

EDITORIAL



Dear Readers,

This year, KraussMaffei is celebrating its 180th anniversary. The entrepreneurial spirit of our founders has shaped both our mission and our standard every step of the way. This is why we are exhibiting our new products and services at our Competence Forum. These products and services include intelligent solutions in fiber composite technology as well as pipe manufacturing using engineering polymers. You will find more details in this issue – including details on our new service offerings and additional exhibits.

For a long time now, we have focused on advancing sustainability in plastics processing. We take this to mean the efficient and effective handling of raw materials and energy and manufacturing of products that improve the quality of life for people over the long term. Water infrastructure in urban growth regions is one noteworthy example of this. On this topic, you can read about efficient pipe manufacturing in small batch sizes using the QuickSwitch system and the technology of the KMD 75 K/P conical twin-screw extruder. The Compound-Rework System 1000 also operates with

outstanding sustainability. Large volumes of rubber waste can be recycled using the CRS 1000. The largest melt-impregnation plant was opened in early May in collaboration with our strategic partner, the Fraunhofer Pilot Plant Center for Polymer Synthesis and Processing PAZ in Schkopau, Germany. It offers immense potential for developments in lightweight construction.

The article on the new ZE-CN generation of twin-screw extruders, specifically geared towards Chinese compounds with high quality requirements, is sure to generate interest – not to mention the new manufacturing solution for five-layer PP-R fiberglass-reinforced pipes.

Have a good read.

With best regards,

A handwritten signature in blue ink, appearing to read 'M. Sieverding'. The signature is fluid and cursive.

Matthias Sieverding, President of Extrusion Technology at the KraussMaffei Group

PS: You can now also find your ahead customer magazine on the up-to-date online portal at ahead.kraussmaffeiberstorff.com. We look forward to your visit.



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TITLE STORY **CELEBRATING 180 YEARS OF INNOVATIVE TECHNOLOGY**





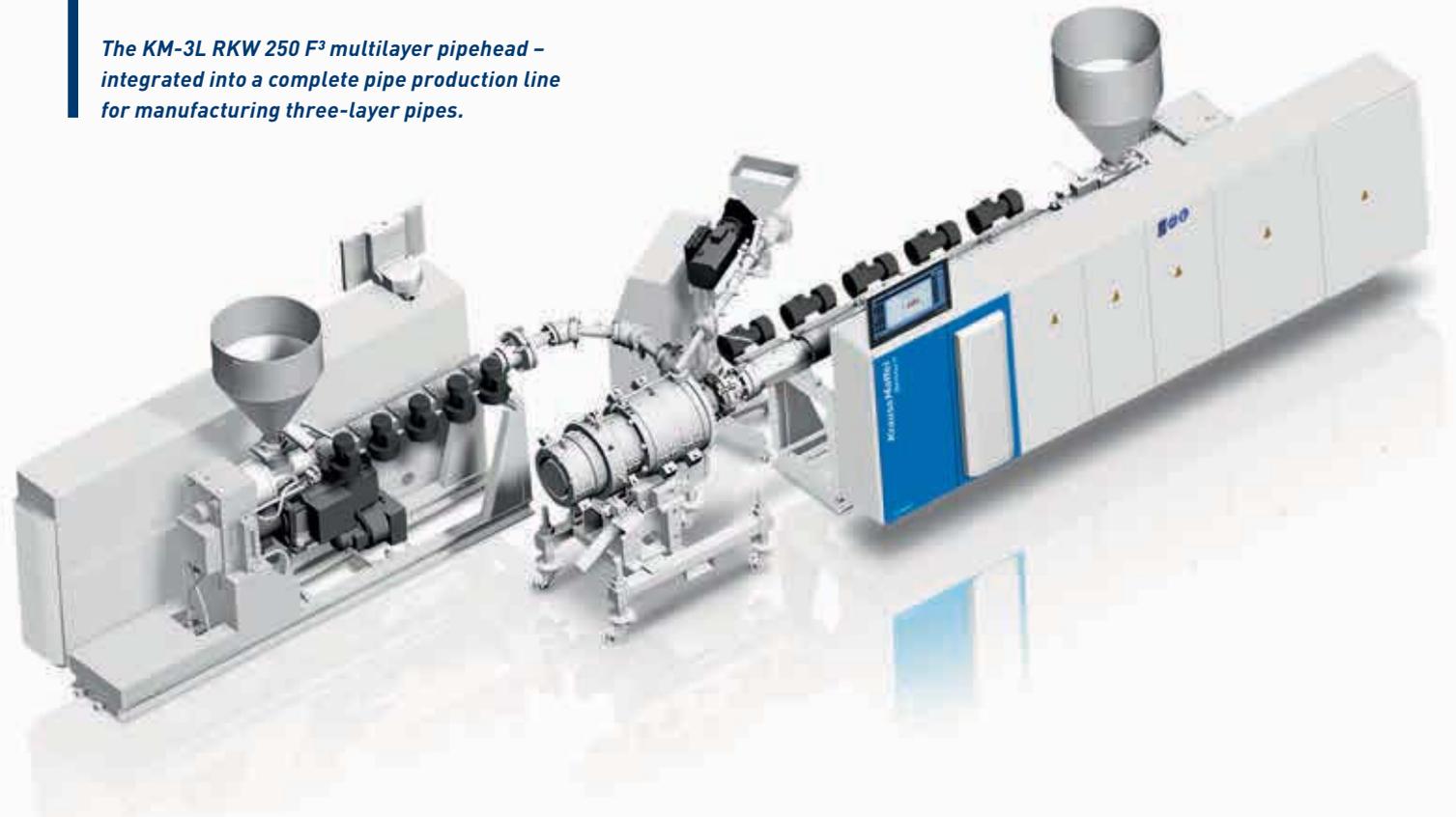
High-performance extrusion technology and sustainable manufacturing

“From industrial beginnings to engineering plastics machines in the digital age” – this is the motto for the KraussMaffei Group’s Competence Forum in Munich. The company will present its newest technologies and innovations to commemorate the 180th anniversary of the company.

TEXT: ANNEMARIE PABST PHOTOS: KRAUSSMAFFEI BERSTORFF

TITLE STORY CELEBRATING 180 YEARS OF INNOVATIVE TECHNOLOGY
INNOVATIVE

The KM-3L RKW 250 F³ multilayer pipehead – integrated into a complete pipe production line for manufacturing three-layer pipes.



A spotlight will be shined on a variety of running machines, all of which satisfy the high standards for customer-specific systems. The focus is on efficiency and economic viability as well as intelligent Industry 4.0 solutions. In addition, the visitors will be able to learn about digital services and new offers, such as leasing models.

Fiber composite for high-performance pipes for the oil and gas industry

As a global partner, KraussMaffei Berstorff is recognized for high quality and technologically advanced solutions in pipe extrusion. Newly developed, intelligent solutions in fiber composite technology and in the manufacturing of pipes using engineering polymers are at the center of the presentation at the Competence Forum. Visitors will thus get to experience one of the many highlights: a plastic pipe being wrapped on the TCP (thermoplastic composite pipe) system with fiberglass-reinforced UD tapes on an identical polymer matrix in live operation.

A one-of-a-kind service:
Fiber composite pipes for pre-qualification

“By offering this pilot system, we hope to provide our customers with a long-term service that is the only one of its kind worldwide: manufacturing fiber-composite pipes according to custom application requirements for pre-classification,” explains Matt Sieverding, President of Extrusion Technology at the KraussMaffei Group.

The fiberglass-reinforced pipes are not subject to corrosion wear and are extremely suitable for high-pressure applications in the oil and gas industry in particular; depending on the model, they can also be designed for chemical and/or temperature-resistant applications.



For maximum loads: HDPE pipe wrapped with fiberglass-reinforced UD tapes and coated in a protective layer.

Innovative pipe head concept for engineering polymer materials

The newly developed KM-3L RKW 250 F³ multilayer pipe head – integrated into a complete pipeline – offers a spectacular demonstration of the manufacturing process for three-layer pipes with a functional polyamide inner layer. Thanks to properties such as impact strength, abrasion resistance and the chemical resistance of the inner layer, these pipes are also especially well-suited for applications in the oil and gas industry.

Multifunctional profiles in the coextrusion process

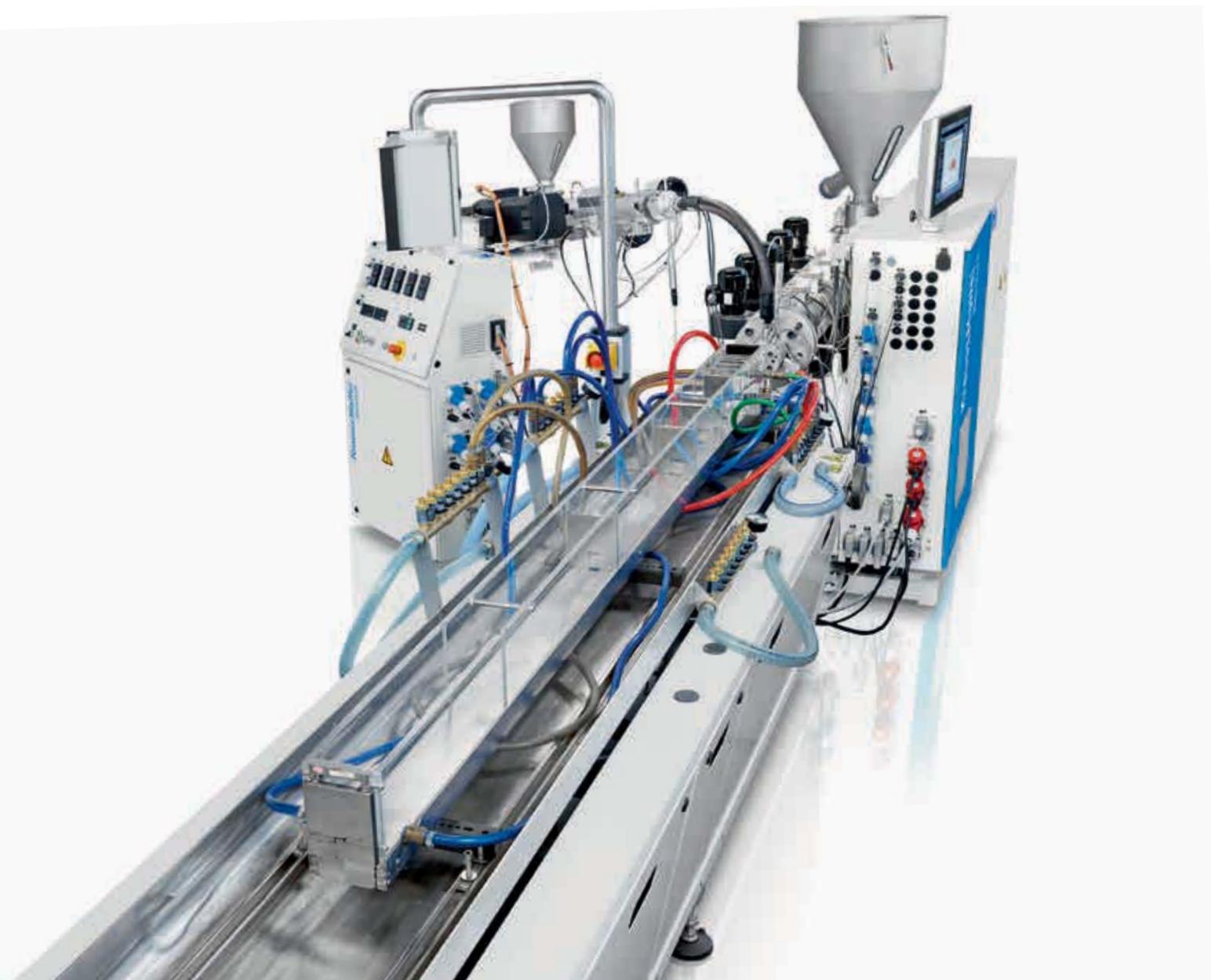
Polycarbonate light covers are manufactured in a single pass on a profile coextrusion system made up of two single-screw extruders. This process integrates the opaque bases with a translucent area for distributing light into a single component. The profile only needs to be provided with an LED element and end pieces. These lighting elements are especially cost-effective and well-suited for use in public buildings. As a result, KraussMaffei Berstorff positions itself as a highly skilled partner for economically attractive solutions of coextruded technical profiles which combine various functional layers.

Direct extrusion with the corotating KMG 52-44 BP twin-screw extruders

The KMG 52-44 BP laboratory extruder demonstrates the manufacturing of multilayer pipes made of polyethylene and polypropylene in the direct extrusion process. Thanks to the co-rotating twin-screw extrusion concept, the components can be compounded directly in the extruder and shaped into a pipe. This technology is extremely energy-efficient and cost-effective and is especially suitable for manufacturing pipe systems for building technology, such as drainpipes.

EFFICIENT

**Profile coextrusion system
for light covers made of
polycarbonate.**



Fraunhofer PAZ and KraussMaffei Berstorff start UD tape production line

The new line for the production of UD tapes at the Fraunhofer Pilot Plant Center for Polymer Synthesis and Processing PAZ in Schkopau stands out on a global scale thanks to the unique processing performance and speed. The line developed in cooperation with machine manufacturer KraussMaffei Berstorff opens up an impressive range of new applications in lightweight construction.

TEXT: MICHAEL KRAFT, FRAUNHOFER-INSTITUT PHOTOS: KRAUSSMAFFEI BERSTORFF

UD tapes are composed of unidirectionally aligned reinforcing fibers (e. g. made of glass or carbon) embedded in a thermoplastic matrix. During further processing, the tapes are placed upon each other and fixed so that the fibers are (unidirectionally) oriented in the load direction to ensure perfect adaptation to the specific load conditions to which the components are subjected. Additional layers can be integrated at those points of the component that are exposed to particularly high stress. This optimum combination allows the specific requirements in terms of strength and rigidity to be achieved at a substantially reduced component weight. In some areas, the properties of UD materials even outperform those of metal.

“UD MATERIALS SIGNIFICANTLY SURPASS METALS IN SOME AREAS.”

The laminates composed of several UD tape layers offer enormous benefits for processing: thanks to their high load-bearing capacity, they can be used as engineering material for a wide range of new component geometries. They are suitable for thermoforming and additional functionalities or components can be integrated by recoating, which results in hybrid material solutions. Compared to other production methods for fiber-reinforced plastic components (FRP), UD tape materials stand out for shorter production times, faster pre-preg processes and higher recycling potential than thermoset solutions.



HIGH FLEXIBILITY

Processing temperatures up to 350°C offer possibilities for a wide range of recipes.



The largest melt-impregnation line worldwide

"With the launch of the new line, Fraunhofer PAZ will have the largest melt-impregnation line worldwide, offering unparalleled potential for lightweight developments in the years to come. Together with KraussMaffei Berstorff as our strategic partner, we are setting new standards in the production of load-bearing lightweight components," says Professor. Ralf B. Wehrspohn, Director of the Fraunhofer Institute for Microstructure of Materials and Systems (IMWS).

UD tapes are produced by melt-wetting endless fibers that are guided under tension over a spreading system in order to obtain a thin fiber bed of ideal homogeneity. The fibers in the fiber bed are wetted with the matrix polymer over a maximum width of 500 millimeters. In the course of further processing, the tape is cooled and the edges are trimmed before the material is wound up on rolls. The laminates built up in several layers to organic sheets can subsequently be used for hybrid processes.

"The UD tape line is rated for a production speed of up to 20 meters per minute at processing temperatures of up to 350°C and offers unique options as well as a wide width spectrum. Narrower tapes, for instance, can also be produced on this line by using an inline cutting system. With this innovative

SPOOL WINDER

**Winding speed of up to
20 meters per minute**

processing technology, we can tap into a completely new market segment and further enhance our competence," says Matthias Sieverding, President of the KraussMaffei Group Extrusion segment.

Professor. Peter Michel, Head of Polymer Applications at Fraunhofer IMWS, also emphasizes the outstanding flexibility and speed of the new line: "Owing to our close cooperation with KraussMaffei Berstorff, we can offer our customers a wide range of variants in the production of unidirectionally reinforced thermoplastics. In addition to highly efficient fiber impregnation, the unique tool geometry also provides adaptable tape thicknesses, pressure gradients and impregnating lengths in the wetting tool."



The largest melt-impregnation system in the world is at Fraunhofer PAZ in Schkopau, Germany.

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Trends and prospects at KraussMaffei Berstorff

“In 2018, we will switch to a genuine growth trend.” In an ahead interview, Matthias Sieverding talks about market trends in the plastics and rubber industry and about new developments at KraussMaffei Berstorff.

TEXT: ANNEMARIE PABST/GERHARD KONRAD PHOTO: KRAUSSMAFFEI BERSTORFF



“OUR SYSTEMS, SUCH AS QUICKSWITCH, MAKE IT POSSIBLE TO MANUFACTURE EVEN SMALL BATCH SIZES QUICKLY AND EFFICIENTLY.”

Since August 2017, Matthias Sieverding has been in charge of the Extrusion Technology segment of the KraussMaffei Group.

The 48-year-old graduate engineer (Diplom-Ingenieur) and trained mold maker has been working at the KraussMaffei Group, with a brief interruption, since 1999.

In 2000, he entered our company as an application engineer in the Injection Molding segment and worked successfully at the KraussMaffei Group in various capacities. For example, he was the Head of Application Technology in Injection Molding as well as General Sales Manager of Technologies and Application Technology. He took charge of the Extrusion segment in the United States in 2010 and successfully expanded business there.

ahead:

Mr. Sieverding, the plastics and rubber industry has a long and successful history. What should our customers pay attention to so that they stay ahead of the competition in the long term?

Sieverding:

Our customers should have exact knowledge of the industry trends and be prepared to make investments so that they can also follow these trends.

ahead:

And what can KraussMaffei Berstorff contribute to this?

Sieverding:

A very important trend is the digitalization of processes. Our new control systems enable customers to network their

“OUR INNOVATIVE EDELWEISS SYSTEM ENABLES PROCESSING OF PLASTIC WASTE INTO PREMIUM-QUALITY COMPOUNDS.”

production. That makes them capable of using their production system optimally at all times. A second important trend for our customers is the demand for shorter delivery periods for plastic products. Our systems, such as QuickSwitch, make it possible to manufacture even small batch sizes quickly and efficiently, and thus be able to supply the market at all times.

ahead:

What do you see as the key development points in the coming years for KraussMaffei Berstorff?

Sieverding:

We are clearly relying on the process technology expertise in the Extrusion division. Here, in the last 18 months we have spent over 15 million euros worldwide for new systems and new technologies. In addition, we are heavily investing in training the next generation of plastics engineers. One example: in the Extrusion division in the United States, we have introduced an apprentice training program based on the German model and a very strong work-study program.

The second important point for us is investing in our own manufacturing. Here, in recent years we have invested millions of euros, in the double-digit range in fact. This enables us to respond better to market requirements and the demands of our customers for faster spare parts supply. We are consistently pursuing this path.

A third important topic and focus for us is developing innovations from a process technology standpoint. I would like to give you two examples. First, direct extrusion in the area of pipes, and second, in-line compounding in the area of films, for example, for roof track systems.

ahead:

What market trends and room for improvement do you see in China for extrusion technology?

Sieverding:

There is a growing need for water management systems, not only in China but also worldwide. The main drivers here are urbanization and climate change. We have to make sure that the world's population is supplied with sensible fresh-water systems and sewage systems. For our piping division that means a large amount of market potential. Furthermore, we also set ourselves the task of recycling plastic.

Legal mandates, both in the European Union and from the Chinese government, have led to major changes in the market here. But we are in a good position. Our innovative Edelweiss system enables processing of plastic waste into premium-quality compounds.

ahead:

What does the planned stock market flotation in China mean for our customers?

Sieverding:

Our parent company ChemChina promotes and demands a growth trend. The stock market flotation in China will provide us with investment funds of millions of euros, in the triple-digit range in fact. That will make us capable of supporting our customers even better in the long term with the latest technologies. It also enables us to be a reliable partner for our customers in the long term.

ahead:

And in the short term? What is your goal for this year?

Sieverding:

We will flip the switch in 2018. We will switch from optimization of what exists to a genuine growth trend. Our customers will surely appreciate that.

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Innovative solutions for the construction industry

“Our people help shape your success” – the slogan which KraussMaffei Berstorff will use at the NPE in Orlando to present multiple groundbreaking machines that provide processors in the construction industry with a high level of productivity and big competitive advantages.

TEXT: ANNEMARIE PABST PHOTO: KRAUSSMAFFEI BERSTORFF

In light of the ever-increasing amount of digitalization and customization, the unique QuickSwitch system, which has proven itself over many years, plays a pioneering role.

At the NPE, the calibration basket – the heart of this proven technology – will be presented. It is now regarded as the benchmark for efficiency. The exhibit impressively demonstrates the effective diameter range from 11.023 to 19.685 inches (280–500 mm). The system is of interest particularly for large pipe dimensions, because when a change is made to another dimension, the low quantity of waste has an extremely positive impact on the material costs. All process parameters can be set exactly, stored in the higher-level, intelligent all-in-one control system and called up again at any time.

Booming construction industry requires high-performance profile extruders

Particularly in North America, we are seeing a very high demand for conical profile machines that can be used both as main extruders and coextruders. Since introducing the conical extruder series to the American market in 2013, we have sold more than 40 models.

The KMD 73 K/P on exhibit stands out especially because of its very high output,

QuickSwitch calibration basket effective diameter range from 11.023 to 19.685 inches (280–500 mm).



robust machine quality and high pressure stability. These are properties that processors in window profile production – particularly for mass-produced goods – regard as the most important deciding factors. The sophisticated process concept makes the series extremely process-reliable and simultaneously very flexible for using various formulations. The optionally available bimetallic lining of the barrel paired with a tungsten carbide-welded screw – a requirement of the North American market – also enables use in pipe extrusion.

“In addition to the enormous cost and time savings, product customization, demand for the smallest possible batch sizes and short delivery times are what make the system so interesting to the ‘smart factory’ in the sense of Industry 4.0 – a topic that American processors are dealing with more and more.”

Matthias Sieverding, President of Extrusion Technology at the KraussMaffei Group

Space-saving and customer-specific designed coextrusion models can also be installed in the smallest of spaces for efficient production.

With its KM-VT 250/1/6 vacuum tank, KraussMaffei Berstorff underscores its expertise as a system provider of complete pipe extrusion systems that guarantee finished products of premium quality. The integrated vacuum control and frequency-controlled pumps, which are fully integrated into the C6 line control system, provide for optimum activation, energy savings and uniform product quality.

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For enhanced compounding performance

KraussMaffei Berstorff exhibits the new ZE-CN twin-screw extruder series. This new extruder generation stands for substantially enhanced performance and uncompromising flexibility. Through state-of-the-art technology, this series has been further upgraded and adapted to higher productivity requirements. It is aimed specifically at Chinese compounders with exacting quality standards.

TEXT: ANDREAS WESELER PHOTO: KRAUSSMAFFEI BERSTORFF

"Offering unparalleled productivity and maximum availability, KraussMaffei Berstorff twin-screw extruders have earned an excellent reputation in China," says Bengt Schmidt, Vice President at KraussMaffei Berstorff in the People's Republic of China. "We are highly motivated to continue this promising success story and offer our customers a decisive performance increase in compounding with the new series."

Substantial increase in performance and enhanced flexibility

The development of the new ZE-CN twin-screw extruder generation is based on the know-how KraussMaffei Berstorff has gathered with several thousands of twin-screw extruders installed around the globe. As compared to the previous ZE Performance series, the ZE-CN features 15 percent higher output rates and up to 20 percent more flexibility in process applications, boosting the performance of Chinese customers to new heights. The state-of-the-art control software can be seamlessly integrated into the digital factory. All components are produced either directly by KraussMaffei Berstorff or by renowned Chinese and international suppliers in compliance with KraussMaffei Berstorff's specifications.

The series is characterized by a constant level of excellent product quality, easy operation and uncompromising reliability. Its high productivity makes it a safe investment with a short payback period. The new series is completely assembled at our Chinese site in Haiyan, which also functions as a service hub for our Chinese and Asian customers.

One-stop solutions

In addition to the new twin-screw extruder, KraussMaffei Berstorff offers compounding companies an extensive portfolio of technical and engineering services and consulting. KraussMaffei Berstorff is strongly committed to strengthening the competitiveness and performance of its customers in the compounding industry.



The new twin-screw extruder generation ZE-CN features 15 percent higher output rates.

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Premium quality and automation in pipe extrusion

At Chinaplas we are introducing biaxially oriented PVC pipe technology together with Baosu Pipe Industry. And we will show the benefits of the QuickSwitch technology for automatic in-line dimension changes for the Chinese and Asian markets.

TEXT: ANNEMARIE PABST PHOTOS: KRAUSSMAFFEI BERSTORFF, BAOSU PIPE INDUSTRY



Biaxially oriented PVC pipes are particularly robust and easy to handle.

Partnership with Baosu for ground-breaking PVC-O pipe technology

After signing a cooperation agreement at the end of 2017, KraussMaffei Berstorff and Baosu Pipe Industry (Hebei province, China) are actively pushing the international sale of their PVC-O technology.

KraussMaffei Berstorff has maintained a strong, long-term customer relationship with Baosu since the eighties. Among other developments, a core component that KraussMaffei Berstorff will contribute to this cooperation includes the twin-screw extruder for U-PVC production which is based on the latest technology.

“Baosu is a specialist in PVC pipe extrusion that has concentrated on developing special stretching technology over the course of many years.”

Andreas Kessler, General Sales Manager at the Munich location

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Benefits compared to non-oriented PVC pipes:

- Nearly twice the impact resistance
- Higher internal pressure resistance
- Weight reduction of up to 40 percent
- Easier pipe transportation
- Easier pipe laying

PVC pipes will predominantly be used for waste water and the drinking water supply. Here in particular, they exhibit an excellent combination of sustainability and outstanding technical properties. “In order to respond more quickly and with more precision to customer demands regarding process engineering and material composition, Baosu Pipe Industry is planning to install a system – equipped with our twin-screw extruder – that will be used for demonstration purposes,” explains Schmidt.

“Those who invest in QuickSwitch are investing in intelligent, efficient production and are well on their way to the ‘smart factory’ of tomorrow as a result”

Bengt Schmidt, Vice President Plastic Extrusion in China

QuickSwitch: high degree of automation and small batch sizes

There is also an enormous amount of interest in digitalized solutions in the plastics processing industry in China. Using QuickSwitch, the producer gets small order batches with short set-up times and minimal material waste.

KraussMaffei Berstorff shows Chinaplas attendees the advantages of this technology using a tapered piece. It illustrates the transition from the manufactured diameter into the new dimension (160–250 mm). This is KraussMaffei Berstorff’s answer to the trend in mass-produced products towards individualized, high-quality single-unit production. Tried and tested for years in day-to-day production, our system for fully automated dimension changes saves time and money and is a prime example of cost-effective production.



Service under new management

Monika Mayr, in charge of international extrusion service activities at the Munich location since January 2018: “Customer satisfaction and growth are at the very top of my agenda. For me, this means providing fast answer and response times and developing new service products.”

TEXT: ANNEMARIE PABST/GERHARD KONRAD PHOTO: KRAUSSMAFFEI BERSTORFF

NEW HEAD OF SERVICE

Monika Mayr has been in charge of international extrusion service activities at the Munich location since 2018. Over the last 15 years, Monika Mayr has worked in various roles within the KraussMaffei Group, allowing her to acquire extensive experience in procurement and project management. While working, she completed her studies in Business Administration (BBA). Most recently, she successfully oversaw various production locations for all three segments around the globe as a project manager.



ahead:

You have been managing customer service at KraussMaffei Berstorff since the beginning of the year. What were your previous responsibilities within the company? And what interests you about your new position?

Monika Mayr:

My previous positions gave me the chance to gain deep insights into the KraussMaffei Group's production locations and all segments. As a project manager in global lean management, I assisted with many different modification and optimization processes all along the value creation chain. As manager of the Service department in Munich, I was given more responsibility and leadership duties. And that is exactly what I am most excited about. Proximity to the customer and the opportunity to lead my team to success are additional benefits of my position.

ahead:

Thanks to your previous positions within the KraussMaffei Group, you know our company and the plastics industry well. What would you like to emphasize in your new position?

Monika Mayr:

Customer satisfaction and growth are at the very top of my agenda. For me, this means providing fast answer and response times and developing new service products for even more comprehensive support for our customers. To achieve this, I am counting on my team's expertise and close collaboration, even when working from different locations.

ahead:

As a young and dynamic manager, you are certain to approach your new position with many new ideas. What goals have you set for the first year and what visions would you like to implement?

Monika Mayr:

Before I develop and implement new ideas, I am placing the focus of my work on analyzing processes and already existing projects. If I see opportunities for improvement, my employees and I work together to address how to make these improvements happen.

It is important to me to be able to offer our customers globally efficient service that is tailored precisely to the customers' needs. To do this, I would like to expand our service network and, in the future, collaborate even more closely with colleagues from sales, subsidiaries and agencies.

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Customized system for five-layer PP-R pipe with fiberglass

KraussMaffei Berstorff worked in close collaboration with Poloplast GmbH to develop a special concept for manufacturing five-layer PP-R pipes with fiberglass reinforcement. Poloplast has also received product approval and authorization to produce the pipes used for drinking water and air-conditioning systems (for the diameter range of 32–250 mm).

TEXT: ANNEMARIE PABST PHOTOS: KRAUSSMAFFEI BERSTORFF

“Throughout a challenging development process that involved various tests and a wide range of providers, KraussMaffei Berstorff was, in the end, the provider that impressed us the most in the field of project management and expertise in processing technology and especially in the pipe head concept,” says David Zovkic, Head of Production at Poloplast.

Both the material composition and the layered structure of the PP-R pipes are innovations. As a result, the authorization requirements are appropriately stringent. “We are pleased to have been able to work with KraussMaffei Berstorff on this development project and to have laid the foundation for producing very high-quality plastic pipes for use in drinking water and air-conditioning systems,” Zovkic concludes.

One-of-a-kind spiral distributor concept

“We overhauled the spiral distributor system design in order to meet their requirements for individual layers with different thicknesses,” explains Andreas Kessler, General Sales Manager for KraussMaffei Berstorff at the Munich location.

The extruder/pipe head combination has been designed to save a lot of space. The KME 45-30 B/R main extruder, which features the KM-5L RKW 94-250 pipe



*Installation-friendly:
Fiberglass-reinforced PP-R pipes for
drinking water and air-conditioning systems.*

head for producing the PP-R intermediate layer, is closely surrounded by four coextruders from the same series, arranged in a half-circle, as well as the KME 20-25 B/R coextruder for applying strips. This set-up lets the machine operator control and monitor production from a central position. In addition, the pipe head features energy-efficient IPC (internal pipe cooling), to ensure the precise heat balance for thick-walled pipes.

The standout property of PP-R pipes with fiberglass reinforcement lies in their low degrees of elongation and bending. This gives them a stiffness that is many times higher, which in turn provides quite a few advantages when laying pipe. The pipes are installed very frequently so that they are exposed under suspended ceilings – especially in public buildings.

Renowned provider of innovative plastic pipes

The Poloplast company represents innovative products in plastic piping, compounds and polymer engineering. Poloplast, a subsidiary of the Wietersdorfer Group, runs production at two locations, one in Ebenhofen (Bavaria) and one in Leonding (Upper Austria).

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More orders in the premium segment

The Russian economy is recovering, and greater investment is now being made in the plastics market. In this environment, KraussMaffei Berstorff can assert its strong market position with its sophisticated technologies and customer-specific plants, and further strengthen it with many projects in pipe and profile extrusion as well as in pelletizing.

TEXT: ANNEMARIE PABST PHOTOS: KRAUSSMAFFEI BERSTORFF

"From a selection of other providers in Italy and Germany, we decided our strategic partner should be KraussMaffei Berstorff after visiting the company."

Alexei Chizhnikov, Managing Director of Polymer Compound

Tehstroj to modernize its pipe production with a three-layer concept

In connection with the modernization of its production location in Kazan, Tehstroj, one of the leading Russian manufacturers of water and gas pipes made of HDPE, has upgraded its existing extrusion line for the manufacture of single-layer HDPE pipes with our three-layer pipe head concept.

The extruder/pipe head combination consisting of two KME 38-30 B/R single-screw extruders and the KM-3L-RKW 74-400 pipe head – equipped with the IPC internal pipe cooling system – is a special design precisely tailored to customer requirements. Tehstroj is thus able to increase the output in the manufacture of two- and three-layer pipes made of HDPE or PE-RC (resistant to cracking) materials. "In view of the tight market conditions, it is extremely important to upgrade our plants to the latest standards, and thus to increase our competitiveness. KraussMaffei Berstorff has many years of experience in customer-specific solution concepts; the system offered has therefore proved to be the most efficient for us," says Lenar Gilmutdinov, Commercial Manager at Tehstroj.



A twin-screw extruder for PVC pelletizing is used in production at Polymer Compound, Moscow, Russia.

The three-layer pipes made of polymer materials and PE-RC satisfy current market requirements.



Polymer Compound, Moscow, to enter PVC pelletizing business

In mid-2017, Polymer Compound, one of the leading manufacturers of premium-quality compounds for window seals, hoses, cables and special applications, put into operation a pelletizing system with the KMD 114-26 G-W twin-screw extruder. In selecting a suitable system, they attached special importance to the best machine quality in order to manufacture premium-quality products with a high output and great flexibility. Polymer Compound now wants to use its many years of development experience in this field to produce hard and soft PVS pellets for seals, window profiles and white goods.

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KraussMaffei celebrates 180 years of the company's history

The company history of KraussMaffei has been scientifically examined by Johannes Bähr, Paul Erker, and Maximiliane Rieder. The result of their work has now been published as a book* – on time for the 180th anniversary of the company. On 480 pages, they describe in detail the development of our company through the time of its foundation to the present day.

TEXT: GERHARD KONRAD PHOTOS: KRAUSSMAFFEI, BAYERISCHES WIRTSCHAFTSARCHIV

The first chapter deals with the period from the foundation to the end of the First World War, followed by the "period of extremes" from 1918 to 1945. The transformation into the world market leader for machines for plastics and rubber processing is portrayed in the third section, which also covers the most recent development: the incorporation in the ChemChina Group.

Foundation and crises

In 1838, the entrepreneur and banker Joseph Anton von Maffei, who was of Italian origin, set up a locomotive factory in Munich, the Eisenwerk Hirschau. The first locomotive "Der Münchner", which could reach a top speed of 30 km/h, was delivered in 1841.

In 1866, Georg Krauss created a competing firm. With their locomotives, Krauss and Maffei played a considerable part in the expansion of railway transport in Europe. Boom phases, periods of war, and the crises of the 1920s left their mark equally on the development of the companies J.A. Maffei AG and Lokomotivfabrik

Krauss & Cie. In 1930, as the world economic crisis was reaching its climax, Maffei AG got into economic difficulties and was taken over by Krauss in 1931. The company was now called Lokomotivfabrik Krauss & Comp. – J. A. Maffei A.G. München, and from 1940 it officially became Krauss-Maffei AG. The main strength was still in the construction of locomotives. However, the portfolio expanded from 1925 onwards with the addition of motortrucks and later tractors. This product range also continued through the years of the Nazi dictatorship and the Second World War.

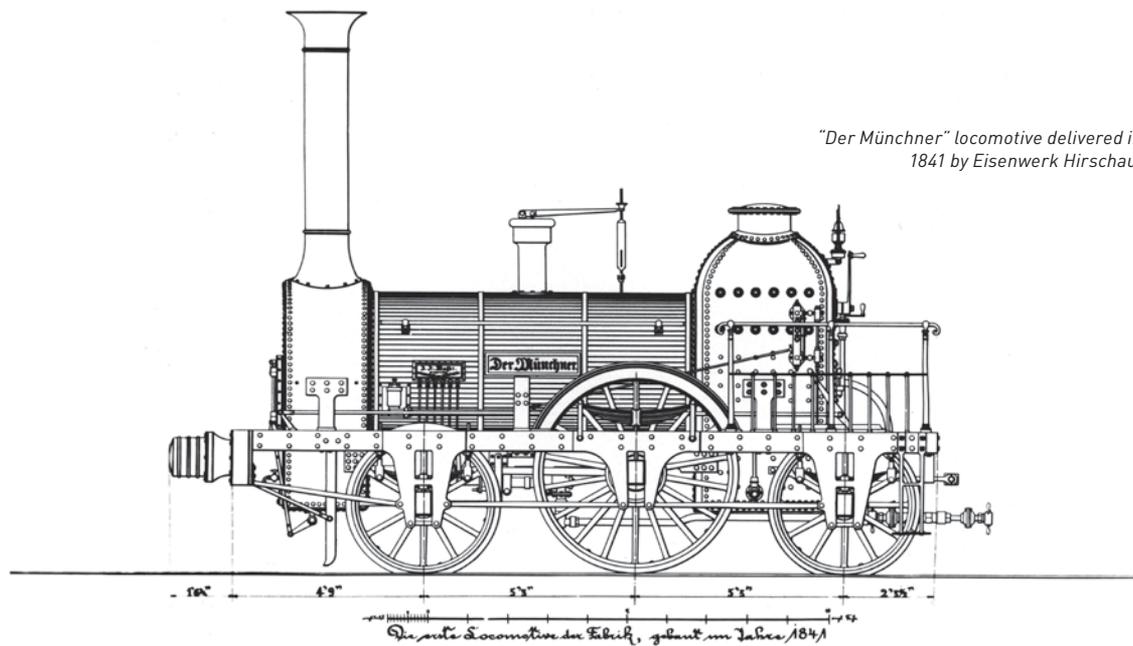
The great transformation

The transformation into one of the most important armaments manufacturers in Germany and later the market leader for plastics machines with a purely civilian portfolio took place only after the Second World War. This phase was anything but straightforward. These chapters thus also provide interesting material, and not only for those with historical interests.

Precisely also in the plastics processing segment, the pioneering spirit that has prevailed at KraussMaffei since its foundation is still present. The first injection molding machines were built in Munich-Allach in 1957. Almost 30 years later, the plastics machinery production was an independent public company and its technology led the world. In 1986, every fifth machine for the manufacture of CDs came from KraussMaffei. As early as 1987, a microprocessor control

180 Years of KraussMaffei – The History of a Global Brand





system was a standard feature of the machines. The Alpha 1 is legendary – a multifunctional laboratory machine with a clamping force of 5,000 tons that had been commissioned by General Electric. It weighed around 1,000 tons. KraussMaffei's connection with the automotive industry has been especially close for a long time. It's no coincidence that the 5,000th injection molding machine of the B series went to an automobile industry supplier in Asia in summer 1994.

Cutting-edge technology for plastics processing

With the introduction of the MC series in the two-platen clamping concept, from 1995 it was possible to construct injection molding machines around one third shorter. In the same year, the first twin-screw extruder for the production of PVC profiles was also put into use. With an output of 1,000 kg per hour, it produced two profiles at the same time.

Growth and diversification

For the entire company, plastics machines became increasingly important. In 1995, the turnover of the division exceeded one

billion DM for the first time, and in 1997 already half of the Group's turnover was generated by this segment. A number of company purchases had contributed to this development. Netstal Maschinen AG in Näfels/Switzerland has belonged to the Group since 1991. Specializing in PET preforms on high-precision multi-cavity molds, even today it still makes an important contribution to the company's success. As another pillar, in 1994 Berstorff Maschinenbau, which specializes in systems for rubber processing, was acquired.

At the end of the 1990s, there was a re-organization of the ownership structures, which finally resulted in the KraussMaffei Group comprising companies for the three segments of injection molding: reaction process machinery, extrusion technology, and rubber processing. Since April 2016, KraussMaffei has been part of the ChemChina Group, and is continuing its way into the future with this strong support.



Legend: the Alpha 1, a multifunctional laboratory machine with a clamping force of 5,000 tons.

NOW AVAILABLE

180 Years of KraussMaffei – The History of a World Brand. 480 pages, published by Siedler Verlag München.

Plastics Academy honors Dr. Karlheinz Bourdon

Dr. Karlheinz Bourdon, Senior Vice President Integration at KraussMaffei, becomes a member of the Plastics Hall of Fame

TEXT: PETRA REHMET PHOTOS: KRAUSSMAFFEI

According to the Plastics Academy, during his long-term activity in leading positions in the plastics industry, Dr. Bourdon has in past years made a decisive contribution to the advancement of injection molding machinery. Dr. Bourdon studied mechanical engineering and wrote his doctoral thesis in 1989 at the RWTH Aachen University. In 1990, he started working at KraussMaffei as Head of System Technology, where he set the first technological milestones in the field of automated mold changing and robot demolding systems. After moving to Ferromatik Milacron, where as President Global Plastics Machinery he was lastly responsible for the worldwide plastics business, he specifically advanced the development of new innovative all-electric injection molding machines.

One of the great thinkers and leaders in the field of injection molding machinery

In 2008, he returned to KraussMaffei as Managing Director and CEO Injection Molding Machinery, and he became Vice President Technologies in the Injection Molding Machinery segment in 2012. Under his leadership, numerous new developments, for example, the modular



hydraulic GX and all-electric PX injection molding machine series and the ColorForm surface finishing process, were successfully put on the market. Since the KraussMaffei Group was taken over by ChemChina in 2016, Dr. Bourdon has been responsible as Senior Vice President Integration for the integration of the existing mechanical engineering companies of ChemChina into the KraussMaffei Group.

Dr. Bourdon is a Member of the Board of the VDMA Association of Plastics and Rubber Machinery. On the Board of Trustees, he uses his knowledge and wealth of experience to support renowned universities and research institutes for plastics technology, such as the Institute for Plastics Processing (IKV) in Aachen and the Fraunhofer Institute for Mechanics of Materials (IWM). Since 2015, he has been Vice President of the European Plastics and Rubber Machinery Association (EUROMAP).

The Plastics Hall of Fame, which is located at the University of Massachusetts in Lowell, USA, has honored people who with devotion and perseverance have made a significant contribution to the development and growth of the plastics industry. The celebration will take place at a gala event at the NPE trade show on May 6 in Orlando.

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KraussMaffei opens new markets for pultrusion technology



"Pultrusion is a simple way to produce cost-effective profiles. There are hardly any turnkey offers and it is a growth technology. In addition, we are knowledgeable about fibers, measurement technology and associated process technology," as Sebastian Schmidhuber, Head of Development for Reaction Process Machinery at KraussMaffei, states, explaining the motivation of KraussMaffei to enter the pultrusion market a year ago. The result of the most recent development work is the iPul system that was launched in 2017. It opened up new applications in pultrusion with significantly higher production speeds than the usual conventional tub or pull-through processes. Therefore, KraussMaffei is now expanding its Tech-Center to include a second pultrusion system – a rebar system to manufacture pultruded rebar. "Together with the first iPul system, a flat profile system, we offer our customers a comprehensive and globally unmatched range of research and development opportunities in the field of pultrusion," Schmidhuber said.

KraussMaffei

Trade show calendar June – December 2018

June 11–14	Argenplas, Buenos Aires, Argentina	KraussMaffei, KraussMaffei Berstorff
June 27–28	Compounding World, Essen, Germany	KraussMaffei Berstorff
July 2–5	DKT/IRC, Nuremberg, Germany	KraussMaffei Berstorff
Aug. 1–3	PU China, Shanghai, China	KraussMaffei
Sept. 5–7	China Composites Expo, Shanghai, China	KraussMaffei
Sept. 20–22	Rubber Tech, Shanghai, China	KraussMaffei Berstorff
Sept. 24–26	Plastic Pipe Conference, Las Vegas, United States	KraussMaffei Berstorff
Sept. 24–28	Colombiaplast, Bogotá, Colombia	KraussMaffei, Netstal
Sept. 26–27	Kunststoffen, Veldhoven, The Netherlands	KraussMaffei
Oct. 1–5	MSV Brünn, Brünn, Czech Republic	KraussMaffei
Oct. 16–18	CAMX, Dallas, United States	KraussMaffei
Oct. 16–20	Fakuma, Friedrichshafen, Germany	KraussMaffei Group
Oct. 31–Nov. 1	Composites Engineering Show, Birmingham, UK	KraussMaffei
Nov. 5–7	Waterproof Membranes, Cologne, Germany	KraussMaffei Berstorff
Nov. 6–8	Composites Europe, Stuttgart, Germany	KraussMaffei
Nov. 6–8	Feipur, Sao Paulo, Brazil	KraussMaffei
Nov. 7–9	Expoplasticos, Guadalajara, Mexico	KraussMaffei Group
Nov. 26–29	All4Pack, Paris, France	KraussMaffei, Netstal
Dec. 5–8	Plast Eurasia, Istanbul, Turkey	KraussMaffei

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