

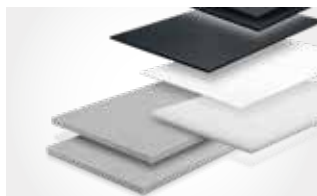
SUCCESSFUL PRODUCTION THROUGH ECONOMICAL EXTRUSION

DISCOVER OUR COMPLETE SHEET SYSTEM SOLUTIONS OF
POLYOLEFINS AND ENGINEERING THERMOPLASTICS

KraussMaffei
Pioneering Plastics



APPLICATIONS OF SHEET AND FILM EXTRUSION OF PO AND ENGINEERING THERMOPLASTICS



*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 packag-
ing business area*



*Thermoforming film for a variety
of uses in the cup 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 single-screw extruders are also ideal for processing the following materials:
PMMA, ABS, PP, (H)IPS, 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 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 in-depth 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 melt performance

EVERYTHING AT A GLANCE

TOUR OF A COMPLETE SHEET EXTRUSION LINE

Crosscut saw or router
With servo drive

Stacking system
With roller table

Swarf extraction

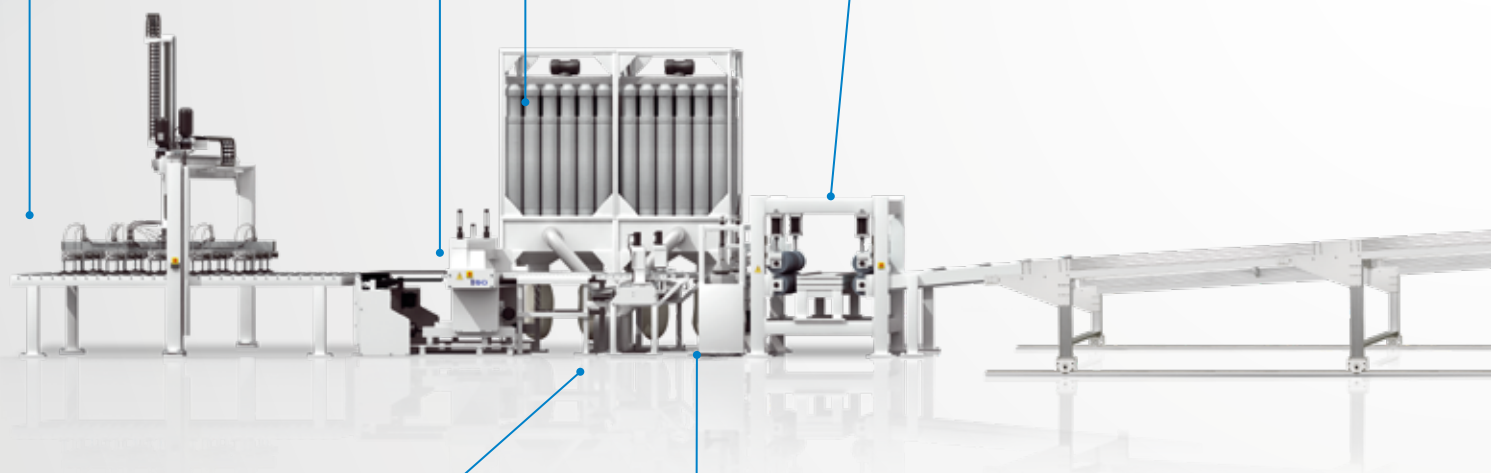
Haul-off

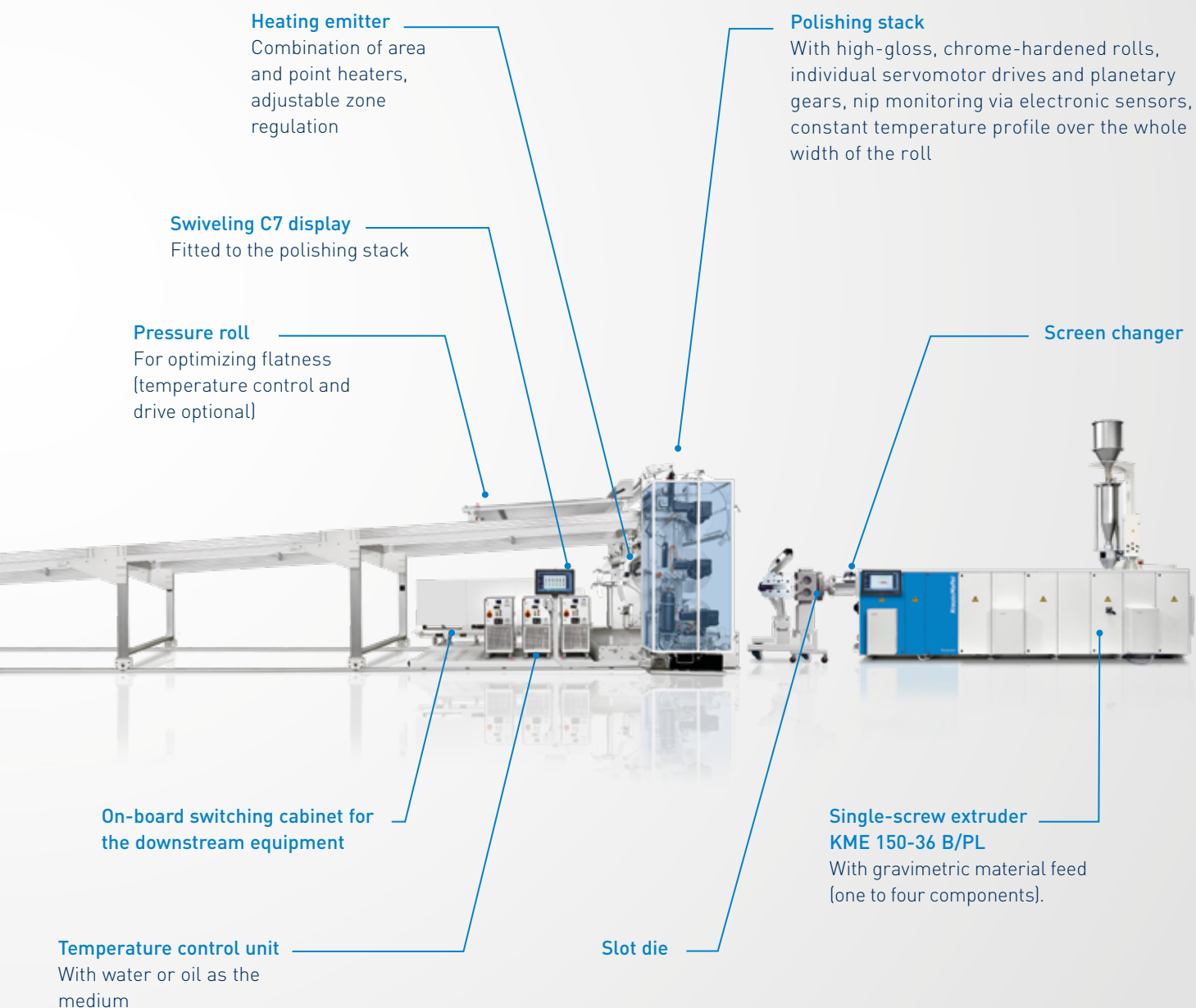
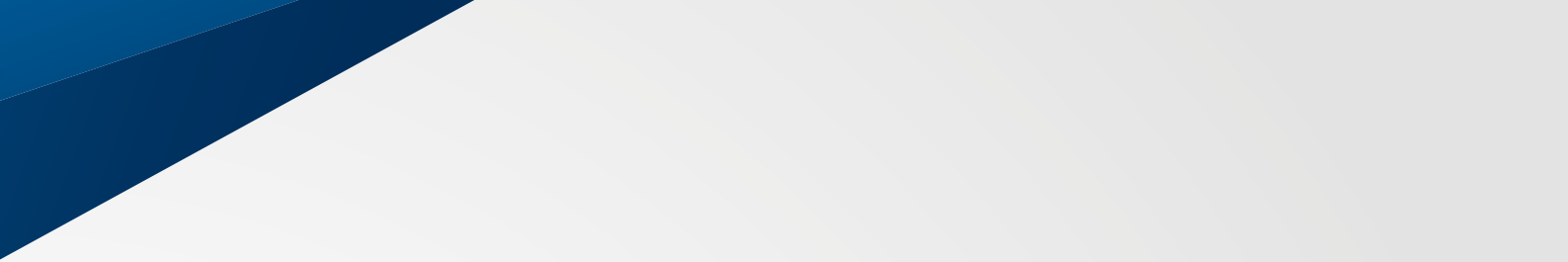
Single- or double-strand haul-off, pneumatic positioning of the rubber-covered rolls, adjustable speed differential to polishing stack

Edge-trim chopper

Longitudinal parting saw

With servo drive, pneumatic positioning of the cutting blade and swarf extraction unit





SETTING STANDARDS FOR PO SHEET PRODUCTION – WITH 36D SINGLE-SCREW EXTRUDERS

Polyolefin sheets are gaining importance in many market segments and application areas. Be one step ahead of the competition with KraussMaffei.

Complete system solutions from the world's leading system provider

KraussMaffei has for many years been a leading global provider of systems for PVC sheet extrusion and has consistently expanded its palette of products. We offer you complete system solutions for manufacturing a wide variety of PO sheets and customer-specific 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 sheets are finding new markets, and are also contributing to cutting the cost of raw materials for products that are already on the market. To meet high quality specifications, the extruded

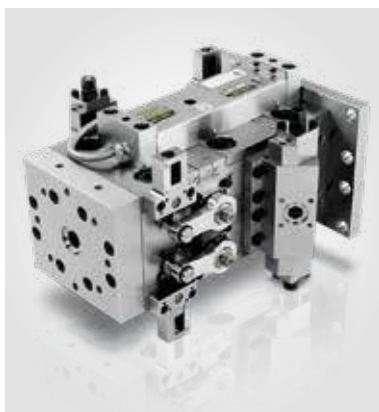
foam must have a homogeneous internal structure and smooth outer surfaces. For the best foam quality, the melt must leave the extruder as a highly homogeneous compound with the blowing agent (added as microgranules) uniformly distributed. The pressurized melt expands upon exiting the die.

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 slot die make it possible to produce sheets with significantly reduced density and, consequently, reduced use of raw materials. KraussMaffei provides an extrusion unit dedicated to this foaming process, consisting of a 36D single-screw extruder with grooved bush and barrier screw, a screen changer (optional) and a slot die specifically designed for foamed PO sheets.



PO flat sheet die



Adjustable coextruder adapter



Fast gap and decking systems



FIRST ENCOUNTER

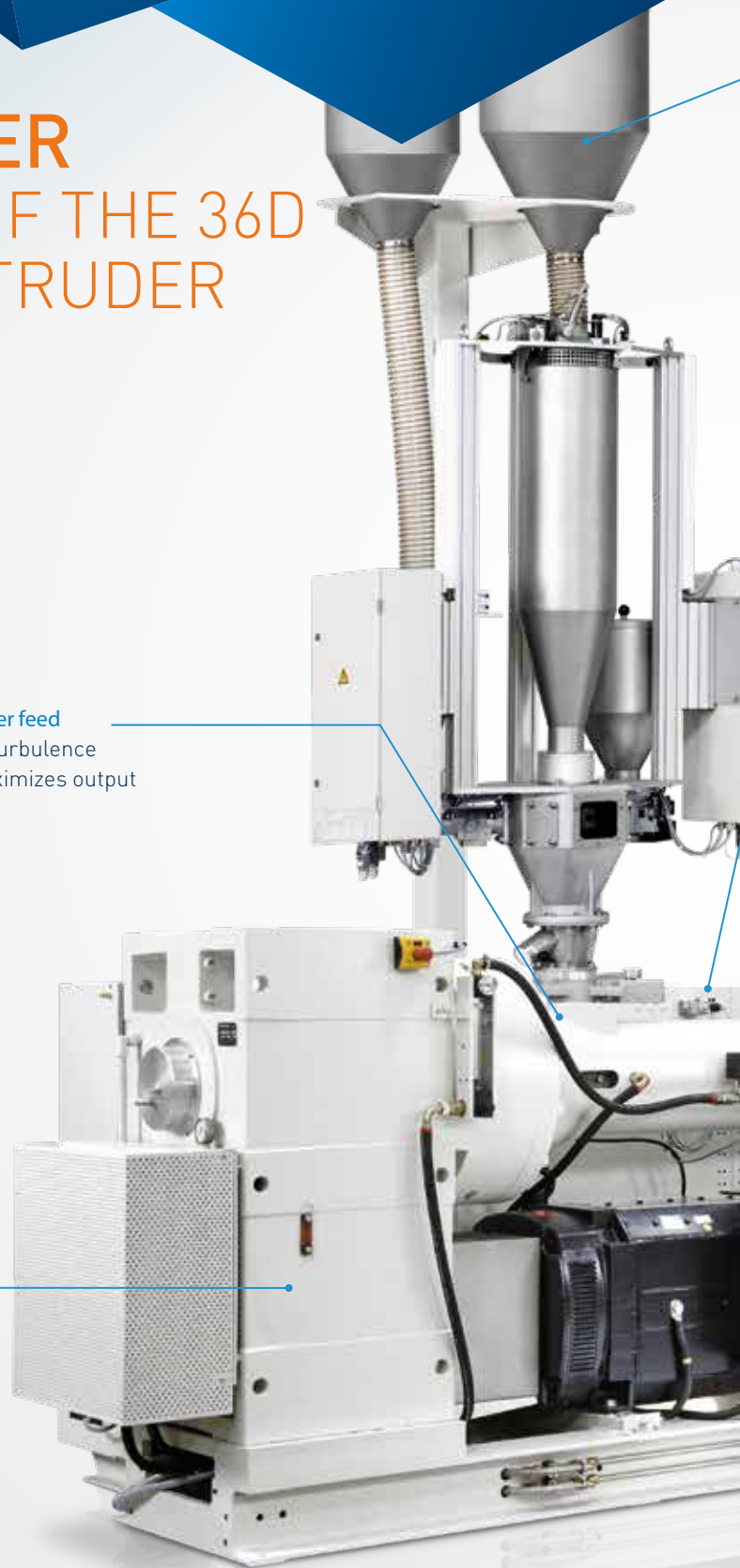
A WALKTHROUGH OF THE 36D SINGLE-SCREW EXTRUDER

Off-center feed

Avoids turbulence
and maximizes output

Robust gearbox

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



Gravimetric weighing of material

Deep-nitrided grooved bush

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

Bimetallic barrel

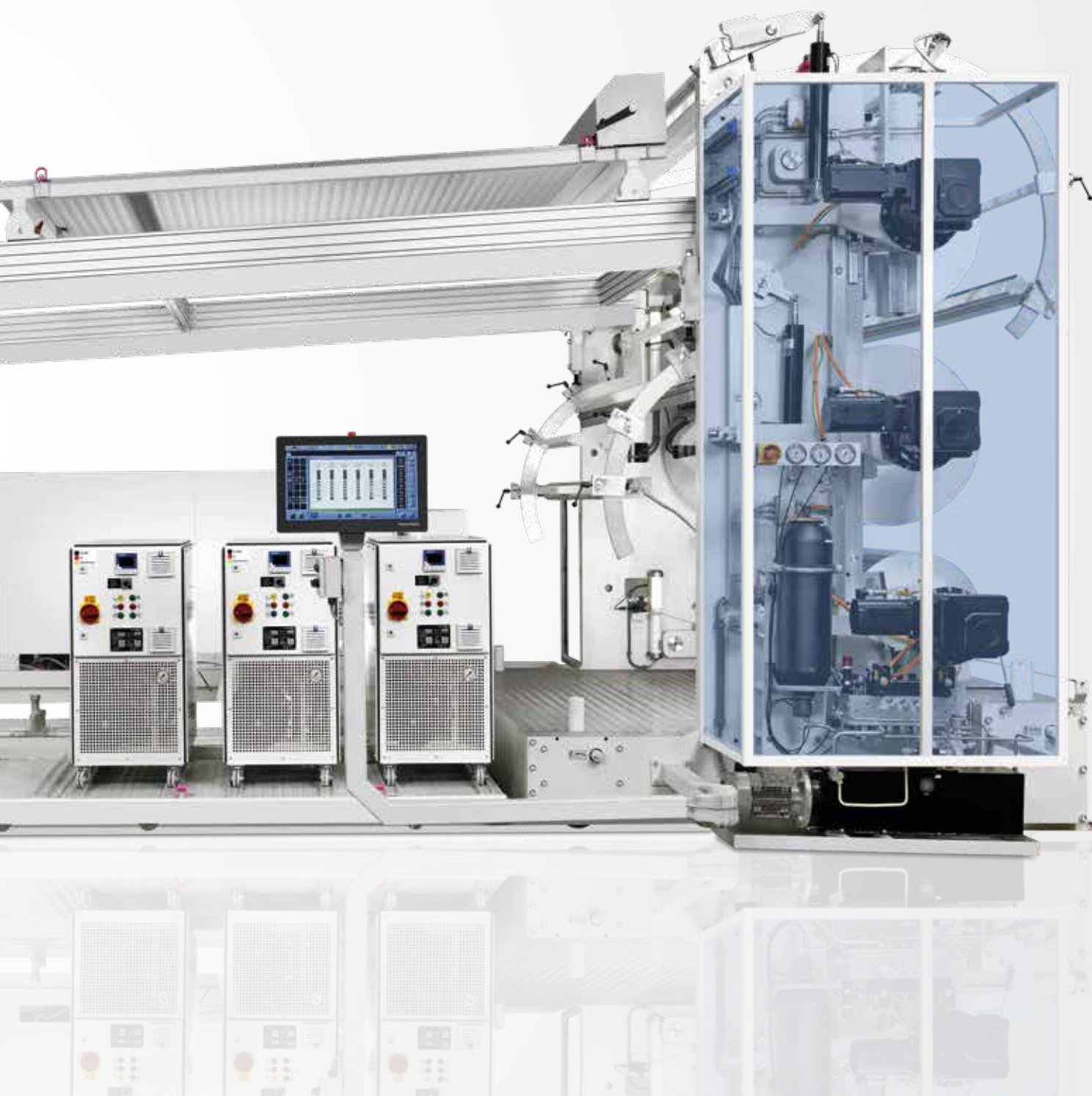
Low wear rates

Barrier screw

For thermal and materially homogeneous melts and low melt temperatures

Optimal drive dimensions

Designed either with AC or DC technology



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)

BEST EQUIPPED FOR THE MARKETS OF THE FUTURE – EXPLOIT LUCRATIVE POTENTIAL WITH NEW APPLICATIONS

No matter how varied and specialized your PO sheet production needs may be, KraussMaffei'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 sheet systems, you can process materials for a wide range of products, which are primarily used to build containers for water and acid.

HDPE sheets –

powerful advantages for numerous applications

HDPE sheets resist stress cracking, have 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 sheets –

attractive advantages for a variety of applications

PP sheets are light, offer optimum abrasion resistance, have excellent electrical properties, withstand long-term exposure to temperatures up to 90 °C, have a high surface hardness, can be nailed and welded, and are thermoformable. They 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 BENEFITS:

- Gentle melt processing and optimum melt homogeneity
- Long service life thanks to optimized pressure profiles
- Significantly reduced cooling water consumption for the grooved bush
- Low-maintenance drive concept in proven U arrangement
- Compact machine design for minimal space requirements
- Outstanding price/performance ratio



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 button

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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