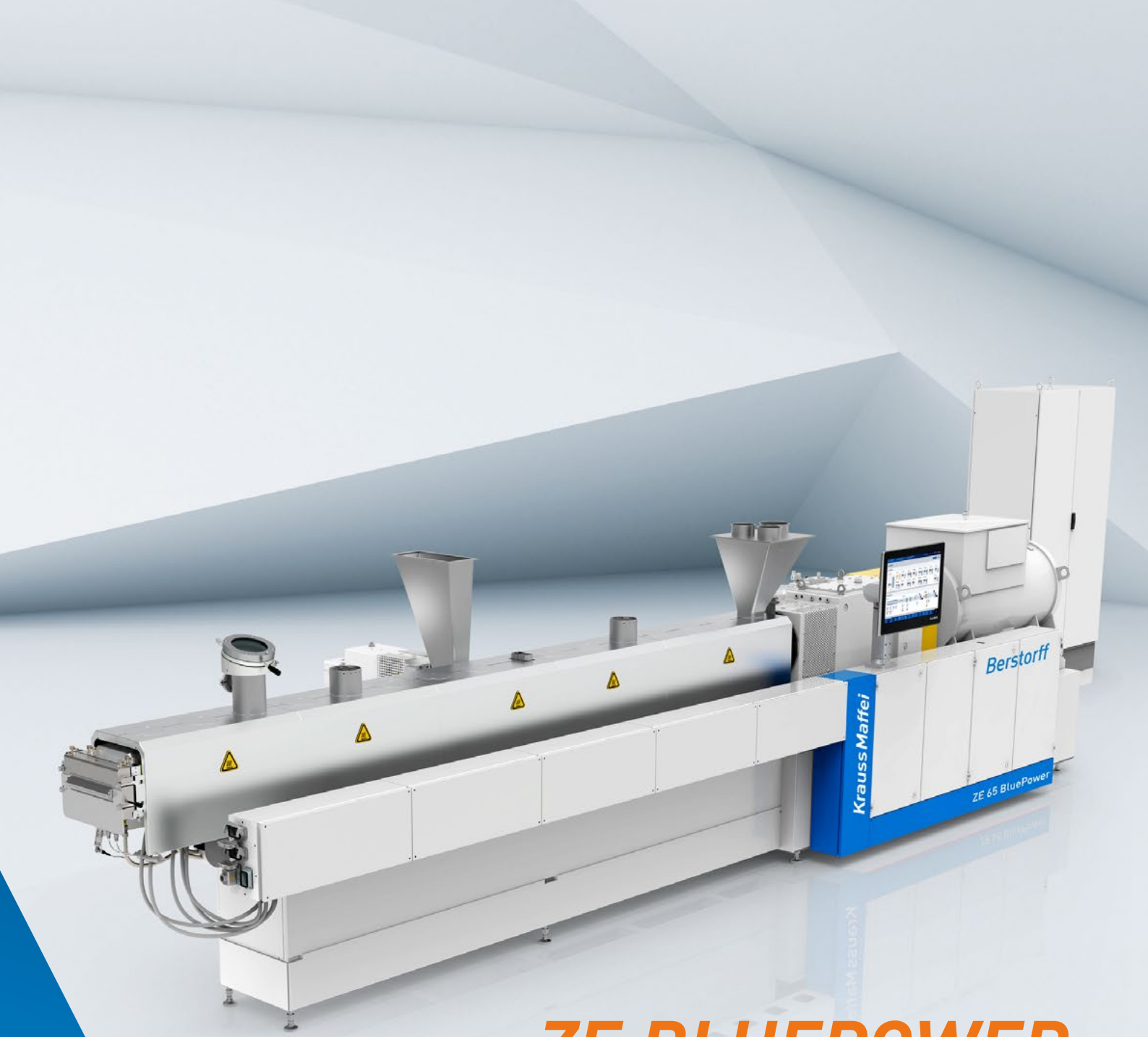


ZE BLUEPOWER

KraussMaffei

Pioneering Plastics

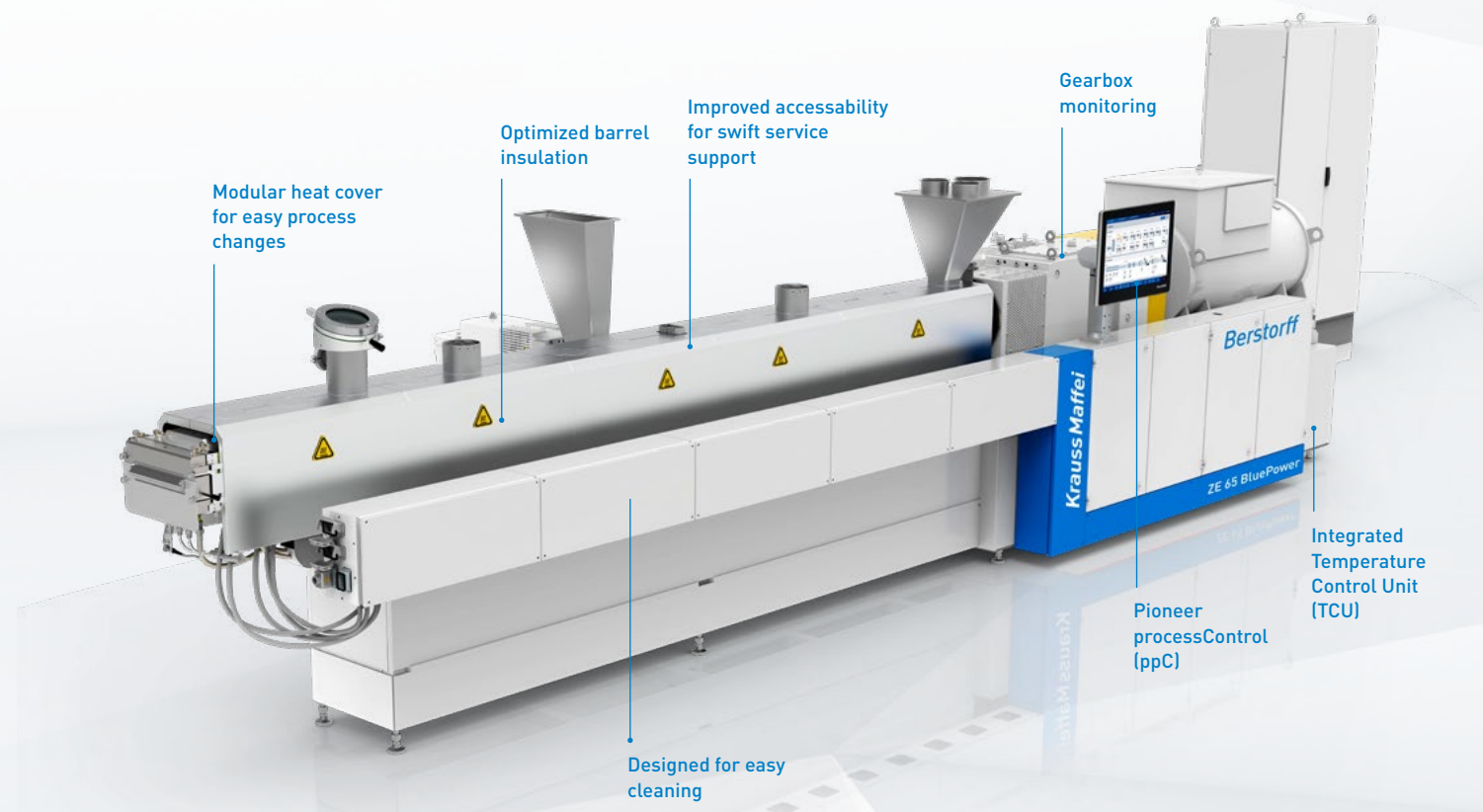
The co-rotating Twin-screw Extruder ZE BluePower (ZE BP) from KraussMaffei Extrusion is the ideal solution for the high-quality processing of polymers. Equipped with market-leading innovations, this co-rotating Twin-screw Extruder provides the best possible answer to your process engineering challenges.

Top performance in the areas of product quality, energy efficiency and process reliability is the standard for us. You will benefit from the modular machine design, individually configured and adjusted to your needs.

Thanks to extensive system integration expertise, you can count on KraussMaffei Extrusion as a strong partner to support you in engineering complete lines and clarifying necessary interfaces to de-bottleneck your high-performance extrusion setup. From a single extruder to a complete production plant – you tell us where to start and where to stop in designing your solution.

On top of industry-leading machinery, you can benefit from our pioneer processControl system, a state-of-the-art and modernized in-house control system, developed and optimized specifically for the extrusion market.

MACHINE DESIGN



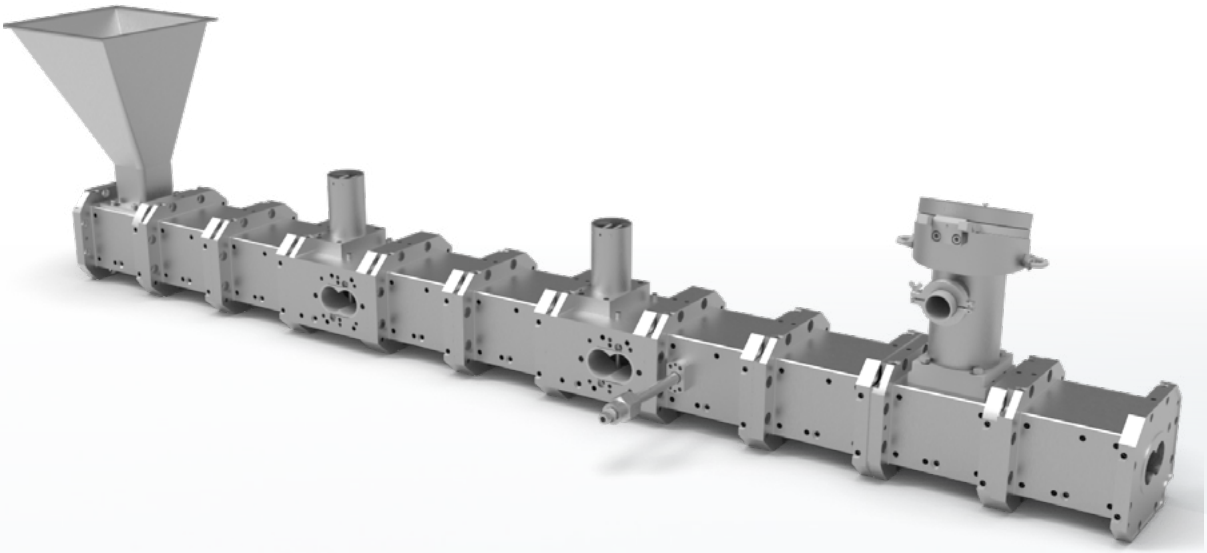
Our extrusion technology makes scaling effortless. Even as machine size increases, process-defining geometric relations remain constant - ensuring accurate scalability without compromises. With this systematic approach, scaling up does not mean starting over: you can count on consistent performance across all sizes.

	Screw diameter (mm)	**Diameter ratio**	**Torque density** (Nm/cm^{3})	**Max. screw speed** (min-1)	**Max. torque** (Nm)	**Max. drive power** (kW)	**Max. barrel temperature** (°C)
ZE28BP	28	1.65	13,6	1200	2x 165	32	420
ZE42BP	42	1.65	16.0	1200	2x 650	163	450
ZE52BP	52	1.65	16.0	1200	2x 1,235	310	450
ZE65BP	65	1.65	16.0	1200	2x 2,350	591	450
ZE80BP	80	1.65	16.0	1200	2x 4,400	1,106	450
ZE98BP	98	1.65	16.0	900	2x 7,900	1,489	450
ZE122BP	122	1.65	16.0	750	2x 15,530	2,439	450
ZE124BP	142	1.65	16.0	600	2x 24,350	3,060	450
ZE166BP	166	1.65	16.0	500	2x 38,500	4,032	450
ZE186BP	186	1.65	16.0	450	2x 54,000	5,089	450

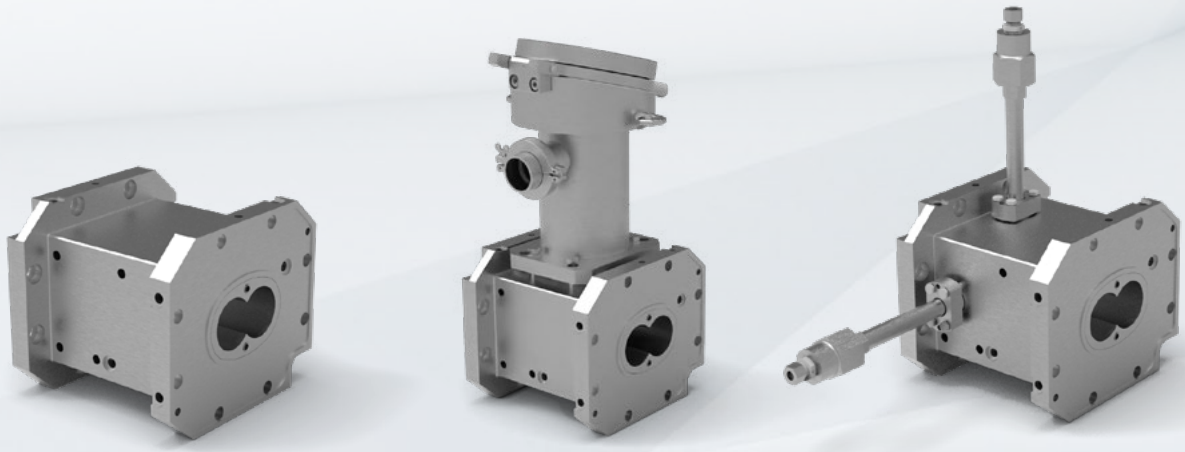
PIONEERING VERSATILITY WITH OUR MODULAR MACHINE SETUP

Barrel Design and Portfolio

With its modular barrel and screw range, the ZE Blue-Power series allows process engineers to find ideal solutions for any given application.



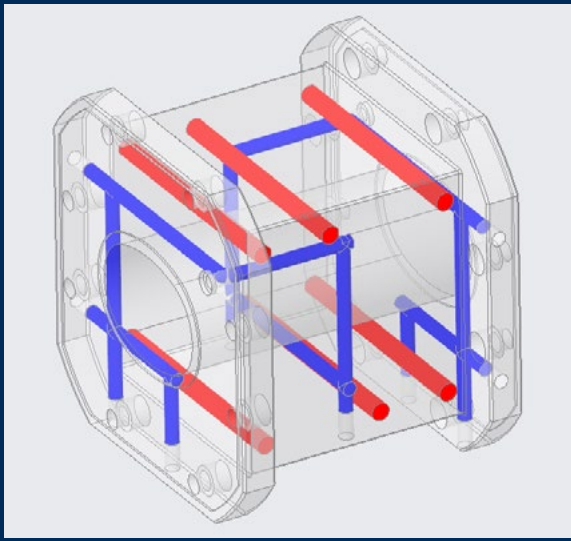
From commodity production to tailored engineering plastics: Our process experts are there for you in designing your future machine and advising you on the right set-up. Leveraging our proven modular portfolio, our customers are sure to find a optimal solution for their challenges.



Alongside our standard portfolio, customers benefit from a variety of additional options that can be leveraged for cases that benefit from KraussMaffei' s industry-leading versatility. You can be sure to get your money's worth and use your machine to its full potential.

A major consideration for any process is an accurately controlled barrel-wall temperature. From 20 to 450 °C, heated or cooled – our thermal control system ensures a uniform distribution of set temperatures.

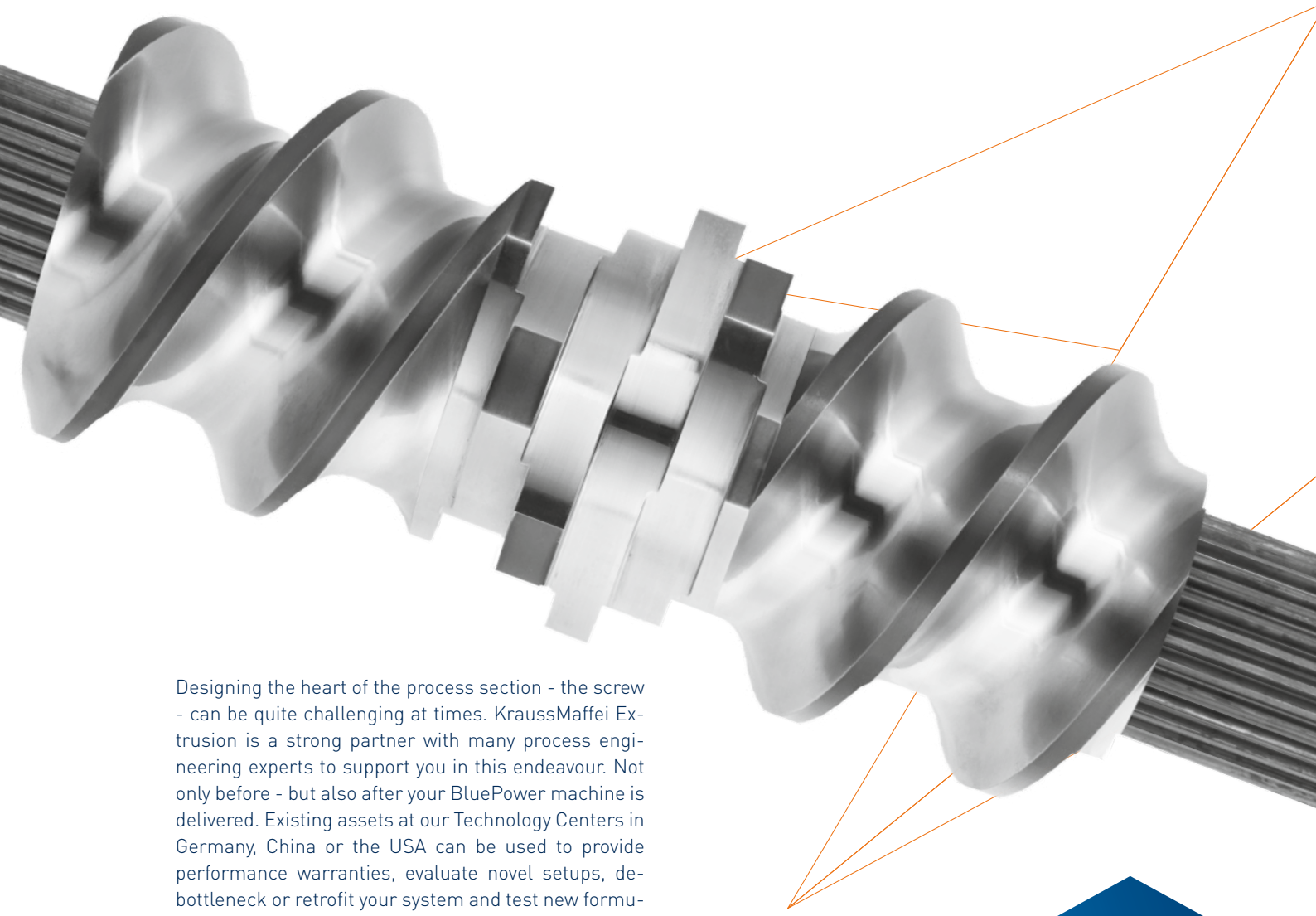
BluePower extruders are electrically heated and cooled through water evaporation by robust and precisely controllable, maintenance-free coaxial valves. Cooling bores and heaters are optimally placed through heat transfer simulations. Independently from the machine configuration, the control of the thermal system is self-optimizing.



SCREW DESIGN AND PORTFOLIO

The screw design options of the ZE BluePower series set new standards in versatility. On top of the modular concept, an increased OD/ID ratio delivers higher free volume and enhanced process flexibility – read more under Section 3.1: Influence of DO/DI 1.65 and torque density of 16 Nm/cm³ on process and polymer quality.

KraussMaffei Extrusion offers a broad range of screw-elements to get the job done. Conveying elements with different pitches, flights and volume; a large variety of kneading blocks for melting or dispersive mixing; counter-conveying elements and blisters for local pressure gradients; neutral or pressure-affecting distributive mixing blocks; multi-processing elements to include extensional flows – based on your product needs our experienced process engineers will find a suitable solution for you .



Designing the heart of the process section - the screw - can be quite challenging at times. KraussMaffei Extrusion is a strong partner with many process engineering experts to support you in this endeavour. Not only before - but also after your BluePower machine is delivered. Existing assets at our Technology Centers in Germany, China or the USA can be used to provide performance warranties, evaluate novel setups, debottleneck or retrofit your system and test new formulations on lab or pilot scale lines.

SCREW DESIGN AND PORTFOLIO

To maximize durability and adapt to the unique demands of every process, we offer a wide range of materials for both screws and barrels. This versatility ensures the extensive service life of our extruders while providing the perfect match for your specific application.

BluePower Barrel Materials

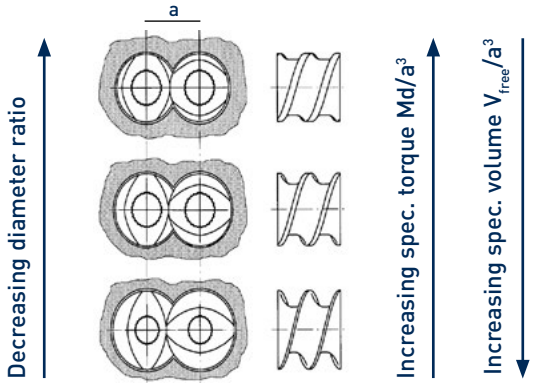
Task	Material code	Material description	Wear resistance	Corrosion resistance	Design
Standard	02DA	Hardened and tempered nitriding steel	■■	■	Solid barrel
Wear	04HA	Wear resistant, through-hardened special tool steel	■■■	■■	Solid liner
Corrosion	06HA	Corrosion resistant, through-hardened special tool steel	■■	■■■	Solid liner
High wear and high corrosion resistance	72HA / 76HA	Highly wear and corrosion resistant, through-hardened PM-special tool steel	■■■■	■■■	Solid liner
	42AD	Highly wear and highly corrosion-resistant PM coating on Ni-basis	■■■■■	■■■■■	Coated barrel

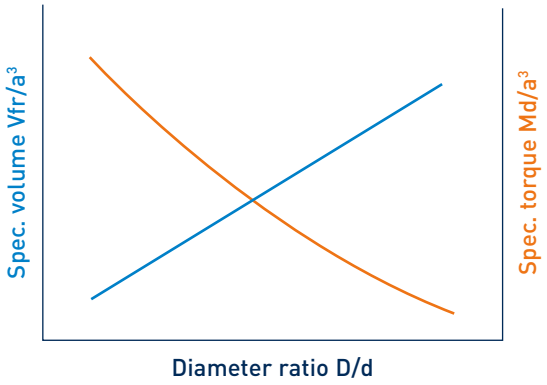
Special materials and designs are available on request. Our experienced process engineers are happy to support you in material selection. Screw materials are chosen for optimized metallurgical compatibility.

KEY FEATURES

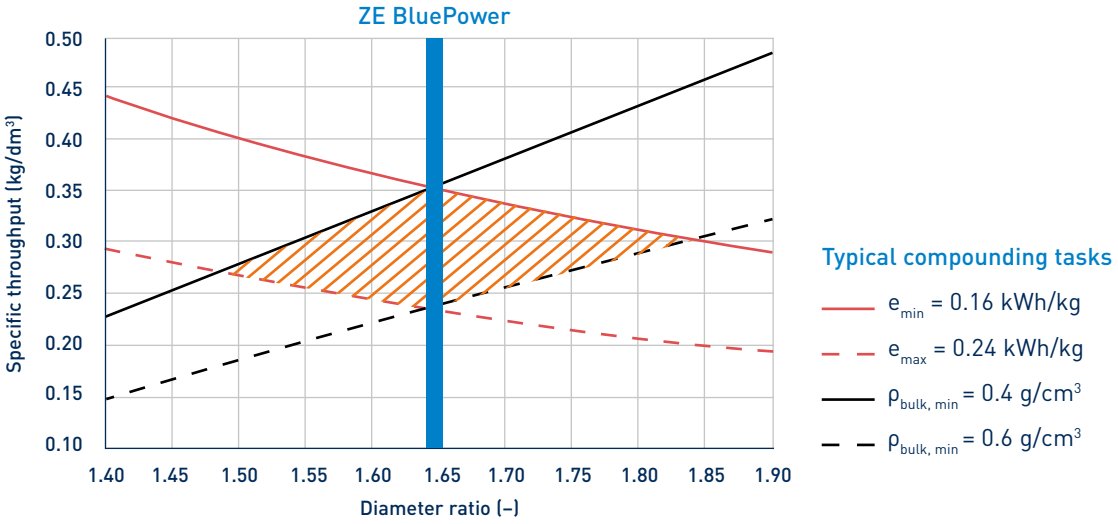
Influence of DO/DI 1.65 and torque density of 16 Nm/cm³ on process and polymer quality

Since 1838 KraussMaffei has been pushing the boundaries of possibilities for the success of our customers through innovations, pioneering technology and detailed improvements. For Twin-Screw Extruders this means in practice: Optimizing the machine for torque and volume to remove capacity limitations.

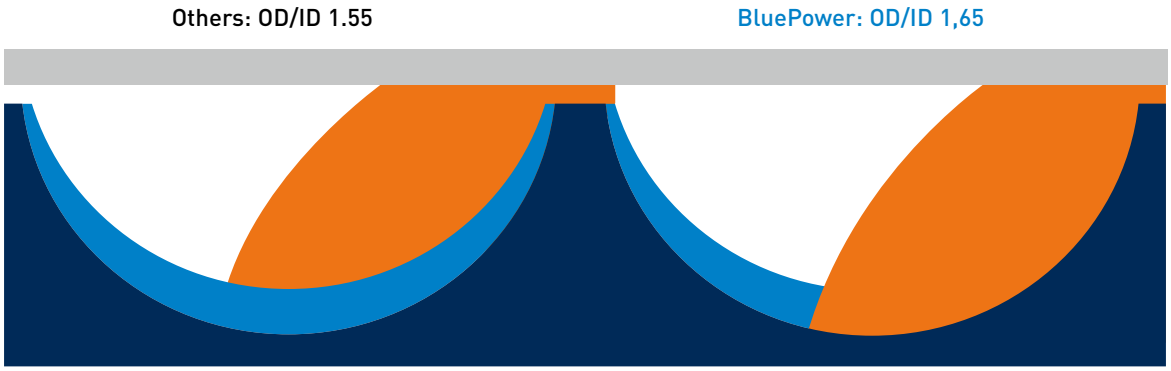




Through process-oriented research, the diameter ratio of 1.65 is chosen to give the broadest operational window for any given task.

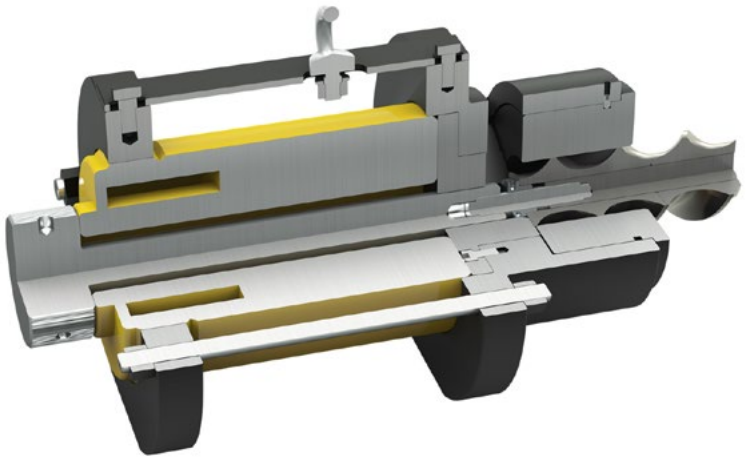


Utilizing an OD/ID ratio of 1.65 in combination with a high torque density of 16 Nm/cm³, the ZE BluePower not only delivers higher throughputs with a broader operational window, it also reduces overall shear forces applied to material. This becomes apparent when comparing the cross-section.



By reducing the overall shear stress applied to the material, the process benefits from reduced energy consumption and superior product quality through the possibilty of using more funtional elements. This means for our customers: Longer equipment life, consistently reliable performance, reduced operational expenses and consequentially higher margins!

To realize the unparalled high torque density of 16 Nm/cm3 on our high-volume BluePower extruders, the screw elements are hydraulically preloaded on the shaft. This stiffening allows the necessary transmittion of torque and removes gaps between screw elements. Easily and repeatably achievable with our pretensioning device.



The increase in free volume and torque density not only leads to higher throughputs of up to 30% compared to other machine series. Up to 20% of energy savings can be achieved! Our experienced process engineers will be happy to evaluate the potential in energy savings in your processes together with you.

STATE-OF-THE-ART CONTROL SYSTEM: PIONEER PROCESSCONTROL (PPC)

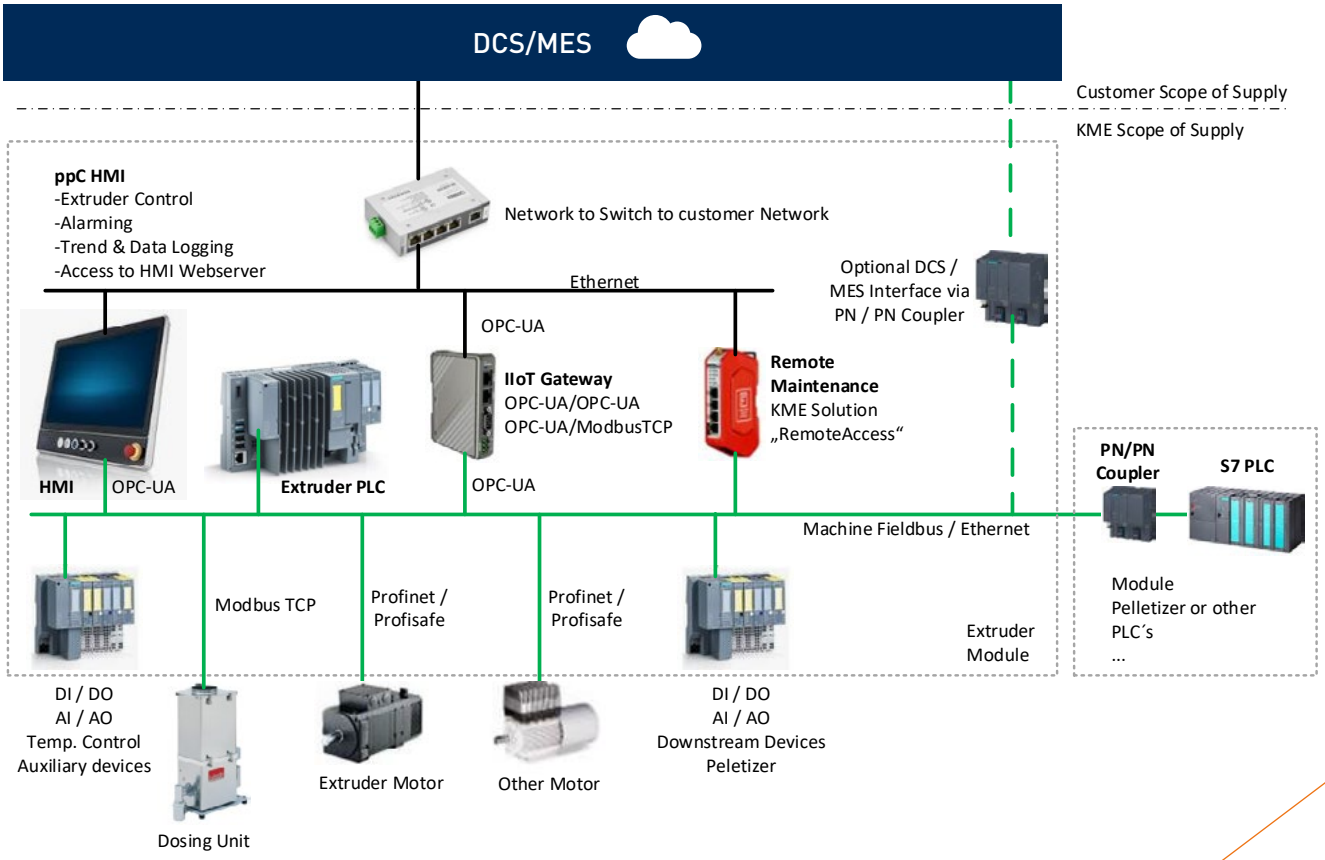
The new ppC sets a new benchmark in usability and process transparency. Its improved design delivers clearly-structured data through widgets and dashboards, making key production values easy to read and providing intuitive, abstract visualizations of the entire production process. A role-based interface ensures accessibility for all operator skill levels, while process-oriented navigation and smart guided workflows simplify even complex production steps.

reddot winner 2021

DESIGN AWARD 2022

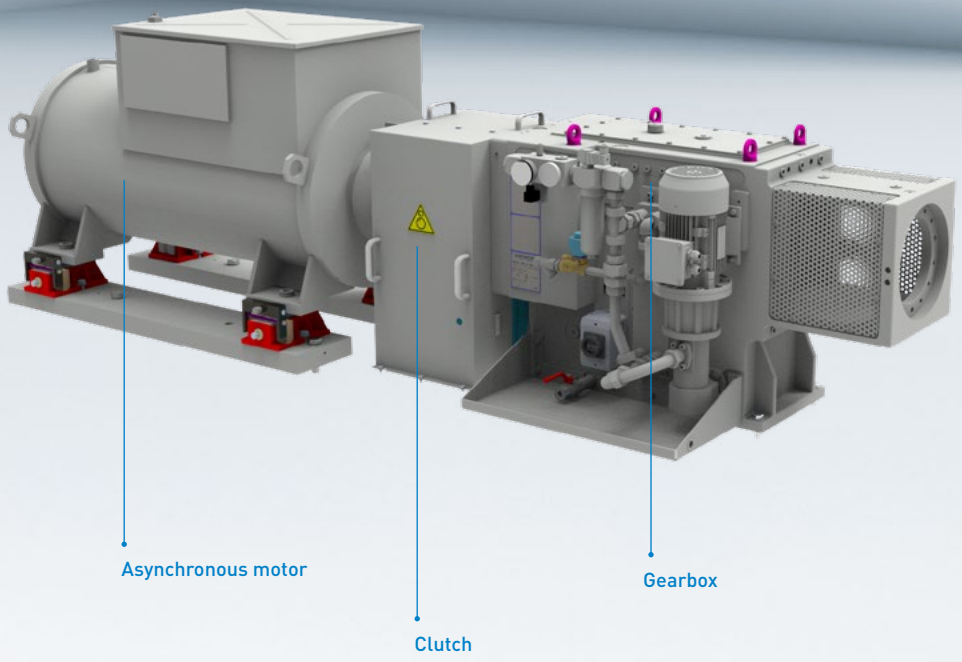
GERMAN DESIGN AWARD WINNER 2023

Developed according to a human-centered design approach, ppC focuses on supporting operators in their daily tasks and minimizing production losses through a better process overview. A consistent modular concept across P&ID, circuit diagrams, machine labels, PLC, and HMI programs ensures a uniform and efficient production environment. The result: Intuitive operation, higher efficiency, and seamless integration into the customer's plant management systems.



SETTING STANDARDS IN EFFICIENCY, PERFORMANCE AND RELIABILITY

With established energy savings through optimized process technology, the solution is completed by a high-performance gear box (98% efficiency) for ultimate efficiency and effectivity. When it comes to sustainability, for KraussMaffei Extrusion every percentage and every saved gram of CO_2 counts.



To protect the high-performance gearbox from damage, the BluePower series features a mechanical clutch that does not require pressurized air to function. It omits slip and is optimized for long service intervals.

DIGITAL AND SERVICE SOLUTIONS

Customer service at the touch of a button.
Digital transformation is now faster and easier than ever for our customers. With our Digital & Service Solutions unit, we make production chains more flexible, efficient, and future-ready. KraussMaffei Extrusion delivers a global, all-inclusive service package that seamlessly connects machines and processes - creating a solid foundation for your long-term local success.

To ensure the maximum reliability and extended lifetime of your extrusion equipment, we offer comprehensive inspection and maintenance services. From accurate screw and barrel wear measurement to extruder checks, gearbox and motor alignment, and advanced vibration analysis, we detect potential issues before they cause costly downtime. Non-invasive endoscopy provides high-resolution, real-time insights without disassembly, saving time and money. These predictive maintenance solutions minimize risks, boost efficiency, and keep your production running at peak performance.

Individual challenges in mechanical engineering call for intelligent solutions
With our service portfolio, we support you throughout your machine's lifecycle with a strong focus on your specific needs. To satisfy your wishes, we offer you a wide range of solutions in order to ensure maximum availability and optimum the productivity of your machines.

Technology as a unique selling proposition
KraussMaffei is the only supplier in the world with a product range comprising the most important machine technologies for plastic and rubber processing: Extrusion technology, injection molding machinery, automation and reaction process machinery. KraussMaffei is represented worldwide with more than 30 subsidiaries and over 10 production plants as well as about 570 commercial and service partners. Working together with our customers and partners, we are thus able to offer vast and unique expertise in the industry.

TECHNOLOGY CENTER

Our Technology Center ranks among the largest and most advanced in the world, combining unmatched scale with world-class expertise. With over 60 experts in process engineering and 30 R&D specialists, it delivers the world's most flexible extrusion capabilities. On a shop floor of 10,000 m² within a total 11,600 m² facility, up to 26 extrusion systems can be set up for production-like testing. Semi-automatic material handling, fully digitalized test organization, and dedicated meeting and training areas ensure efficient, realistic, and customer-focused process development.

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