INCREASED FLEXIBILITY AND GREATER COST-EFFICIENCY

Krauss Mafi

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DISCOVER OUR PVC PROFILE EXTRUSION WITH TWIN-SCREW EXTRUDERS



Pioneering Plastics

FACTS & FIGURES

Cable ducts

AREAS OF APPLICATION

OF THE 32D TWIN-SCREW

EXTRUDER PROFILE SERIES



Coextruded window main profiles



Window profiles in core technology, with regrind, extruded



Window profiles



Foam profiles

Other applications

- Secondary chamber/multi-chamber profiles
- Gutters
- Door/shutter systems
- Window sills
- Technical profiles
- NFC/WPC profiles
- Siding solutions
- Special customer-specific solutions

Technical data and dimensions of the 32D twin-screw extruder series

	KMD 75-32/P	KMD 90-32/P	KMD 114-32/P	KMD 133-32/P	
Output range [kg/h]	120–260	180-390	250-550	360-800	
Drive power [kW]	29	44	68	94	
Screw torque, max. [Nm]	10,140	18,000	35,700	56,200	
Screw speed, max. [min -1]	26	22	17	15	
Screw length [L/D]	32	32	32	32	
Screw diameter [mm]	75	90	114	133	
Screw heating/cooling	Internal	Internal	Internal	Internal	
Extrusion height [mm]	1000	1150	1150	1150	
Dimensions [mm]					
Length incl. adapter	4330) 5070 62		7340	
Width incl. control cabinet	1070	1170	1210	1490	
Height incl. hopper	2415	2520	2580	2665	

INCREASED FLEXIBILITY AND GREATER COST-EFFICIENCY IN PROFILE EXTRUSION 32D TWIN-SCREW EXTRUDER PROFILE SERIES

In the area of profile extrusion the market is placing increasingly higher demands on production: Excellent quality, maximum flexibility and increased cost-efficiency. The 32D twin-screw extruder series from KraussMaffei satisfies all conditions for optimum profile extrusion.

The highlights at a glance:

- Excellent profile quality combined with high production flexibility
- Improved melt homogeneity thanks to a long process unit
- Extension of the processing window thanks to a long process unit
- Optimum design for high demands:
- High-performance extrusion for maximum cost-efficiency
- Flexible extruders for maximum cost-efficiency



IMPRESSIVE ENCOUNTER A TOUR OF THE 32D TWIN-SCREW EXTRUDER FOR PROFILE EXTRUSION

Standard dosing unit for processing a wide variety of materials

Robust gearbox ensures low maintenance costs and a long service life

Drive concept

ideally dimensioned; the standard version comes with an AC drive unit

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Rectangular filling opening allows optimum screw filling

> Long pre-heating zone for high flexibility in terms of process technology

32D process unit

with molybdenum-welded screws and deep-nitrided, air-cooled barrel

Vacuum degassing unit

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Vacuum degassing

with a stable waste pipe and a quick connection for easy cleaning

TOP-CLASS RESULTS IN PROFILE EXTRUSION INCREASED FLEXIBILITY THANKS TO COMPONENTS THAT ARE ENGINEERED TO WORK PERFECTLY TOGETHER

All parallel KraussMaffei twin-screw extruders for profile production are equipped with process units in the length 32D.

The screw concept

The screw concept of the 32D twin-screw extruder series is characterized, in particular, by three advantages: It optimizes material processing, improves melt homogeneity and permits a very wide processing window when processing many different materials.

Focus on preheating zone

As the screw's L/D ratio increases, so does the preheating zone. This produces a positive effect: Thanks to the increased preheating zone and the lower peripheral screw speed, the plasticizing process can be influenced better through control of the barrel temperature.

Cost-effective machine design

The 32D twin-screw extruder series sets standards in terms of cost-effectiveness as a result of the optimized screw concept and the entire drive.



HIGH-PERFORMANCE EXTRUSION – KRAUSSMAFFEI HAS THE PERFECT

SOLUTION FOR EVERY TASK

Whichever extrusion solution you choose in your production: KraussMaffei has the technically superior and exceptionally cost-effective system.

Powerful gearbox

The 32D twin-screw extruder series is characterized by high output rates. It takes a powerful gearbox to apply the high screw torque reliably. We have used precisely such a gearbox that has a compact, robust and low-vibration design and is oriented precisely and rigidly to the process unit. It is designed to absorb external forces and back pressure forces from the screw. It also provides easy access to the screw couplings and the screw shaft seals.



Optimum power distribution in the gearbox

AREA OF APPLICATION FOR THE CONICAL SERIES





Cable ducts Window profiles in core technology, with regrind, extruded



Coextruded window main profiles



Skirting boards

Other applications

- Customer-specific custom solutions
- Technical profiles
- Window main and secondary profiles

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Gutters

Technical data and dimensions of the conical series (monoextrusion)

	KMD 43 K/P	KMD 53 K/P	KMD 63 K/P	KMD 73 K/P
Output range [kg/h] hard PVC	30 – 100	50 – 160	80 - 220	120 - 330
Drive power [kW]	19	28.2	37.4	57
Screw torque, max. [Nm]	4000	7500	12,000	21,500
Screw speed, max. [min -1]	41	33	28	24
Screw length	1160	1430	1700	2320
Screw diameter [mm]	43 - 82	53 - 101	63 – 120	73 – 151
Screw heating/cooling	Internal	Internal	Internal	Internal
Extrusion height [mm]	1000	1000	1000	1000
Dimensions [mm]				
Length incl. adapter	2445	2530	3100 3940	
Width incl. control cabinet	975	1040	1330	1445
Height incl. hopper	2000	2300	2210	2340

Output for coextrusion on request

COMPACT AND ROBUST CONICAL TWIN-SCREW EXTRUDERS FOR PROFILE EXTRUSION

Conical twin-screw extruders from KraussMaffei are particularly suitable for the middle and lower output range and feature a large number of impressive advantages. They offer high process flexibility and process stability.

Your benefits at a glance:

- Optimum melt homogeneity thanks to a long process unit
- Extended processing window when using different formulations
- Higher specific throughput and output rate thanks to a longer pre-heating zone
- Excellent unvarying product quality over a defined performance range
- Low maintenance thanks to internally heat-balanced screws and an air-cooled barrel
- High cost-efficiency thanks to the long service life of the process unit, even with high output rates
- Active wear resistance thanks to a deep-nitrided barrel and molybdenum-welded screws
- Powerful gearbox; robust and compact design
- Excellent price-performance ratio



IMPRESSIVE ENCOUNTER TAKE A TOUR OF THE CONICAL TWIN-SCREW EXTRUDER USING THE KMD 53 K/P AS AN EXAMPLE





IMPRESSIVE CONCEPT OF THE LONGEST SCREW: FLEXIBILITY AND PROCESS RELIABILITY

The conical series sets new standards. The processors benefit from high process flexibility and permanent process stability thanks to long process units.

The substantially longer process units in the conical extruders produce a much wider processing window when different formulations and materials are used. Dry blend, regrind and pulverized powder can therefore be easily processed with only one geometry.

In particular, the longer pre-heating zone has a better thermal influence on the material to be processed thanks to barrel temperature control.

The simple conical screw concept offers the processor crucial advantages, for example, optimum heat input through barrel heating. The multi-phase screw concept leads to perfect material processing and a homogeneous melt. Crossed-grooved geometries with no flight interruption ensure safe self-cleaning and a quick change of color.

The longer metering zone results in homogeneous processing of the melt and high pressure stability. The optimized, self-regulating internal heat-balancing system is energy efficient and ensures even material processing in the extruder. The screws in the entire conical machine series are molybdenum-welded along their entire length. The armored layer ensures active wear resistance in conjunction with the deep-nitrided barrels.



Conical twin-screw extruder KMD 53 K/P in mono design (rear view)

FLEXIBLE, SPACE-SAVING AND EFFICIENT – KRAUSSMAFFEI SYSTEMS FOR EFFICIENT COEXTRUSION

Coextruders for production based on core technology, layer technology or combination technology

The models in the conical series are available both in the standard design as mono-extruders and as coextruders for profile extrusion. Coextrusion is an important trend in plastics processing. For example, window main profiles are made of cost-effective recycling material in the core or in the non-visible area of the profile and only a thin outer layer is applied from colorfast virgin material. KraussMaffei supplies a wide product range of coextruders and unique, space-saving coextrusion concepts such as column combinations or piggyback combinations. In addition to ever scarcer recyclates, producers are increasingly using dry blends made of materials with a high filler proportion for cost reasons. The type of application, but also the available production space determine the extruder arrangement.

Piggyback concept saves space

Combinations of parallel basic extruders and one or two piggyback extruders are used frequently. Depending on the output and the extent of the recyclate or filler content, a coextruder from KraussMaffei can be used both to process the core layer and the top layer. For example, the conical KMD 63 K/P coextruder in a KraussMaffei system containing a parallel twin-screw extruder in core technology extrudes the invisible core. However, it can also be used in layer technology to produce the outer layer of the profile.



Coextruder KMD 43 K/P mounted to column on main extruder KMD 63 K/P

HIGH-PERFORMANCE MACHINES FOR STANDARD PROFILE APPLICATION 26D TWIN-SCREW EXTRUDER PROFILE SERIES

The 26D machine series is one of the world's most successful and most widely used series. The machines feature an excellent price-performance ratio. They enable a lucrative entry into profile extrusion. However, established processors in new markets also value the machine for their expansion plans.

The highlights at a glance

- High throughput with outstanding melt quality
- Tried-and-tested 26D process unit
- Low maintenance thanks to internally heat-balanced screws and an air-cooled barrel
- Active wear resistance thanks to a deep-nitrided barrel and molybdenum-welded screws
- State-of-the-art drive systems with maintenancefree AC motor
- High process reliability with the KraussMaffei control system



26D twin-screw series for standard applications

Technical data and dimensions of the 26D twin-screw extruder series

	KMD 75-26/P	KMD 90-26/P	KMD 114-26/P	
Output range (kg/h)	80-200	150-300	250-450	
Drive output (kW)	25	33	68	
Screw torque, max. (Nm)	9,400	15,000	35,700 17 26	
Screw speed, max. (min-1)	24 26	20 26		
Screw length (L/D)				
Screw diameter (mm)	75	90	114	
Screw heating/cooling	Internal	Internal	Internal 1,150	
Extrusion height (mm)	1,000	1,150		
Dimensions (mm)				
Length including adapter	3,750	4,300	5,480	
Width incl. control cabinet	1,300	1,400	1,400	
Height incl. hopper	2,500	2,600	2,600	





NATURAL FIBER-REINFORCED **PLASTICS INNOVATIVE SYSTEM SOLUTIONS**

We are your contact for developments in processing composites with renewable raw materials.

In addition to wood, the most important renewable raw material, different fibrous materials such as hemp, flax, rice husks, cellulose, etc. can be processed with a large number of polymers (e.g. HDPE, PP, PVC) in different mixtures to form a composite.

KraussMaffei covers the entire value-adding chain with its product portfolio of co-rotating and counter-rotating technology for extruding composites made of renewable raw materials. Starting with the selection of the suitable raw material and the formulation, material processing and pelletizing through to extrusion and production of complete application systems, KraussMaffei is a system supplier that can implement individual requests from customers for the extrusion of natural fiber composites.

Processors benefit from the two-stage process. They can compound the material using KraussMaffei machines and extrude the corresponding end product in the downstream production step on the same KraussMaffei line



System profiles

YOUR BENEFITS:

- Energy-efficient production
 Maximum flexibility in processing different formulations
- Ideal product quality over a defined performance range
- Optimization of the recipe
- Active wear resistance
- Turnkey project management by KraussMaffei specialists

SYSTEM SOLUTION FOR NATURAL FIBER-REINFORCED PLASTICS HIGH-PERFORMANCE EXTRUSION SYSTEMS

Counter-rotating twin-screw extruders for processing compounds

Counter-rotating twin-screw extruders are used all over the world to process natural fiber-reinforced plastics, for example wood fiber composites. The KraussMaffei extruders in the 32D series are characterized by a large number of advantages, for example, constant material feed, careful material preparation and high pressure stability of the screws when manufacturing semifinished products. In addition, they are an optimal solution for processing ready-to-use compounds. High screw torque – coupled with a long process unit – produces the highest possible output rates. The special screw geometry is gentle on the material and delivers a homogenous melt at an optimal temperature, even when melt pressures are high.

Active wear resistance for long service lives

KraussMaffei ensures maximum wear resistance through a special process concept, tungsten carbide protection of the screws and bi-metal lining of the barrel bores. The machines require minimal maintenance and have long service lives which, depending on the formulation and specification-based operation of the machines, can amount to between 12,000 and 20,000 operating hours.

Coextrusion: The economical option

Coextrusion is also increasingly becoming a trend in NFC processing. For example, the core of a profile can be made of natural fiber composites while the outer layer is made of PVC or PO. However, both the core and outer layer may be made of natural fiber composites.

Co-rotating twin-screw extruder for cost-effective compounding

Thanks to the concept of the co-rotating twin-screw extruder, the components can be directly metered on the extruder in an energy-efficient and economical way through direct extrusion. The use of patented multi-processor screw elements ensures careful material preparation and homogeneous mixing of the natural fibers. Other advantages include the long service life of the inductively hardened housings and extremely flexible adaptation to different processing requirements due to the modular design of the processing element.



Tecnical data ZE Blue Power

System	ZE 28 BP	ZE 42 BP	ZE 52 BP	ZE 65 BP	ZE 80 BP	ZE 98 BP	ZE 122 BP	ZE 142 BP
Screw diameter (mm)	28	42	52	65	80	98	122	142
Screw length (L/D)	44-48	44-48	44-48	44-48	44-48	46-50	46-50	46-50
Output (kg/h)*	20-40	60-120	105-205	175-360	300-600	520-1040	900-1800	1320-2630

*P0 + 30-60% wood flour

Technical data for counter-rotating, parallel twin-screw extruders (KMD series)

System	KMD 75-32/WPC	KMD 90-32/WPC	KMD 114-32/WPC	KMD 133-32/WPC
Screw diameter [mm]	75	90	114	133
Screw length (L/D)	32	32	32	32
Output(kg/h)*	100 – 200	150 – 300	240 - 480	330 – 650

*PO/PVC + 60% wood flour



C7 CONTROL SYSTEM – SUCCESS MOVING TO THE NEXT ROUND

The functions of both of the proven KraussMaffei "BPC Touch" (compounders) and "C6" (PO and PVC lines) control systems are now combined in the new C7 extruder control system. As part of this fusion, the user-friendly interface has additionally been upgraded and updated to a more modern appearance.

One Extrusion - One Control

The blending of the two control systems creates tremendous potential in terms of new flexible system configurations and groundbreaking plastics applications. Using the C7 control system, the machine operator keeps complete control over the entire extrusion line with direct and fast access to the individual units in the higher-level systems network. The numerous monitoring, control and automation functions create the basis for optimum product quality and high process reliability.

One look at the essentials

With the redesign of the user interface, we have succeeded in enhancing the focus on the essentials with the same clear information content. The familiar clear screen layout paired with a pleasing and intuitive color scheme provides a comprehensive process overview for the user at all times, as well as the foundation for fast intervention options.

With the C7 control system, KraussMaffei is also placing particular focus on continuing the ongoing, proven and trusted operating principle and functionality.

Connection to the digital future

With its many interfaces, the C7 control system is ideally equipped for the data world of tomorrow. Alongside the proven conventional paths (USB, PDF export), there are various network-based data interfaces (e.g. OPC-UA, Euromap84) available for accessing machine and operating data. Internal and external data recorders provide support in analyzing and optimizing processes.

The possibility to carry out remote diagnostics via the Internet, as well as to gain secure access to the machine control system through non-contact identification by use of a RFID reader, rounds off the digital portfolio.

YOUR BENEFITS:

- One control system diverse applications
- State-of-the-art, attractive design
- Proven, intuitive operating philosophy
- Versatile data handling for
- the digital factory
- Flexible solution for total system concepts and individual machines

Various operating versions



Swivel-mounted on switching cabinet (standard)



Boom-mounted version (option)



Mounted on switching cabinet door (option)



Mobile version (option)



OUR WORLDWIDE EXPERTISE IS YOUR ADVANTAGE DIGITAL & SERVICE SOLUTIONS

With your KraussMaffei machine, you have chosen a product that delivers the highest levels of productivity and reliability. In addition to our range of machinery, KraussMaffei focuses on comprehensive and future-oriented solutions, innovative business models and an innovative portfolio of digital products.

Customer service at the touch of a buttor

The process of digital transformation is becoming faster and easier than ever for the customer. Our Digital & Service Solutions unit makes your production chain even more flexible and efficient with future-oriented solutions. KraussMaffei thus globally provides an all-inclusive customer service package and networks machines and processes with each other. Our global support offers a sound basis for your local long-term success.

Individual challenges in mechanical engineering call for intelligent solutions

With our services portfolio, we support you throughout your machine's lifecycle with a strong focus on your specific needs. In order to satisfy your wishes, we offer you a wide range of solutions in order to ensure maximum availability and optimum productivity of your machines.

Technology³ 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: injection molding machinery, automation, reaction process machinery and extrusion technology. 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 in a position to offer vast and unique expertise in the industry.

You can find further information at: www.kraussmaffei.com

KRAUSSMAFFEI – PIONEERING PLASTICS



Extensive expertise from a single supplier

KraussMaffei is one of the world's leading manufacturers of machinery and systems for producing and processing plastics and rubber. Our brand has been synonymous with cutting-edge technology for over 180 years. Our product range includes all technologies in injection molding, extrusion and reaction process machinery. KraussMaffei has a unique selling proposition in the industry as a result. By drawing on our proven innovative capacity, we can guarantee our customers sustained additional value over their entire value-adding chain through our standardized and individual product, process, digital and service solutions. The range of our products and services allows us to serve customers in many sectors including the automotive, packaging, medical and construction industries. We also supply manufacturers of electrical and electronic products and household appliances.

At your service all over the world

KraussMaffei is represented all over the world. Subsidiaries provide you with support in the countries shown in light blue. Our sales and service partners take care of you in the regions shown in white.

You can find all contact information at www.kraussmaffei.com

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