variety of industries



Various components  
for high-performance tires



Automotive hoses



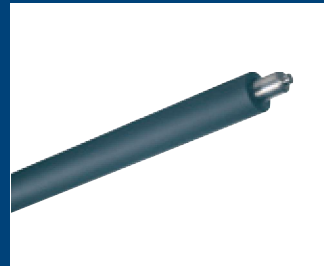
Industrial hoses



Multi-component sealing profiles  
for the automotive industry



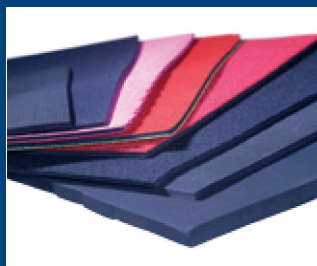
Sealing profiles  
for the construction  
industry



Coated rollers



Steel wire rope and  
textile conveyor belts



Neoprene materials



Printing blankets

## **Powerful, reliable and cost-effective GE extruders and extrusion systems**

A rubber extruder must be prepared for the high requirements of rubber product manufacturing to the greatest extent possible, in order to ensure continuous use and to contribute to the profitable success of a company. From proven extruders from the GE-K series to GE-SC Pinconvert extruders, the same principles of success apply for every model: high quality, maximum availability and flexibility as well as perfect integration into the treatment process.

### **The advantages at a glance**

- High output
- Low-maintenance and reliable thanks to premium quality machine components and materials
- Low-wear screws and barrels
- Outstanding product quality
- Peripheral devices perfectly matched to the machine

# First encounter: Take a tour of the cold-feed GE-K rubber extruder

## Flexible machine design

- The process unit and drive can be combined on an individualized basis

## High user friendliness

- Short set-up times
- Easy maintenance



## Fast commissioning

- Ready-to-use delivery

# Cold-feed GE-K rubber extruder

## Efficiency and reliability for simple treatment processes

The cold-feed rubber extruders from the GE-K series are the ideal machines for simple treatment processes. It only requires a little space in order to show its strengths due to its compact design. Its high degree of automation makes it an easy-to-operate machine. The GE-K series offers high production reliability thanks to high product quality, established reliability and high recoverability.

### High-performance machine design

The GE-K series is designed to be plug-and-go, so that it can be commissioned quickly. The robust gearbox and optimally-sized drive designs with a water-cooled AC motor provide long service life and low maintenance costs.

The vacuum systems on Vac GE-K extruders are individually matched to the process. The machines provide high outputs, low melt temperatures downstream of the injection mold and even better size stability for the extruded products.

### Cold-feed GE-K rubber extruder

Type		GE-K extruder					Vac GE-K extruder			
		GE30K	GE45K	GE60K	GE90K	GE120K	Vac GE45K	Vac GE60K	Vac GE90K	Vac GE120K
Screw diameter	mm	30	45	60	90	120	45	60	90	120
Screw length	L/D	10	10	12	12	14	16	18	20	22
Screw speed	n rpm	70	60	60	55	50	60	60	55	50
Drive power max.	kW	4	10	22	60	110	10	22	60	110
Maximum output	G kg/h	10-15	40-65	90-120	315-420	540-720	50-65	70-90	250-330	400-550

# First encounter: Take a tour of the cold-feed GE-KS pin-barrel rubber extruder

## Flexible machine design

- The process unit and drive can be combined on an individualized basis

## High user friendliness

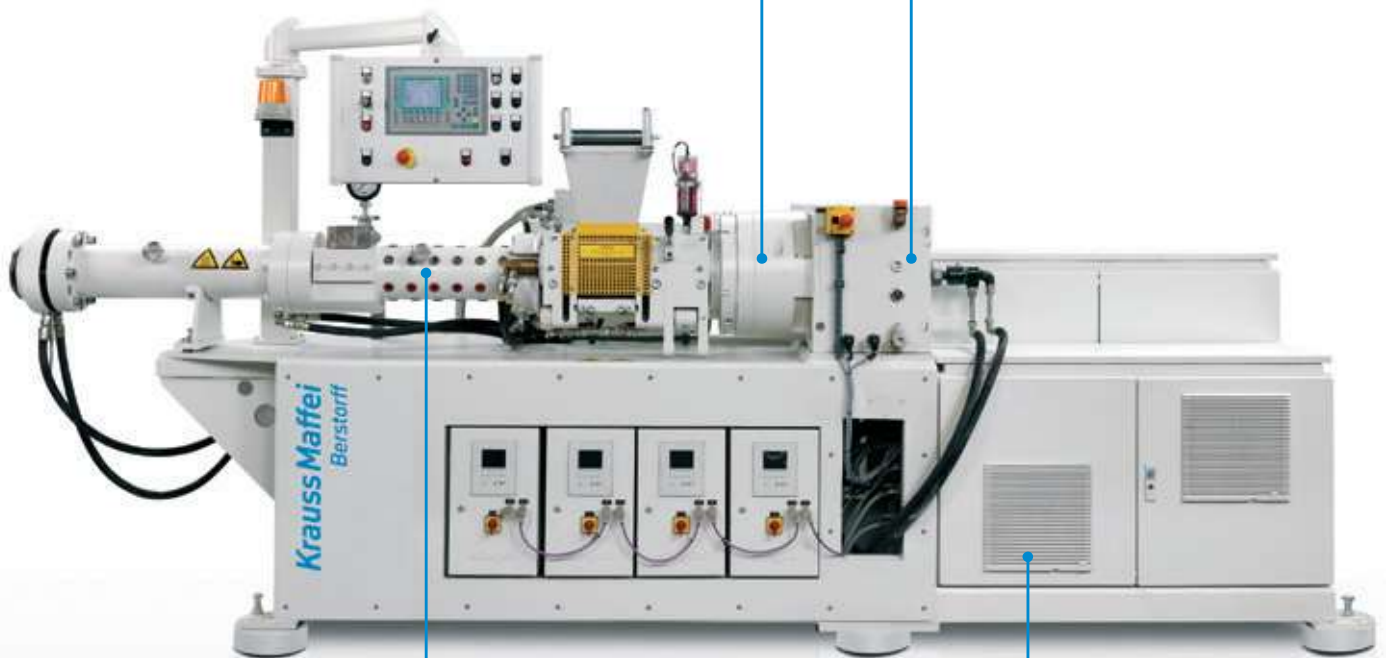
- Short set-up times
- Easy maintenance

## Fast commissioning

- Ready-to-use delivery

## High product quality

- Process unit with pin barrel and optional vacuum degassing





## Cold-feed GE-KS pin-barrel rubber extruder

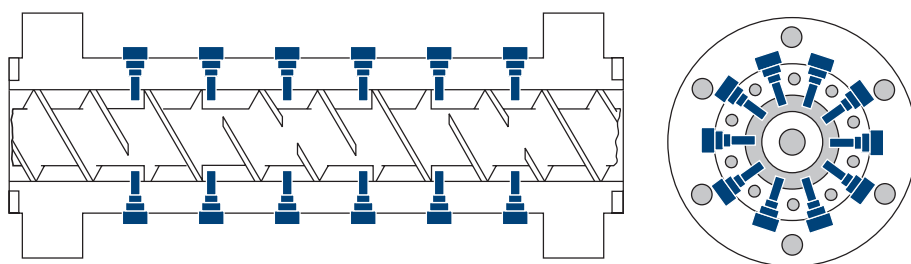
### Flexibility and reliability without compromise

GE-KS and Vac GE-KS pin-barrel rubber extruders are all-around machines for a wide variety of applications. Their flexibility and reliability make them true success machines in the treatment process. The attractiveness of pin-barrel extruders is enhanced even further by the expansive suite of series equipment, such as an automatic pin adjusting device, replaceable wet sleeves, a pin breakage display and high-performance screws. The advanced technology processes a wide spectrum of rubber mixtures of varying viscosity with just one screw type without requiring a conversion.

#### GE-KS pin-barrel extruders distinguish themselves with

- High output
- Low melt temperatures
- Low specific energy consumption
- Excellent extruded product homogeneity
- High availability

We equip Vac GE-KS degassing extruders with a vacuum zone and a procedure part utilizing pin-barrel technology. The machines provide high outputs, low melt temperatures downstream of the injection mold and even better size stability for the extruded products.



#### Cold-feed GE-KS pin-barrel rubber extruder

Type		GE-KS extruder							Vac GE-KS		
		GE 60KS	GE 90KS	GE 120KS	GE 150KS	GE 200KS	GE 250KS	GE 300KS	Vac GE 60KS	Vac GE 90KS	Vac GE 120KS
Screw diameter	mm	60	90	120	150	200	250	300	60	90	120
Screw length	L/D	14	14	16	16	18	18	18	18	20	22
Screw speed	n rpm	60	55	50	45	32	24	22	60	55	50
Drive power max.	kW	22	60	110	190	330	450	650	22	60	110
Maximum output	G kg/h	150-250	500-650	800-1300	1200-2000	2100-3300	3500-6000	4800-7800	70-90	250-330	400-550

## Cold-feed GE-SC Pinconvert rubber extruders Maximum flexibility for demanding tasks

A defining feature of the KraussMaffei Berstorff GE-SC Pinconvert® extruder is a throttle element built into the area near the maximum channel volume of the sleeve.

It has pins distributed symmetrically around the circumference that radially penetrate into the channels of the barrel sleeve. These can be adjusted manually or electrohydraulically and allow the channel volume to be reduced to zero in this area.

Because this allows the output, melt temperature and homogeneity performance parameters to be influenced and optimized, GE-SC extruders provide you with a guarantee for flexibility and adaptability that cannot be beat. We expanded the implementation options for our GE-SC Pinconvert® extruder using

a specially developed cylinder degassing system. The throttle element is of critical importance for these extruder versions as well, since the extruded material filling level can be influenced using the pin penetration depth before it reaches the degassing zone. This can both prevent flooding for various rubber mixtures and mold counter pressures and optimize the degassing procedure.



Two Pinconvert extruders for manufacturing a multi-component profile



Hydraulically adjustable Pinconvert element



## Hot-feed GE-W rubber extruder High-performance extruder with proven technology



Hot-feed KraussMaffei Berstorff GE-W series extruders have proven themselves in manufacturing a wide assortment of natural and artificial rubber products. They are fed as units downstream of roller mills, either continually with strips or intermittently with rolls of uncured rubber. They evenly shape the pre-heated plasticized rubber. In addition, they can be arranged as discharge extruders directly below internal mixers. In this form they receive screws with larger diameters and tamping dies as a means of facilitating infeeding.

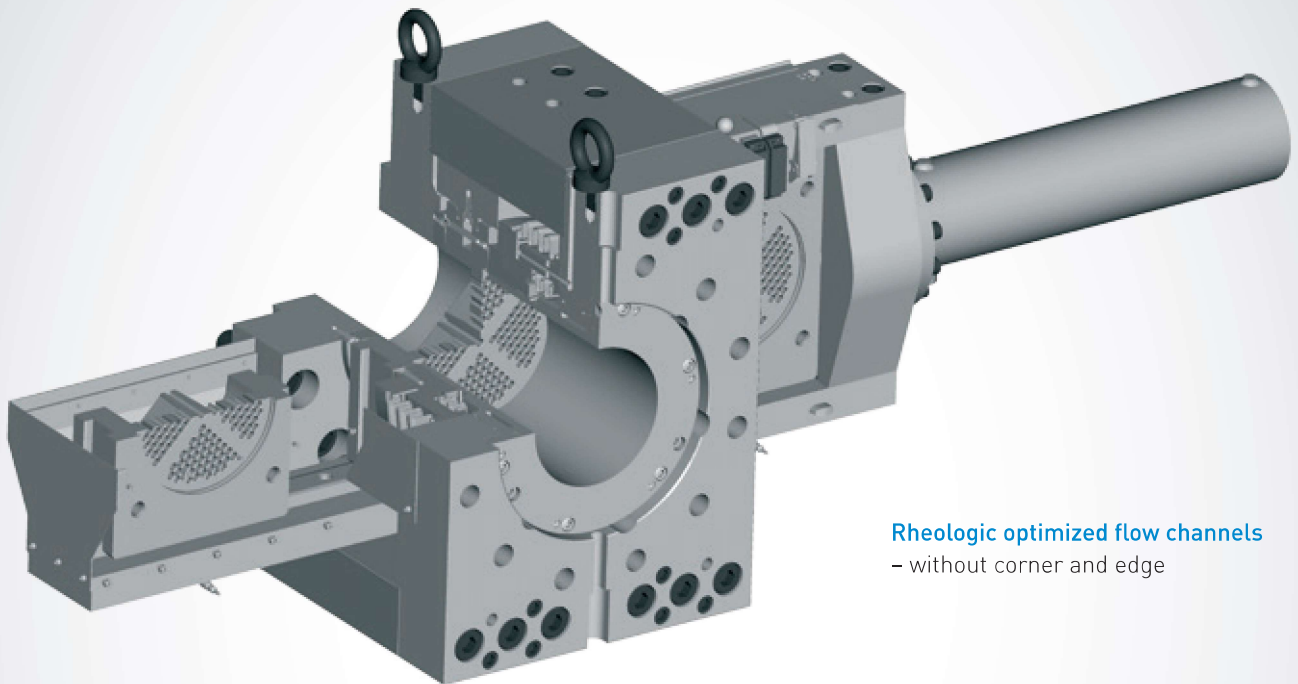
GE-W hot-feed extruders – best suited for co-extrusion systems

## Vertical extruder Innovative series for different applications

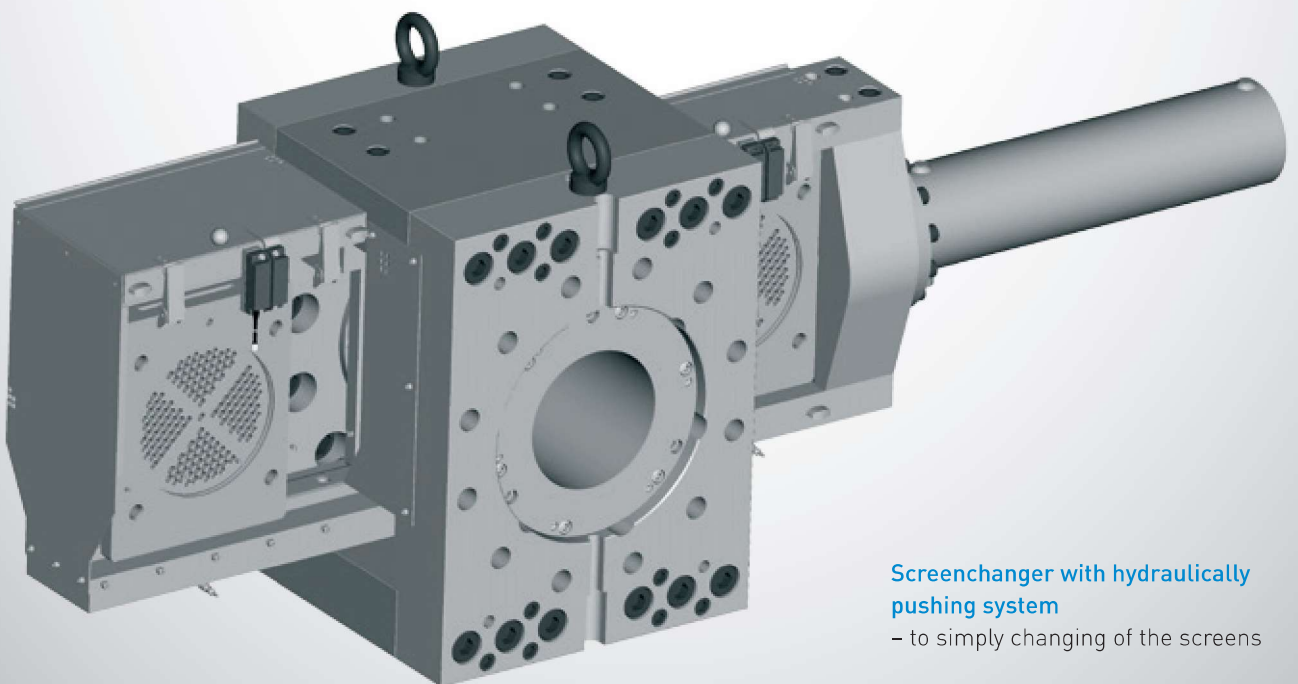
Our vertical extruders provide an optimal setup for injecting colored stripes or sealing lips onto cables and profiles in one step using a main machine – even if the injection is made of rubber with different qualities.

The extruders are installed on a movable framework and can be adjusted to the necessary injection height using a hoist. The rubber is fed cold using granulate or strips.

# High-performance filtration device for highest mixtur clarity



**Rheologic optimized flow channels**  
– without corner and edge



**Screenchanger with hydraulically  
pushing system**  
– to simply changing of the screens

## The innovative system for clean mixtures and high efficiency

Strainer systems are the ideal investment for the future for many manufactures of rubber articles; they reliably remove contamination from rubber mixtures. The result: Clean mixtures for manufacturing premium quality sealing profiles, hoses or sheets. KraussMaffei Berstorff strainer systems are outfitted with innovative components to reduce setup time and increase productivity. The various mesh sizes provide the mixture with highest possible purity.

### Modular design for maximum throughput

The strainer systems can be configured and equipped individually. The spectrum ranges from cold-fed gear extruders to cold-fed extruder gear pump combinations to hot-fed systems. The systems are equipped with various components depending on the requirement. These components include extruder screws with a special surface coating, reliable gear pumps or cassette changers for quickly swapping screens. You can achieve high mixture quality while keeping high throughput with these proven components equipped.

### Absolute reliability

The rubber extruders for the systems provide maximum availability, high reliability and consistent, very high output – for a critical leap forward in technology and productivity. Rubber extruders with screw diameters from 150 mm – 250 mm are available depending on your requirements. The drive trains, temperature control units, electrical systems and control system are perfectly matched to the extruder and are installed on a basic framework together with the gear pump.

### Perfectly matched downstream components

In the gear pump, two gears rotate between the screen and extruder and transport the mass of rubber according to Archimedes' principle. The pump presses the rubber mixture through the screens at a low mixture temperature. It also minimizes variations in throughput and improves product tolerance. The gear pumps are designed for high load carrying ability and thus are equipped with high-quality bearings and solid pump bodies. The result is long service life despite large amounts of stress. We have developed screen changing equipment for effectively cleaning rubber mixtures and changing the cleaning elements without interrupting production. Outfitted with electrohydraulic drives, you can attain very short change times. Hydraulic ring barrels ensure absolutely leak-free sealing. Cassette changers that operate automatically substantially shorten set-up times for replacing cassettes. The changer consists of a hydraulically-operated pushing system with two cleaning or preparation stations located on the side of the head.

Type		GE 150 W(K) + ZRP	GE 200 W(K) + ZRP	GE 250 W(K) + ZRP
Screw diameter	mm	150	200	250
Screw length	L/D	6	6	6
Extruder rotational speed	n rpm	60 (45)	50 (32)	40 (24)
Extruder power	kW	65 (190)	100 (335)	200 (440)
ZRP rotational speed	n rpm	35	32	30
ZRP power	kW	54	90	135
Maximum output	G kg/h	1500	2500	3800

## Extrusion heads Fast mold change and short cleaning times

The extrusion heads from KraussMaffei Berstorff ensure excellent product quality and providing excellent productivity at the same time.

The heads are installed on the extruder with connections that are pressure-tight up to 600 bar. The connections are opened and closed automatically or manually in a few easy steps. The optimized flow channels distribute the entire mass of rubber to the extrusion heads for a wide variety of products.

### The program includes:

- Straight, angled and cross injection heads as single or multi-point heads for manufacturing profiles and hoses as well as for jacketing cables, hoses and sheaths
- Protector heads as single or multi-point heads for manufacturing tread and sidewalls for car and truck tires
- Pelletizer heads for manufacturing granulate and pellets
- Wide injection heads for manufacturing webs and sheets based on the roller head principle
- Hose-plate injection heads with and without blades for manufacturing hoses and sheets
- Strainer heads for screening rubber mixtures
- Roll-in roller heads (single roller heads) with replaceable flow channel inserts and an adjustment drive for adjusting the roller gap for manufacturing sheets and profiles such as sidewall strips, wing strips, apex strips and the like.
- Multiplex extrusion heads for manufacturing tire components with up to 6 different rubber mixtures

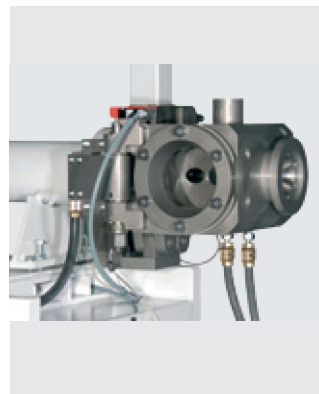
The heads can be outfitted with some multi-compartment molds or they can be combined with strainer heads. The product is connected to the procedure part with flange connections, a clamp lock or a Bayonet lock. The connection designs can be made so that the heads can be folded down for easy, fast cleaning and quickly changing molds.



Hydraulically adjustable duplex extrusion head



Wide injection head



Multi-point head for profile manufacturing



Single head

## Control technology

# Process-oriented operator guidance for easy machine operation

### Central system control

High demands on product quality call for high process reliability. As one of the most modern control, regulation and monitoring systems in the area of extrusion, the KraussMaffei Berstorff control system features reliable technology and intelligent functions for central system control. It ensures optimized production preparation and transparent production conditions at a constantly high level.

### Optimum visualization even for several extruders

The individual units in a machine can be visualized and operated on a row of screen pages. Thanks to central synchronization, the complete machine can also be safely and easily regulated across several extruders.

All important units in the machine can be directly accessed via the control system's machine keypad. The current operating status of the complete machine is permanently displayed and a freely configurable actual value column comprising seven parameters ensures optimum process control. Information messages and error messages are displayed in plain text in the selected national language. The control system also features options for logging and easily connecting to a host computer.

### User-friendly models

Three operating versions are available: integrated operator panel, swivel-mounted operator panel or mobile operator panel. With the swivel-mounted version, the machine can be operated entirely from the aspect of the mold.



Control panel with system regulating and control functions



Swivel-mounted control panel



Control panel for central system control



## Further information

### This might also be of interest to you



#### **The whole world of KraussMaffei Berstorff extrusion technology**

- Twin screw extruders
- Foam extrusion systems
- Film and sheet extrusion lines
- Tube and profile extrusion lines
- Plastic calenders

#### **Rubber technology**

- Extruders and extrusion systems
- Rubber calenders
- Profile production lines
- Rubber sheet lines
- Roller covering systems

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

[www.kraussmaffeiberstorff.com](http://www.kraussmaffeiberstorff.com).

On request, we would also be happy to send you the information and technical data free of charge.



## KraussMaffei Berstorff

### A strong brand in a unique global group

#### Value-proven extrusion technology solutions

Around the world, KraussMaffei Berstorff stands for reliable and value-proven solutions in extrusion technology. These range from using individual extruders for degassing in polymerization, compounding, pipe, profile, film and sheet extrusion, physical foaming and the manufacture of technical rubber articles and intermediates for tire production up to complete extrusion lines. All machines and systems from KraussMaffei Berstorff are custom-configured, for example for the chemical, automotive, construction, packaging and pharmaceutical industries.

#### There for you around the world

KraussMaffei Berstorff is your partner - from the first planning meeting to the development of the best possible technical and business solution to commissioning, servicing and production of your system. We guarantee high-quality advice, solution expertise, reliable spare parts logistics and fast-reacting service during each phase. Our goal is increasing your success.

#### Individualized service

Benefit from KraussMaffei Berstorff's reliable service. Our customer service team and experienced fitters, technicians and engineers are there for you as quickly as possible and even help on location to optimize your systems and processes and to keep downtime to a minimum. Rely on our highly skilled repair and spare parts service.

## KraussMaffei Group

### In-depth expertise

#### Technology<sup>3</sup> as a unique selling point

The KraussMaffei Group is the only provider in the world to possess the essential machine technologies for plastics and rubber treatment 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)



The KraussMaffei Group has a worldwide presence, countries with subsidiaries are marked light blue.

# Powerful, reliable and cost-effective GE extruders and extrusion systems

KraussMaffei Berstorff delivers not only extremely high-performance rubber extruders along the entire rubber treatment value-adding chain, but also complete systems for manufacturing rubber hoses, profiles, sheets and tire parts. The machines and systems meet all of the requirements for an economical and reliable manufacturing process.

Whatever your customer needs – we deliver the solution. Discover the customized products and services from KraussMaffei Berstorff that strengthen your company for the long term – in every market and in every regard.