

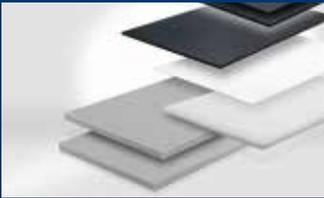
Complete system solutions
Cost-effective sheet and film
extrusion of polyolefins and
engineering thermoplastics

Engineering Value

Krauss Maffei
Berstorff

Facts and figures regarding film and sheet extrusion of PO and engineering thermoplastics

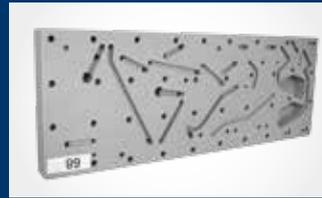
Applications



Various kinds of PO sheet, mono-extruded



Various kinds of PO sheet, coextruded in multiple layers



PP-H equilibrium dialyzer



HDPE sheet for shipbuilding



Acid tank from PP sheet



Plastic sheet in daily use – Sanitary business area



Plastic sheet in daily use – White appliance business area



Thermoforming film for a variety of uses – Blister packaging business area



Thermoforming film for a variety of uses in the cup business area



Thermoforming film for a variety of uses in the packaging business area

Sheet outputs

Extruder types	HDPE (kg/h)	PP (kg/h)
KME 45-36 B/PL	140	140
KME 60-36 B/PL	220	220
KME 75-36 B/PL	320	320
KME 90-36 B/PL	400	400
KME 105-36 B/PL	500	500
KME 125-36 B/PL	630	650
KME 150-36 B/PL	800	800
KME 200-36 B/PL	On request	On request

In addition to the extrusion of popular polyolefins, such as HDPE and PP, KraussMaffei Berstorff single-screw extruders are also ideal for processing the following materials: PMMA, ABS, PP, (HI)PS, APET

Complete system solutions Cost-effective sheet and film extrusion of polyolefins and engineering thermoplastics

The importance of polyolefin-based plastics has grown continuously for decades, and the trend is expected to continue. They are used ever more frequently, above all in the sheet extrusion area.

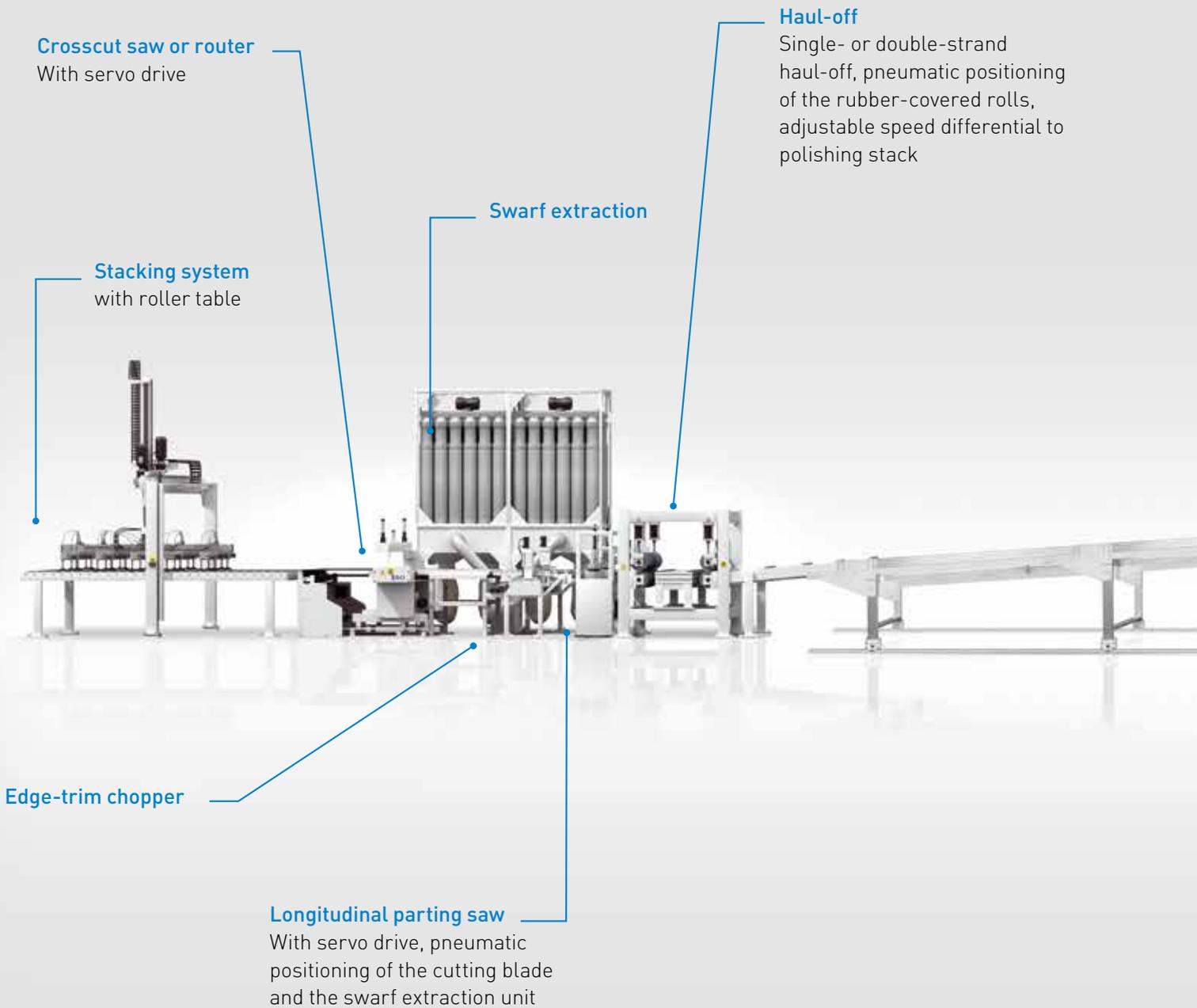
The 36D single-screw extruders from KraussMaffei Berstorff are optimally suited for extrusion of sheets from polyolefin, whether compact or foaming. We've got what it takes for successful production. Firstly, we supply complete integrated system solutions for a huge range of PO sheet products. Secondly, we have the intensive process and application experience and the comprehensive engineering expertise you would expect from a system supplier. Take advantage of both of these factors to bring you success.

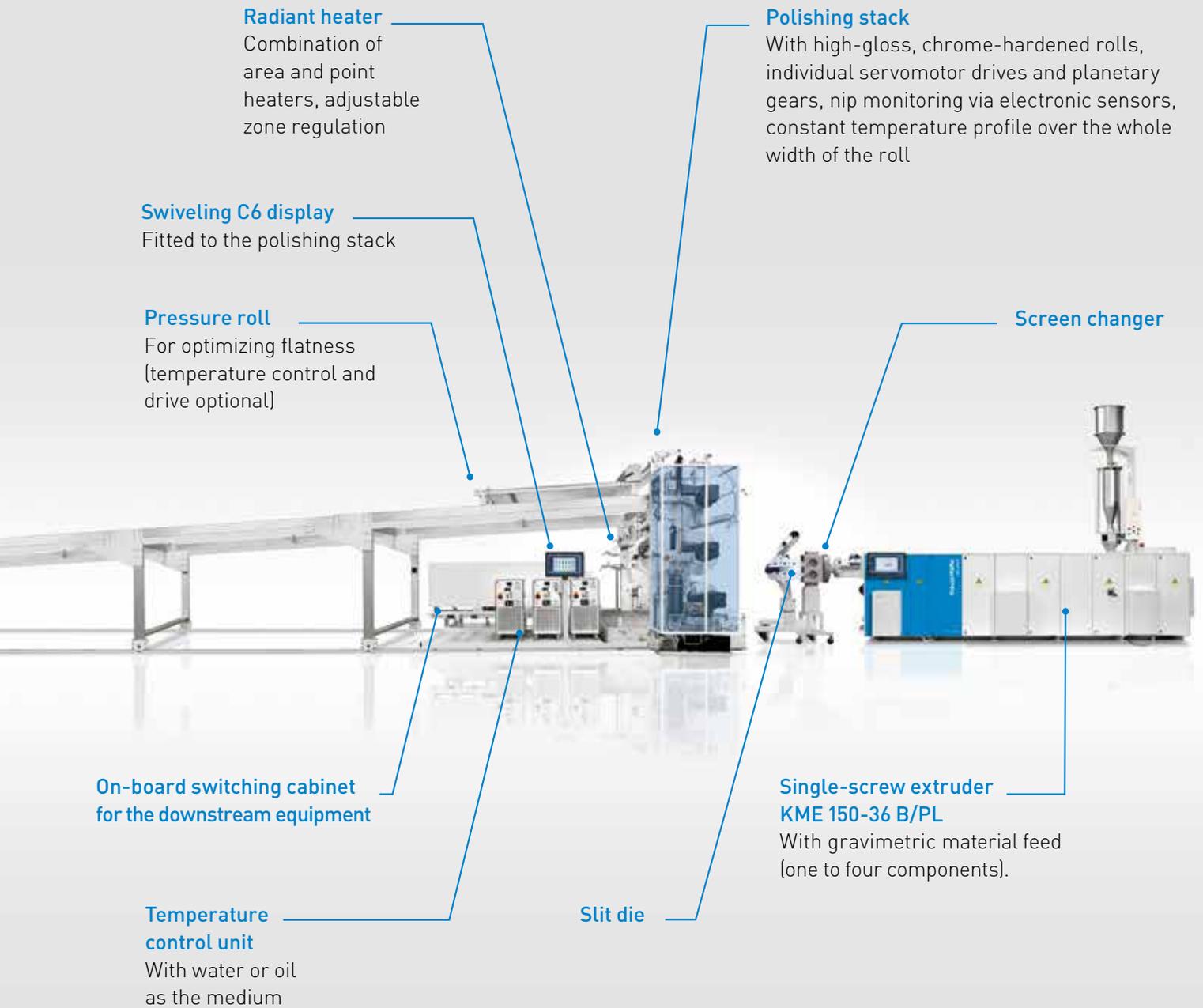
Your advantages at a glance:

- Conveying behavior independent of counter-pressure at all speeds
- Low melt temperature profile due to high specific throughputs
- Excellent plasticizing performance

Everything at a glance

Tour of a complete sheet extrusion line





Setting benchmarks for PO sheet production – with 36D single-screw extruders

Many market segments and application areas are turning increasingly to polyolefin sheet: Be one step ahead of the competition with KraussMaffei Berstorff.

Complete system solutions from the world's leading system supplier.

KraussMaffei Berstorff has long been a world-leading system supplier of PVC sheet extrusion lines, and has consistently expanded its range of products. We offer complete system solutions for processing different PO sheet grades and custom PO special materials and engineering thermoplastics. Our machinery and process expertise can give you a decisive competitive advantage, because we configure and supply complete sheet extrusion lines using high-quality components and extensive automation. The single-screw extruders of the 36D series, with state-of-the-art screw geometries,

guarantee the constant pressure required for this process and provide high output at a uniform temperature profile. The extruder can also be operated without a melt pump.

Perfectly tuned system components for a broad range of products

Chemically foamed PE and PP sheet is finding new markets, and is also contributing to cutting the cost of raw materials for products that are already on the market. To meet high quality specifications, the extruded foam must have a homogeneous internal structure and smooth outer surfaces. For the best foam quality, the melt must leave the extruder as a highly homogeneous compound with the blowing agent (added as microgranules) uniformly distributed. The pressurized melt expands upon exiting the die.

The 36D single-screw extruders are optimally suited for extrusion of foaming PO sheets. The surface of the sheet is closed-cell, while the internal core cross-section has a uniform, cell-shaped structure.

The foam formation process is started with chemical propellant under the influence of temperature. The interaction of formulations, melting processes, and the special geometry of the contours of the lips of the flat sheet die make it possible to produce sheets with significantly reduced density and, consequently, reduced use of raw materials. KraussMaffei Berstorff supplies a dedicated extrusion unit for this foaming process, consisting of the 36D single-screw extruder with grooved bush and barrier screw, a screen changer (optional) and a slit die specifically designed for foamed PO sheet.



PO flat sheet die



Adjustable coextruder adapter



Fast gap and deckling systems

Polishing stack with hard-chromed rolls,
individually driven via servo motors and
planetary gears



First encounter

Take a tour of the 36D single-screw extruder

Off-center feed

Avoids turbulence and maximizes output



Robust gearbox

Long life, lowest maintenance costs and space savings (gearbox and motor form a U)

Gravimetric weighing of material

Deep-nitrided grooved bush

Outstanding cooling performance, lowest cooling water consumption, steady material feed – independent of counterpressure – and self-cleaning

Bimetallic barrel

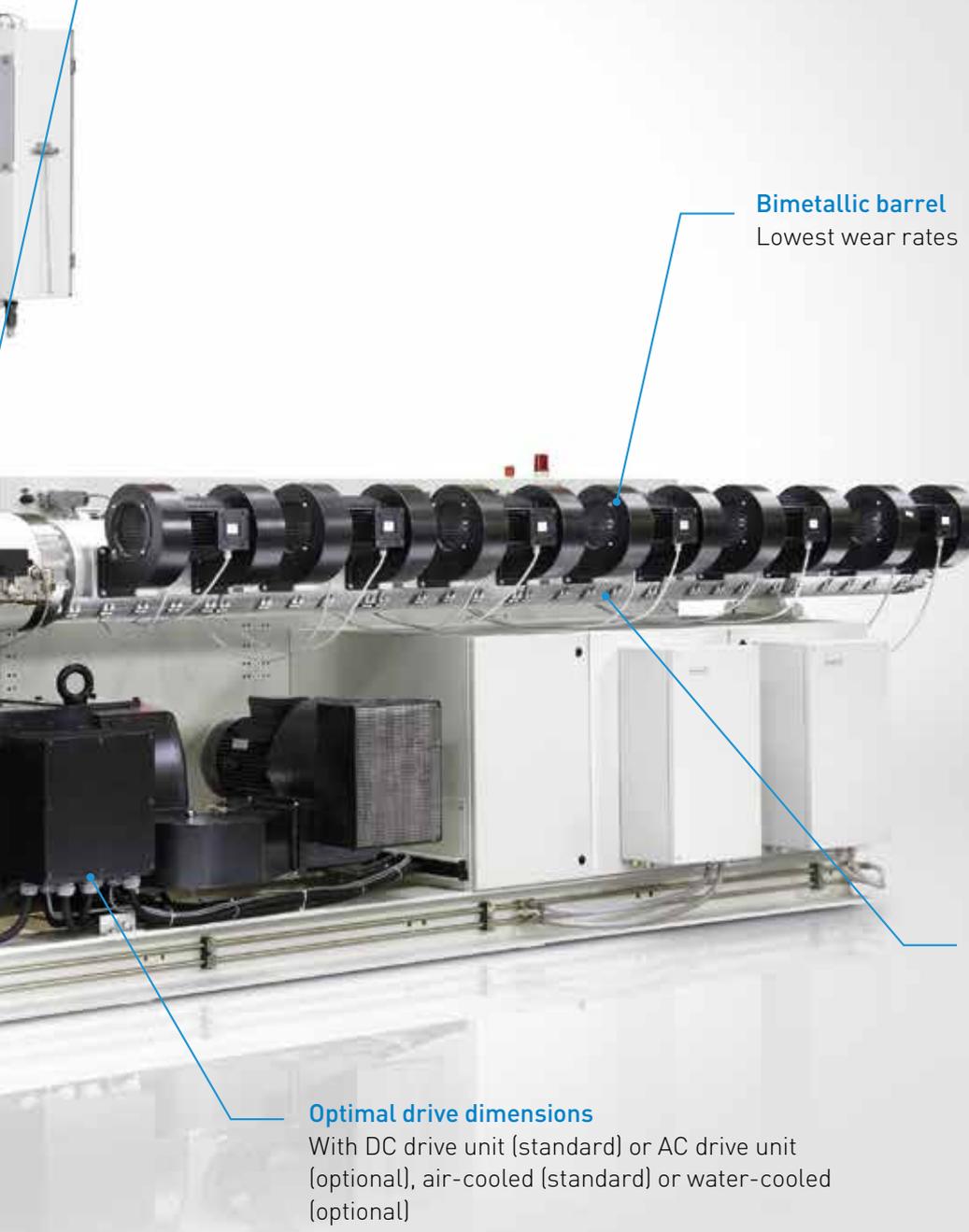
Lowest wear rates

Barrier screw

For thermal and materially homogeneous melts and low melt temperatures.

Optimal drive dimensions

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



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.

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 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.

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)



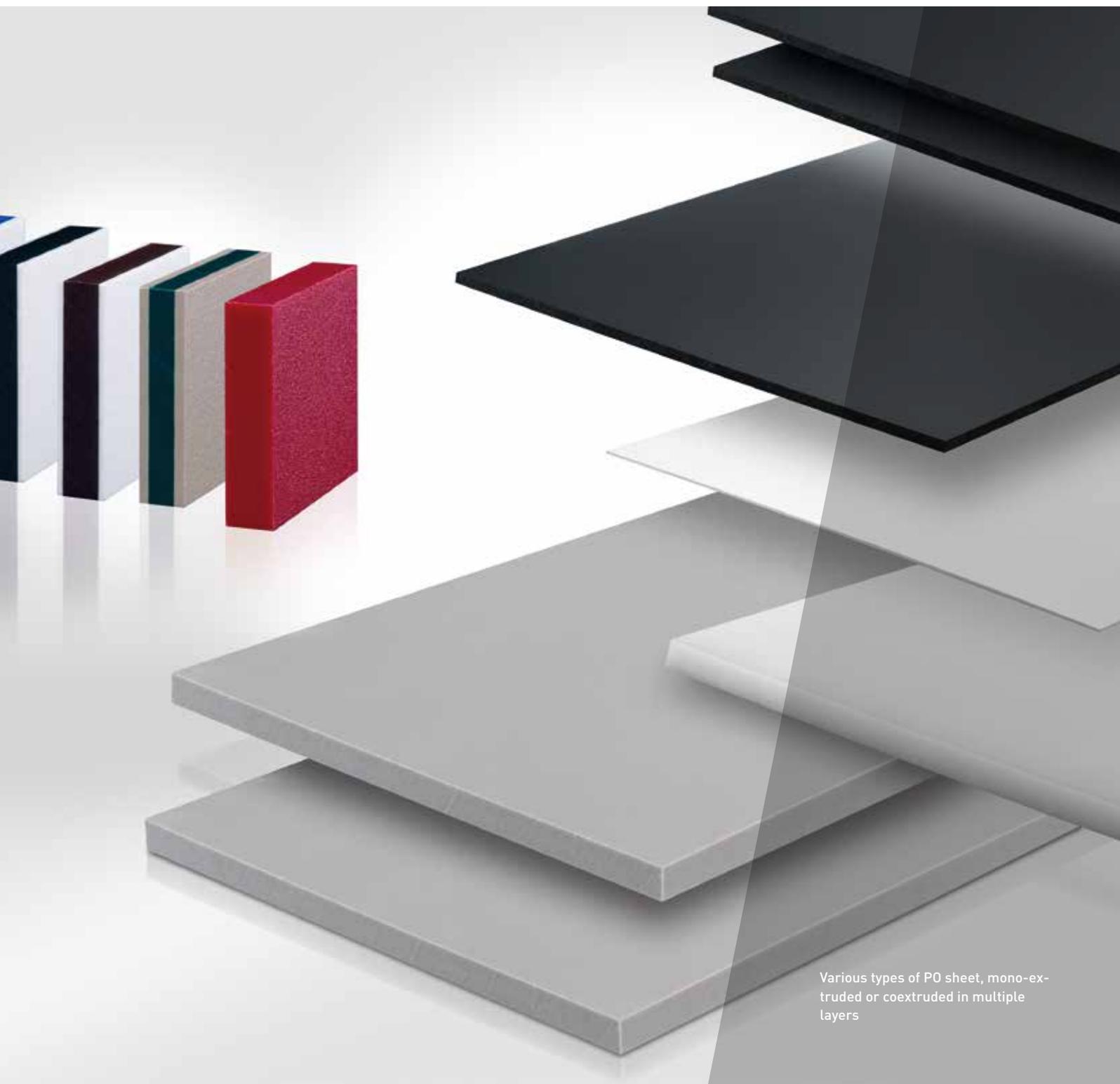
Boom-mounted version (option)



Mobile version (option)



Best equipped for the markets of the future – exploit lucrative potential with new applications



Various types of PO sheet, mono-extruded or coextruded in multiple layers

No matter how varied and specialized your PO sheet production needs may be, KraussMaffei Berstorff's 36D single-screw extruders are more than equal to the job.

Processing materials for a broad range of products

The screws in our 36D single-screw extruder series provide decisive advantages for excellent product quality and high economic viability. With KraussMaffei Berstorff sheet systems, you can process materials for a wide range of products, which above all are used in building containers for water and acid cisterns.

HDPE sheet – unbeatable advantages in countless applications

HDPE sheet resists stress cracking, has low-temperature impact resistance, very good energy absorption, high stress resistance, outstanding corrosion and abrasion resistance, low water absorption and very good electrical insulation properties. With a property profile like this, it is the material of choice for a broad range of applications. Here are some of the products that can be made of HDPE:

- Rotor blades
- Roller bearing bodies
- Storage containers
- Shuttering
- Wash basins
- Machine parts
- Seating
- Medical prostheses
- Chopping boards for the food processing industry
- Shipbuilding

PP sheet – attractive advantages for many applications

PP sheet is light, offers optimum abrasion resistance, has excellent electrical properties, withstands long-term exposure to temperatures up to 90 °C, has a high surface hardness, can be nailed and welded, and is thermoformable. It can be used in a broad range of applications. Here are some typical products:

- Battery housings
- Acid tanks
- Liners
- Laboratory dishes
- Mechanical components
- Shuttering
- Transport pallets
- Kitchen equipment
- Sterilizable components

Your advantages:

- Gentle melt processing and optimal melt homogeneity
 - Long service life thanks to optimized pressure profiles and low wear rates
 - Clear reduction in cooling water consumption for the grooved bush
 - Low-maintenance drive in proven U-arrangement
 - Compact machines with a small footprint
 - Outstanding price/performance ratio
-

OEE Plus Boosting cost-efficiency for you



High overall equipment efficiency (OEE) is a fundamental prerequisite for your company's success. KraussMaffei Berstorff's product portfolio comprises tailored machines and lines along with perfectly matched services that increase the economic efficiency and the sustainability of your production. Benefit from our proven know-how of extrusion technology in any application.



Verfügbarkeit



Leistung



Qualität



For more information about OEE Plus, visit:
www.kraussmaffeiberstorff.com/oeplus

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.

Cost-effective sheet and film extrusion of polyolefins and engineering thermoplastics

The 36D single-screw extruder series

The 36D single-screw extruders from KraussMaffei Berstorff are ideal for extruding polyolefin sheet, whether compact or foamed, and other engineering thermoplastics. We provide you with everything you need for successful production: Firstly, we supply complete integrated system solutions for a huge range of PO sheet products. Secondly, we have the intensive process and application experience and the comprehensive engineering expertise you would expect from a system supplier. Take advantage of both of these factors to bring you success.