



Lengths in front Single-screw extruders for pipe extrusion

Engineering Value

Krauss Maffei
Berstorff

Facts and figures regarding the single-screw extruder pipe extrusion series

Application examples



Pipe for transporting drinking water



Wastewater pipe



Sanitary and heating pipes



Pipes with special property patterns

PP-R pipe with glass-fiber
reinforcement

Telecommunications pipe

Technical data and dimensions

Technical data 36 L/D KME	45-36 B/R	60-36 B/R	75-36 B/R	90-36 B/R	105-36 B/R	125-36 B/R	150-36 B/R
Output rate, max. [kg/h] HDPE	270-300	450-500	640-700	850-950	1000-1200	1300-1500	1800-2000
Output rate, max. [kg/h] PP (PP-H; PP-B)	180-210	290-340	440-480	590-660	690-760	860-980	1050-1280
Number of heating/cooling zones	5/5	5/5	5/5	5/5	5/5	6/6	6/6
Screw length [L/D]	36	36	36	36	36	36	36
Screw diameter [mm]	45	60	75	90	105	125	150
Extrusion height [mm]	1000	1000	1000	1000	1150	1150	1400

Technical data 41 L/D KME	45-41 B/R	60-41 B/R	75-41 B/R	90-41 B/R	105-41 B/R	125-41 B/R	
Output rate, max. [kg/h] HDPE	550	850	1300	1500	1800	2400	
Output rate, max. [kg/h] PP (PP-H; PP-B)	500	750	1150	1400	1700	2100	
Number of heating/cooling zones	6	6	6				
Screw length [L/D]	41	41	41	41	41	41	
Screw diameter [mm]	45	60	75	90	105	125	
Extrusion height [mm]							

Single-screw extruder with a trio of different processing lengths

With three series that have processing units of different lengths, KraussMaffei Berstorff has perfectly equipped itself to meet the market demands for cost-effective pipe production and high-performance extrusion.

The successful, long-proven 36D single-screw series combines extremely high levels of product quality with cost-effective production.

The single-screw extruders with the 30 L/D processing unit are made for special extrusion and coextrusion applications; in particular, they are used for processing special materials.

As a high-performance model, the 41D series is ideally suitable for increased throughput with excellent product quality in PE and PP processing.

Your benefits:

- The right machine and system configuration for all pipe extrusion tasks
- Cost-effective production and an extremely high level of product quality
- System supplier for customer-specific special solutions

First encounter

Take a tour of a single-screw extruder with 41D processing unit

Eccentric feed

Avoids turbulence and maximizes throughput rates



Robust gearbox

Minimal maintenance costs thanks to long service life and low space requirement thanks to U-configuration of gearbox and motor

Deep-nitrided grooved bush

Outstanding cooling performance with extremely low cooling water consumption, steady material feed (irrespective of the counter-pressure) and self-cleaning

Bimetallic barrel

Extremely low rates of wear

**Ideally dimensioned drive concept**

With AC drive unit, air-cooled (standard) or water-cooled (optional)

Patented screw concept

41D processing length for material-friendly plasticization

The yardstick in pipe production: Optimum homogeneity at a consistently low melt temperature

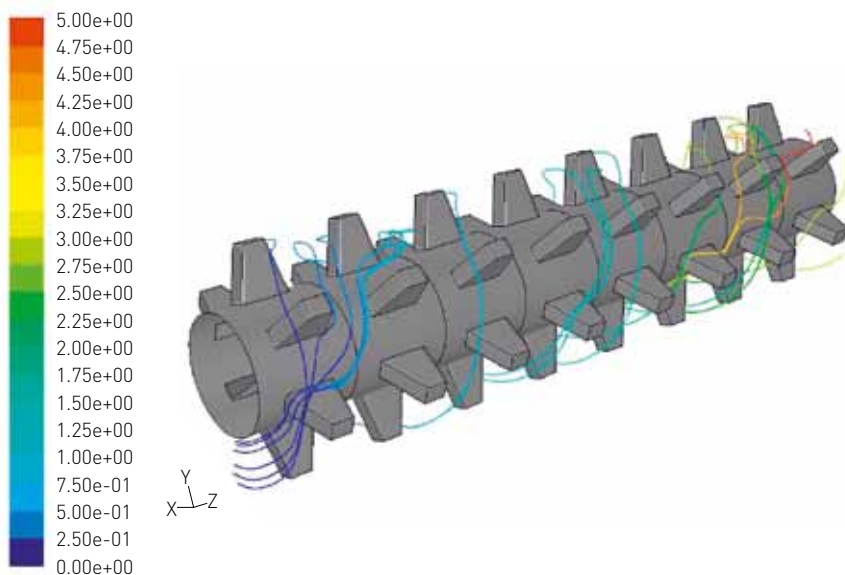
The process-engineering design of the 36D single-screw extruder series provides you with optimum conditions for successful pipe production.

Thermal homogeneity for excellent pipe quality

Pipe quality is decisively influenced by the thermal homogeneity of the materials that are to be processed. This thermal homogeneity can be clearly seen in the appearance of the inner surface of pipes: Thermal inhomogeneity leads to undesirable wavy surfaces. The functional principle of the 36D single-screw extruder series reliably eliminates any thermal inhomogeneities and ensures optimum homogeneity at a consistently low melt temperature.

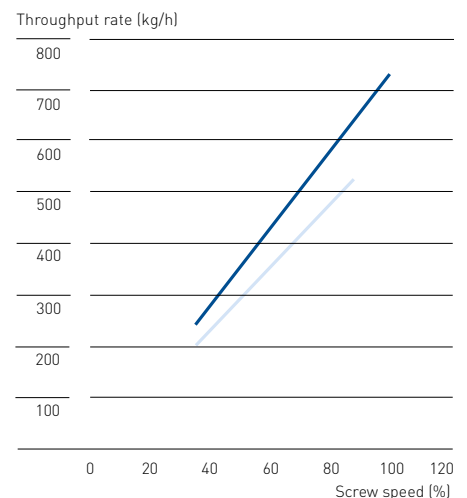
Decisive advantages right down the line

The 36D single-screw extruder series is distinguished by a series of processing advantages that you can easily see for yourself in pipe production: Through an optimum mixing process in the shearing and mixing part of the screw; through perfect line synchronization thanks to the output linearity and the material feed that is independent of the counter-pressure; through an extremely high plasticization performance and distinct thermal homogeneity for perfect product quality; and through maximum output performances at minimum investment costs. Furthermore, you can benefit from our extensive experience gained from numerous successful practical applications. As standard, all machines up to model KME 90-36 B/R are equipped with synchronous AC motor technology.



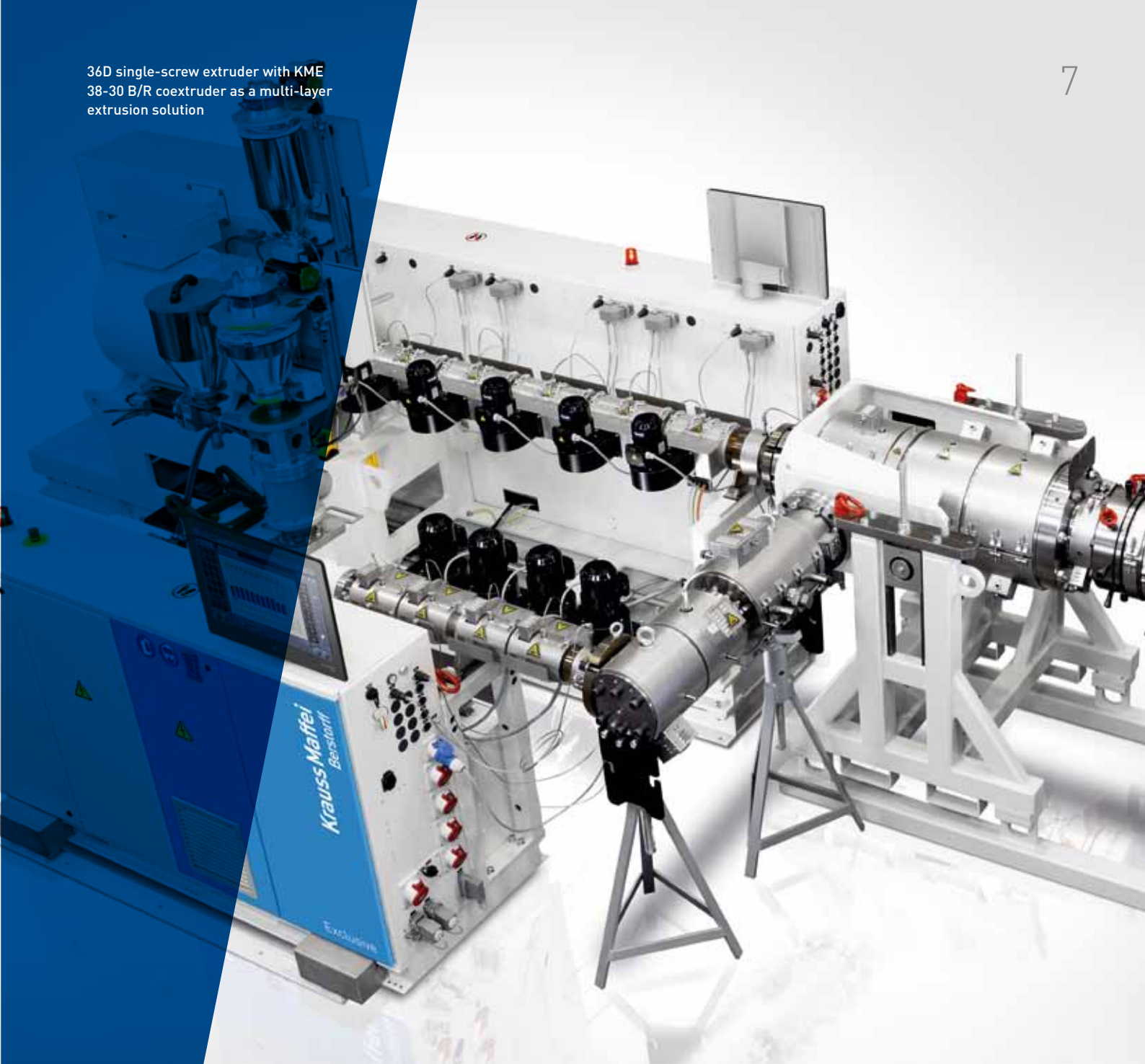
Optimum mixing in the shearing and mixing part of the screw

Speed/throughput behavior KME 75-36 B/R



As the screw speed increases, the machine's output also increases linearly.

36D single-screw extruder with KME
38-30 B/R coextruder as a multi-layer
extrusion solution

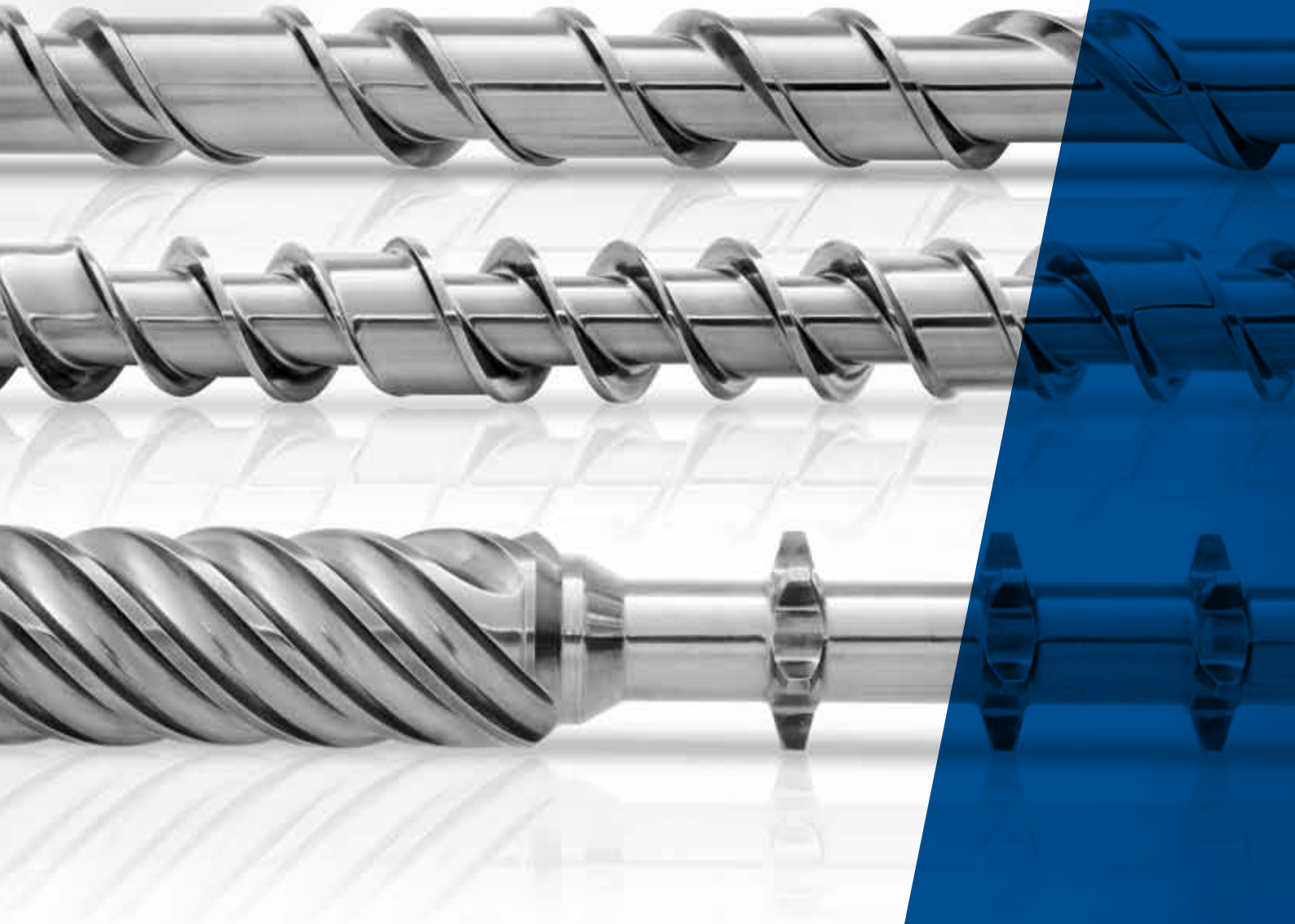


Broad range of applications

The 36D single-screw extruder series is the specialist for processing all common types of material from PE 80, PE 100 and PP. Moreover, of course, it is also suitable for processing a wide variety of other materials, such as LDPE, LLDPE, MDPE, PA 11, PA 12, PE-RT, PE-Xb, PE-Xc, PB, ABS.

Your benefits:

- Conveying behavior independent of counter-pressure across the entire speed range
- Low melt temperature profile due to high specific throughputs
- Excellent melt performance
- Gentle melt preparation and optimum melt homogeneity
- Long service life thanks to optimized pressure profiles and low rates of wear
- Clear reduction in cooling water consumption at the grooved bush
- Low-maintenance drive concept in proven U-configuration
- Compact machine design for minimal space requirement
- Outstanding price/performance ratio



High-performance extrusion with the single-screw extruder series of the 41L/D processing unit

High-performance extruder for pipe extrusion from polyolefins (PE and PP)

Combined with the patented screw concept, the real 41 L/D processing length – as a continuous new development from the proven and successful 36D single-screw series – offers a disproportionate increase in specific throughput and, at the same time, enables low melt temperatures, which bring about outstanding homogeneity. The latest drive technology with AC motors and efficient gearbox ensures energy-saving production. And the result: Further increased throughput rates with perfect end-product quality.

The series with the 41 L/D processing unit is ideally suited to high-performance requirements when processing PE and PP.

Patented screw concept

The patented screw concept minimizes the material load thanks to optimized shearing behavior. It stands for material-friendly plasticization and means that a high energy yield can be achieved with a low level of material stress. Using the entire length for melting and homogenizing leads to reduced wear on the screw and low stress on the polymer.

Thanks to an improved design in the combination of heating and cooling and the barrel surface, the barrel is able to yield melt energy and to ensure improved heat dissipation.

Depending on the application and materials, optimized shearing and mixing parts can be used: Universal mixing parts for the high-performance extrusion of poly-

olefins; specialized cross-hole mixer for mixing in color masterbatches and additives; special solutions for special customer requirements.

Optimized filling zone with material-friendly, spiral grooved bush

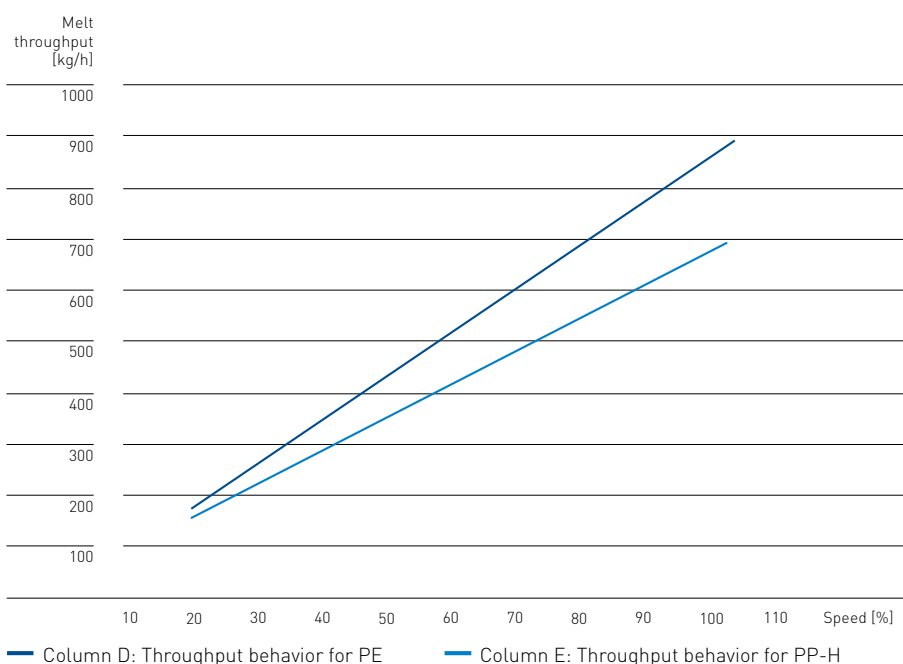
A filling opening whose length and dimension have been adapted to the increased throughput and increased speed guarantees linear throughput development across the entire speed range.

The optimized spiral grooved bush provides feed stability combined with low-impact material handling.

Perfect wear resistance

Bi-metal barrels and optionally through-hardened grooved bushes ensure perfect wear resistance. If required, wear-protected processing units are available with a multi-layer, chrome-nitride-based coating on the screw.

Throughput behavior of the KME 60-41B



Your benefits:

- Constant output rates with a consistently excellent product quality
- Perfect processing of PE and PP
- Patented screw concept guarantees material-friendly plasticization
- Optimum wear resistance
- Low-maintenance drive technology with energy-efficient AC motors
- Excellent price/performance ratio

Whether extrusion or coextrusion – Choose the best solution for every task



Whatever the extrusion application, KraussMaffei Berstorff has the right solution for it, including control: With impressive technology and excellent cost-efficiency.

Coextrusion for many tasks

The compact construction of the KraussMaffei Berstorff coextruders guarantees their seamless integration into a complete production line – and the height and tilt settings integrated in the coextruders enable their simple connection to the required mold. Depending on the task,

the coextruder's control system works either independently, speed-synchronized with the main extruder, or it is integrated seamlessly into the overall machine control system. KraussMaffei coextruders are used in a wide-ranging spectrum of applications and special tasks; for example, for the extrusion of multi-layer pipes and for the coextrusion of color strips, bonding agent layers, thin inner and outer layers, oxygen barrier layers or sealing lips. Depending on the application and production requirement, the KraussMaffei Berstorff extruders in the 36 D series can also be used as coextruders.

KME 30-30 B/C coextruder

Technical data and dimensions

	KME 20-25 D/C	KME 30-25 D/C	KME 30-30 B/C	KME 38-30 B/R	KME 45 XS	KME 45-30 B/C	KME 60 XS
Output rate, max. [kg/h] HDPE	4.5	16	50	120-130	75	200-240	130
Output rate, max. [kg/h] PP (PP-H; PP-B)	3.5	13	40	110	60	140-170	85
Number of heating/cooling zones	3/0	3/0	4	4/4	4/4	4/4	5/5
Screw length [L/D]	25	25	30	30	30	30	30
Grooved bush	No	No	Yes	Yes	No	Yes	No
Screw diameter [mm]	20	30	30	38	45	45	60
Extrusion height [mm]	920-1520	920-1510	1000	1000	1000	1000	1000

Dimensions [mm]

Length, including adapter	1350	1400		2650	2250	2750	2751
Width, incl. control cabinet	1020	1020		1000	1000	1150	1140
Height, incl. hopper	1370-1960	1370-1960		1960	1955	1960	1907



Piggyback model



Coextrusion system with sheathing tool

Made-to-measure coextrusion solutions for more flexibility in your production

Piggyback version:
Single-screw extruder combination consisting of KME 75-36 B/R as main extruder and KME 45-30 B/R as coextruder.

An intelligent machine configuration for manufacturing multi-layer pipes – with the same space requirement as a system that is used for manufacturing single-layer pipes. The machine is extremely operator-friendly, because the coextruder is fully integrated in the control system of the main extruder.

Sheathing tool KM-2L-RKU 01-63 with two KME 30-25 D/C coextruders for coating hot water pipe with bonding agent and an oxygen barrier layer in a post-coextrusion process.

A compact configuration for sheathing tasks, for example, for production of pipe made of PE-X, PE-RT and PB.

C6 control system – flexible system for open-and closed-loop control and monitoring of an extrusion line

With its new, innovative C6 control system, KraussMaffei Berstorff offers fast, direct access at all times to the individual units of an extrusion line, the extruders which work conjointly to produce the product, and to integrated downstream equipment.

The current operating status of the entire system is permanently displayed, and a freely configurable actual value column allows individual, continuous process control. With its numerous monitoring and control functions, the C6 control system ensures optimal production preparation and transparency throughout the production process, thereby satisfying the most stringent requirements for excellent product quality and a high level of process reliability.

Multi-touch technology for intuitive operation

The C6 control system from KraussMaffei Berstorff is equipped with the latest multi-touch technology and state-of-the-art hardware components. A high-resolution 24-inch full HD screen provides an optimal overview. The intuitive operation and clear screen layout facilitate fast intervention and provide a comprehensive

process overview. Units and functions can easily be operated and activated via the touchscreen display. With the C6 control system, KraussMaffei Berstorff has placed a particular emphasis on maintaining continuity in the design in terms of both its operation and its functionality, which have proven successful over a great many years.

Maximum flexibility

The C6 control system offers the user an incredibly high level of flexibility. The composition of parameter pages can be chosen freely, and display and parameter texts can be tailored to individual requirements. In addition, the system components can be connected and disconnected as required. Equipped with the latest hardware and software, the C6 control system is ideally set up for future system concepts.

Fast, secure access management using RFID technology

The C6 control system allows fast, secure access by means of non-contact identification using RFID readers. Remote diagnostics via the Internet and data interfaces to connect to the company network tip the balance to make the C6 control system the perfect solution for all your extrusion line's control tasks.

Your benefits:

- Modern, innovative operating philosophy
- Fast, intuitive operation
- Highly flexible
- Maximum process reliability
- Optimal monitoring of integrated system concepts and standalone machines
- A variety of user-friendly models

Various operating configurations are available



Swivel-mounted on switching cabinet (standard version)



Mounted on switching cabinet door, tilting (option)



Boom-mounted version (option)



Mobile version (option)

PE 100 drinking water
pipes – ready-for-transport
as a coil



Further information

This might also be of interest to you



You can find further information on pipe extrusion solutions from KraussMaffei Berstorff in the following brochures:

- Complete pipe extrusion lines
- QuickSwitch technology for in-line dimension changes
- Pipe heads for PVC processing
- Pipe heads for PO processing
- Systems for producing temperature-resistant pipes
- Systems for producing polyurethane pipes

You can find our brochures and flyers on other topics online at: www.kraussmaffeiberstorff.com. On request, we will also be pleased to send you the information and technical data for our products 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 or pharmaceutical industry.

There for you around the world

KraussMaffei Berstorff is your partner – from the first planning meeting through development of the best possible technical and business solution up through 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 minimize downtime as much as possible. Rely on our highly skilled repair and spare parts service.

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

KraussMaffei Group

Comprehensive expertise

Unique selling proposition Technology³

The KraussMaffei Group is the only provider in the world to possess the essential machine technologies for plastics and rubber processing with its KraussMaffei, KraussMaffei Berstorff and Netstal brands: Injection Molding Machinery, Automation, Reaction Process Machinery and Extrusion Technology.

The group is represented internationally with more than 30 subsidiaries and over ten production plants as well as about 570 commercial and service partners. This is what makes us your highly skilled and integrated partner. Use our comprehensive and unique expertise in the industry.

You can find additional information at:
www.kraussmaffeigroup.com



The KraussMaffei Group has a global presence. Countries with subsidiaries are marked in light blue. In the white-colored regions, the Group is represented by over 570 sales and service partners.

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