



Reifenhäuser

CAST SHEET COATING

The Extrusioners



Cast- Sheet- and Coating Lines.

From simple to highly specialized –
always high-quality.

EXPERIENCED

When we say we know what we are doing, it is not a mere assertion. Half a century ago, we started developing and manufacturing lines for cast film production. Today, we understand the complete value chain – from raw material and process through to the finished product. We experienced the beginnings of the flat film industry and helped to forge its rapid development. We still do that today – with technical expertise and a wealth of experience that is more valuable than any theory. Over time, we have learned that success depends on so much more than mechanical steel and iron parts.

Ivonne Röder
Project Management

“If my experienced colleagues give our customers only half as much assurance as they did when I started as a young engineer, anybody can launch a line project as relaxed as I was then. That is so valuable.”



SUSTAINABLE

One could say “Built for eternity”. What we develop, manufacture, and deliver really works – way past the warranty time. This is not only due to the high demands we place on manufacturing quality but also on our future-oriented mindset. We develop with an eye to what will be relevant on tomorrow’s markets. And since we cannot predict what will happen in the distant future, we keep all our technology options open for later changes – to achieve maximum sustainability when it comes to collaboration, technology, economy, and ecology.

Hüseyin Pek
Service Technician

“Delivering spares parts for lines manufactured in 1970 always makes me proud. It shows we did a lot right – we supplied durable components, developed a sustainable technology, and established long-term customer relations. Just great.”



HIGH-GRADE

Life is sometimes so much easier when there are no choices, don't you think? Despite all the flexibility and great variety that our technologies offer today, we carved one thing in stone: quality. We manufacture all core components inhouse. This applies to lines for the mass market as well as for complex custom developments. Lines can be built based on either simple or highly complex technology. They meet different requirements and can execute various tasks. But what they do, they do in the same high quality. Always. That is our guiding principle.

Dr. Paul Walach
Director Technology

“I meet many customers who believe that high quality comes at a high price. But then I'm always delighted when we can dispel this belief when we discuss specific projects. In the end, I work every day to achieve high quality and value at competitive prices. And with success.”



REIFENHÄUSER CAST SHEET COATING

Reifenhäuser Cast Sheet Coating is a company of the family-owned Reifenhäuser Group. We develop and manufacture modular lines for the production of high-quality cast film, polishing sheet, and laminates. Our claim here is „High-tech for all.“ We have integrated the technology developments for our premium class throughout our entire line portfolio so that all customers can benefit – startups, producers in standard business, as well as producers of complex special applications. We also manufacture all our core components in-house – to ensure constant Reifenhäuser quality, high reliability, and an unbeatable price-performance ratio that always includes two things: customization and expert consulting along the road to the required production results.

Our Portfolio

Our lines cover a wide range of applications for cast film, polishing sheet, and laminates. You will find an initial overview of our range of products on the following pages. We will be delighted to explain the features of the various technologies in greater detail and relate them to your specific requirements. Contact us.

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Value:Concept High quality right from the beginning.

When is a line particularly valuable? In our opinion, there's a clear-cut answer to this: When the requirements and benefits match each other perfectly. When the line outputs exactly what production needs. And this definitely means high film quality from the first minute of production – with no compromises. Since all the other requirements are changeable, our Value:Lines can change, too: Simple operation, automation features, and functions are easily retrofittable. The line then grows with your business and your requirements. That's clever, don't you think?

Technology highlights for high-level production.

High-level production – for us, this means: high quality, reproducibility, flexibility, and efficiency in the use of energy and raw materials. Creating these opportunities is the driving force that pushes us when developing and manufacturing our technologies. All this results in features that provide a genuine added value to the production of cast films and laminates. Technologies that sometimes make a decisive difference in a highly competitive environment and a market that increasingly demands sustainable products.

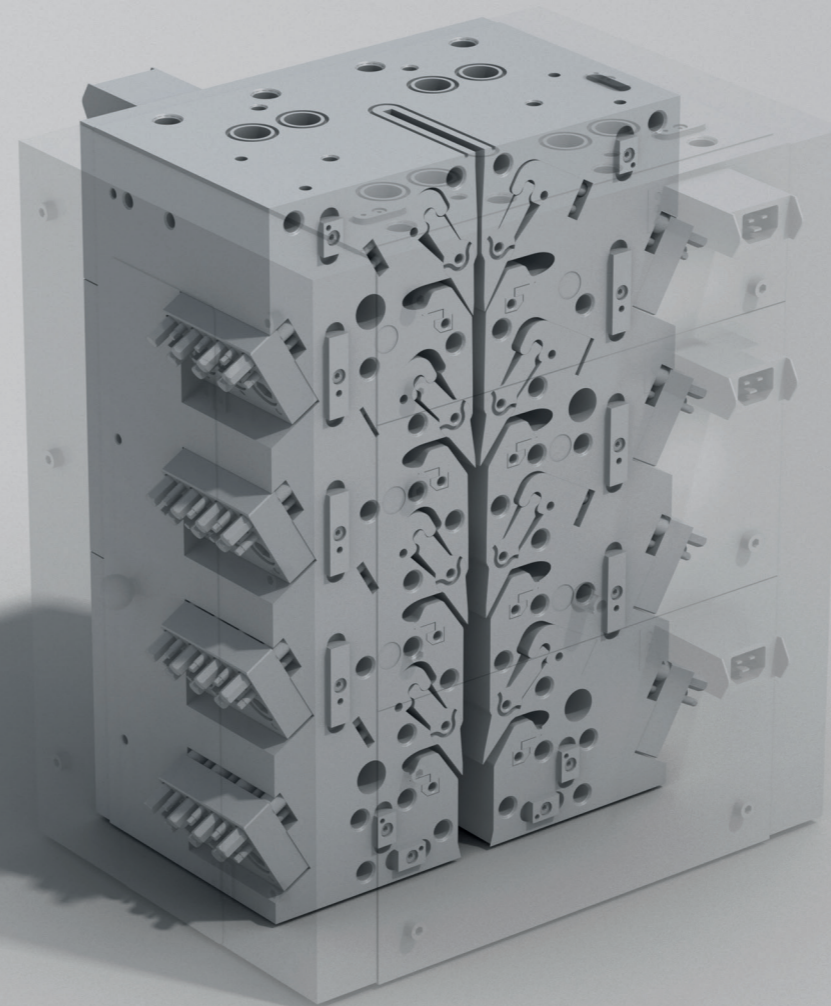
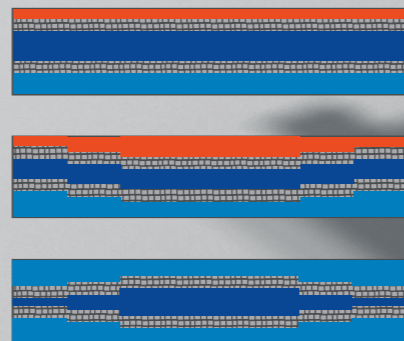
Reicofeed

Producing multilayer films on fully automated lines without reset times.

We reduce raw material costs drastically by only using the material that is actually needed. For example, our Reicofeed Pro coextrusion system adjusts the thickness tolerance of individual layers if the profile deviates in ongoing production. This feature is fully automated when the line is upgraded with our Digital Layer Control System. It's so simple to save resources in production.

Constant Quality

No matter which film profile the line runs, Reicofeed Pro reduces layer thickness to the minimum level required in production – guaranteed without impairing film functionality.



up to
11 layers

Optimizing reset times

The profilers in our Reicofeed Pro maximize machine time and reduce scrap by adjusting tolerances for every layer in ongoing production. This reduces reset times to a minimum.

Saving raw material costs

Reicofeed Pro lines produce functional layers as thin as possible without impairing barrier function. This drastically reduces the use of raw materials and costs. In reality, raw materials make up over 80 percent of total costs.

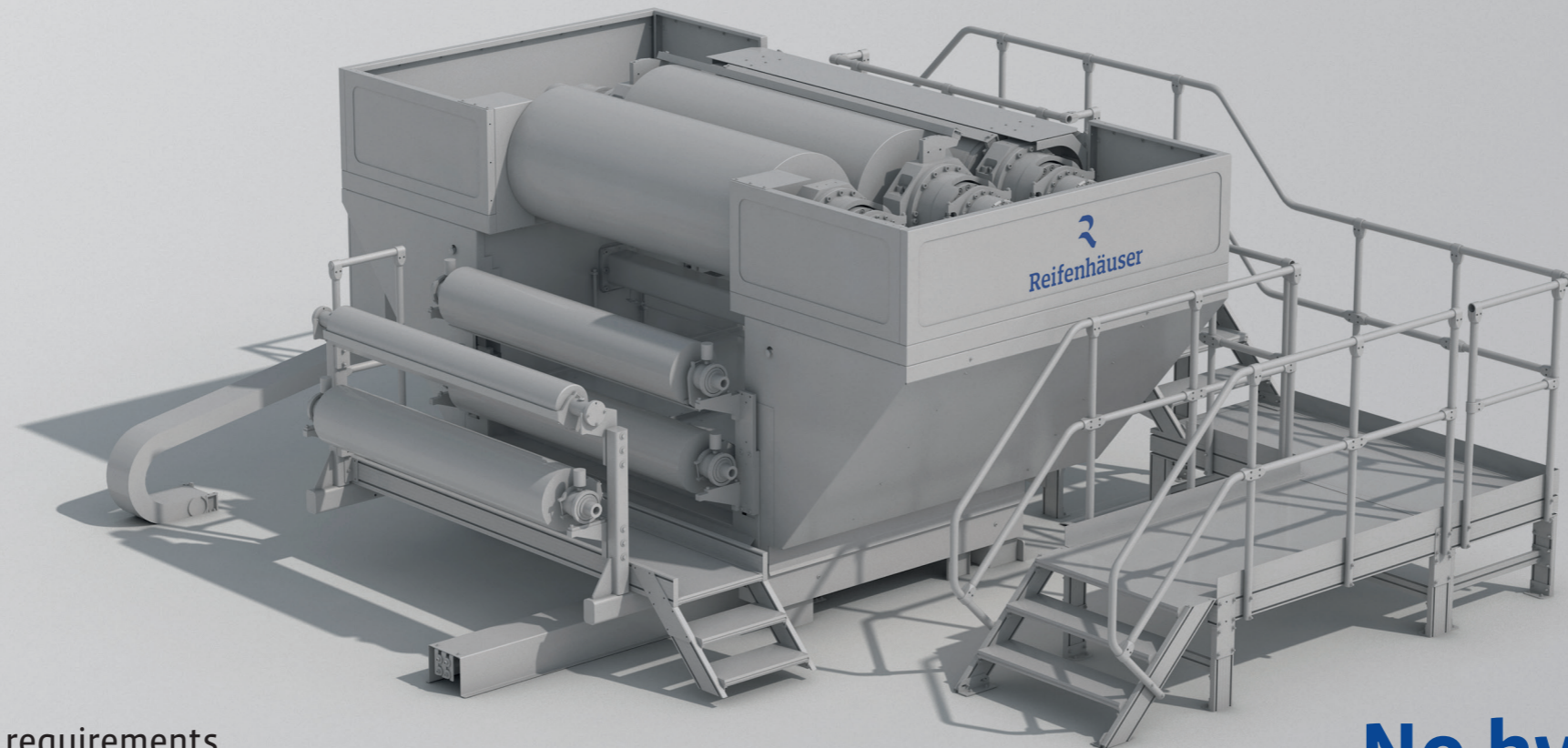
Increasing flexibility

Saving recipes and process settings guarantees constant high film quality, despite frequent product changes.

MIREX-MT

Saving materials and energy with digital technology.

No more long setting times and unnecessary scrap caused by approximating the ideal setting manually. Our patented MIREX -MT polishing stack adjusts the polishing nip at the press of a button in ongoing production – fast, fully automatic, and highly precise.



Three designs – to meet your requirements

Smart/MIREX-MT-I

For simple applications (PS/PP) and throughputs up to 1200 kg per hour.

Standard/MIREX-MT-HI

For standard applications and combined with conventional thermoformers.

High Quality/MIREX-MT-V-AX.

For special applications and continuous high throughputs of 1000-3000 kg per hour.

80% Saving raw material and energy

fast setting time/
less scrap

MIREX-MT maintains a constant film quality across large web widths. This makes the production of polishing sheet more precise and saves raw materials. Production with MIREX-MT is also extremely energy-efficient due to the elimination of a hydraulic pump, the improved efficiency of roll drives, and the fully automatic, high-precision polishing nip adjustment.

High quality simply reproducible

Saving recipes and process settings on the MIREX-MT guarantees constant high film quality, despite frequent product changes.

Applications in cleanrooms and with Industry 4.0

Our MIREX-MT polishing stack requires no hydraulic components. This results in low maintenance and makes it suitable for cleanroom applications. The stack is also prepared for use in an Industry 4.0 environment.

No hydraulic systems

Reitruder

Cost-efficient production thanks to compounding and direct extrusion.

Our Reitruder co-rotating twin-screw extruders permit the mixture of high filler content. They also process 100 percent recycling material directly in a single process step – to achieve sustainable production that is time- and energy-efficient.

High quality of compounding, mixing and venting

Processing 100% recycling material

Combined with efficient vacuum units, the Reitruder processes PET flakes directly from recycled bottles. In other words, no energy- and time-consuming drying is required.

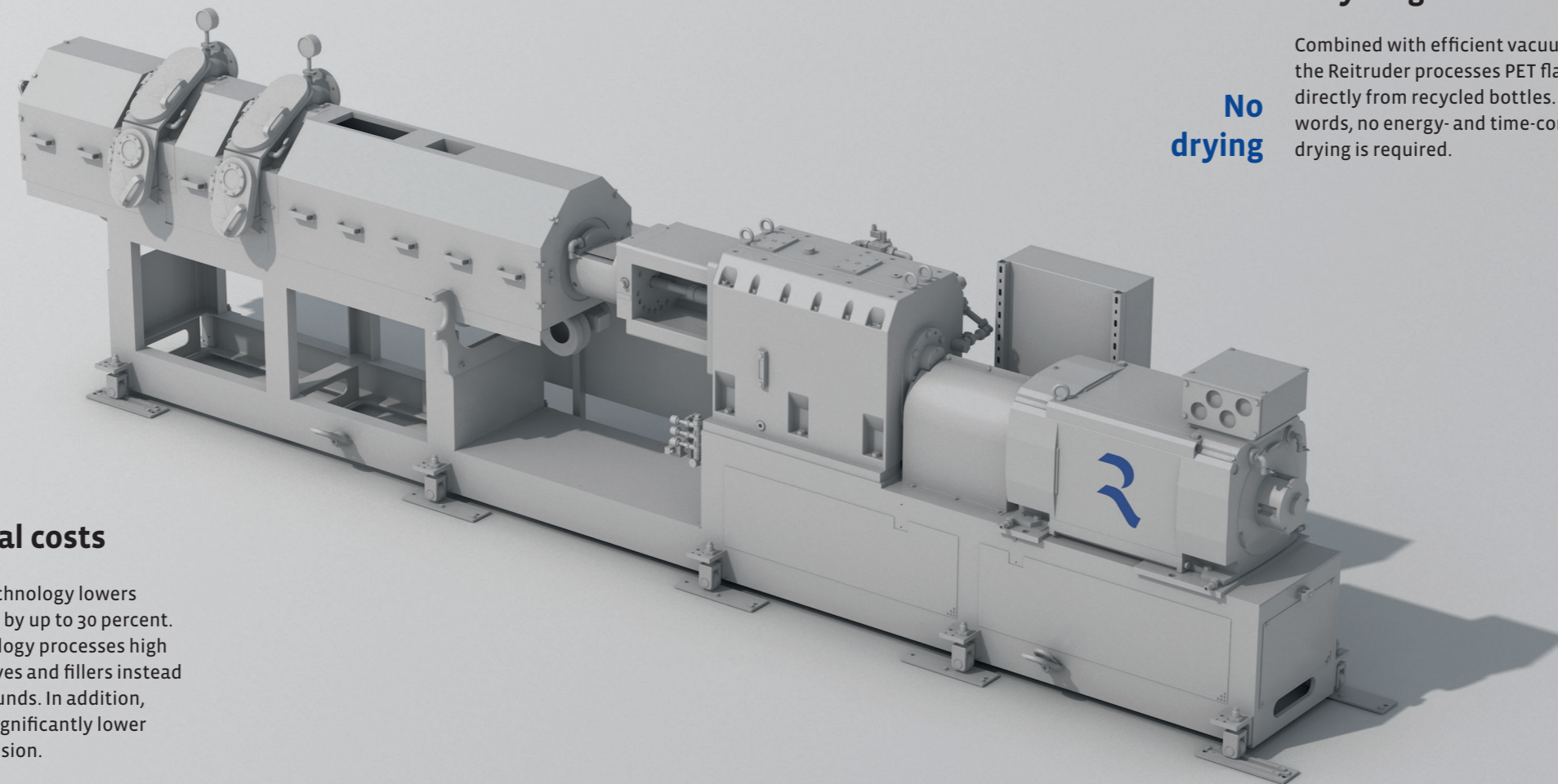
No drying

Using raw materials flexibly

Reitrudders are true omnivores. They are designed to process almost all raw materials that are used in sheet-film extrusion. This makes production extremely flexible.

Configuring a custom plasticizing unit

Reitrudders are always supplied with the best possible configuration for each line. We adjust barrels and screws to obtain a plasticizing unit with raw material feed, venting and degassing. We also adapt the geometry of the co-rotating screws to the application. The sequence of compounding and admixed elements is also freely selectable, depending on the raw materials used.



30%

lower raw material costs

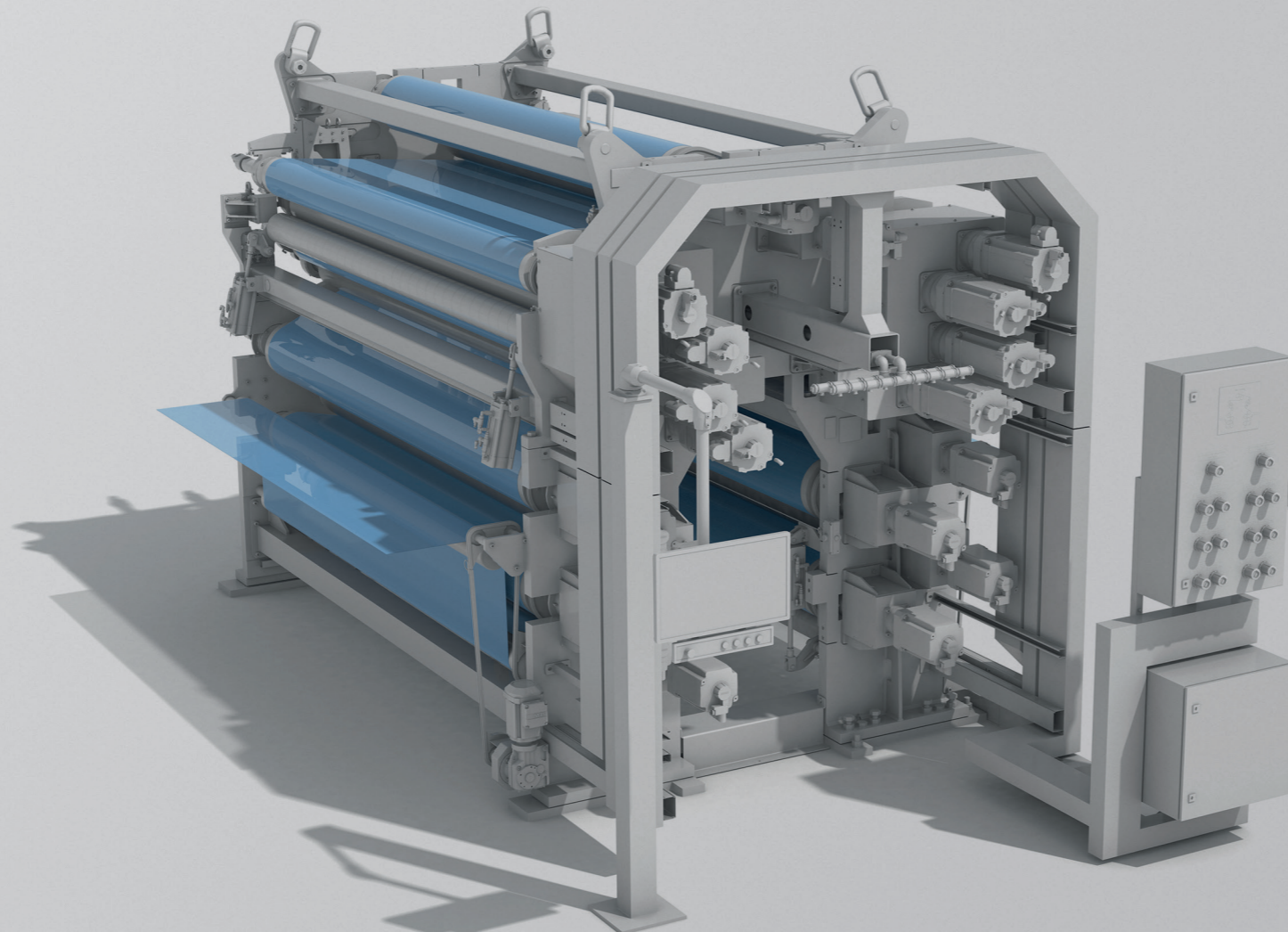
Reducing raw material costs

Our twin-screw technology lowers raw material costs by up to 30 percent. In fact, the technology processes high contents of additives and fillers instead of finished compounds. In addition, energy costs are significantly lower due to direct extrusion.

MDO

Improving film properties and lowering raw material costs.

Cost-effective production and high film quality need not be contradictions. Stretching is the solution. Our stretching unit is a highly cost-efficient solution for the production of film with excellent properties.



Stretching improves film properties:

- Stiffness
- Shrinkage
- Gloss
- Transparency
- Barrier effect
- Breathability

1:8
stretch ratio

How does stretching work?

Our stretching unit modifies the polymer structure of the films at an optimized process temperature by mono-axial stretching through two stretching gaps and upstream/downstream temper rolls. This adapts film properties precisely to the requirements.

max. stretch ratio	1:8
max. film width	3600 mm
max. line speed	350 m/min

Adapting settings inline

The stretching gap is re-adjustable in ongoing production without any problems to achieve extremely high efficiency in production. No line stop is required.

User-friendly maintenance & cleaning

Individual rolls can be removed from the line for maintenance and repair. Special service platforms make access easier.

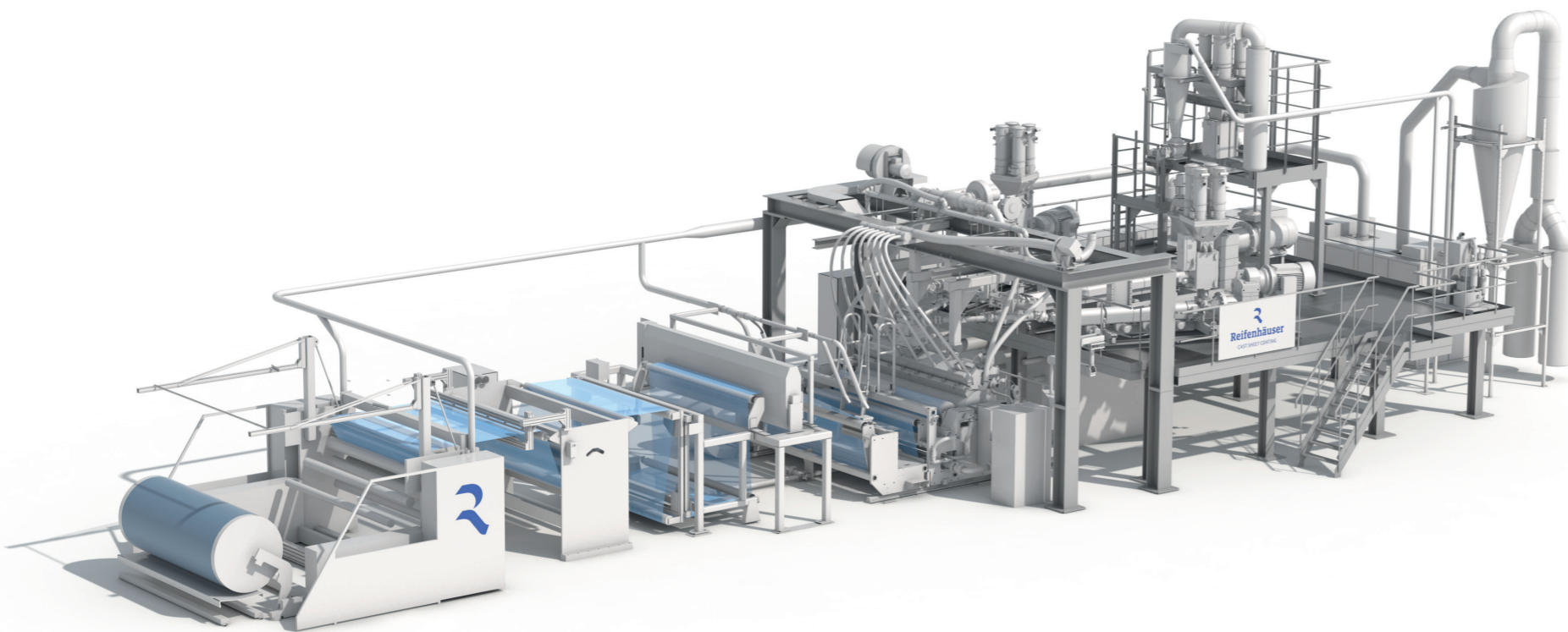
MIDEX Cast Lines

Cast films are highly transparent and feature good sealability and printability. So, they are highly suited for many types of packaging. We have developed a modular design for our lines so that they can be easily configured to meet various product requirements for packaging and technology. We select from a broad range of components to configure a custom line for material compounding, extrusion, shaping, aftertreatment, edge trim recycling, winding, and automation. We design and manufacture critical quality components to meet our high demands for quality. Single- and twin-screw extruders, coextrusion systems, flat dies, cast units, and winders are 100 percent made by Reifenhäuser.

Cast film lines for CPP

Modularity and customization.

CPP is one of the products with the greatest demand in the packaging industry. Since the range of applications for this Product is so vast, we offer a particularly broad range of standard components – for modular CPP cast film lines to match custom requirements perfectly.



Applications

- Bread bags
- Film for packaging flowers
- Film for packaging textiles
- Film for metalizing food packaging
- Film for lamination with BOPP (pasta packaging)
- Film for office applications (file covers, transparent envelopes)
- Film for twist packaging
- Film for sterile packaging

Max. film width	6800 mm
Film thickness	12–300 µm

Minimum layer thickness tolerances

Reicofeed is a particularly simple solution capable of producing up to five film layers in high quality. The coextrusion block is available with fixed or variable geometry. When combined with our flat dies, layer thickness tolerances are always reduced to a minimum.

Constant high film quality

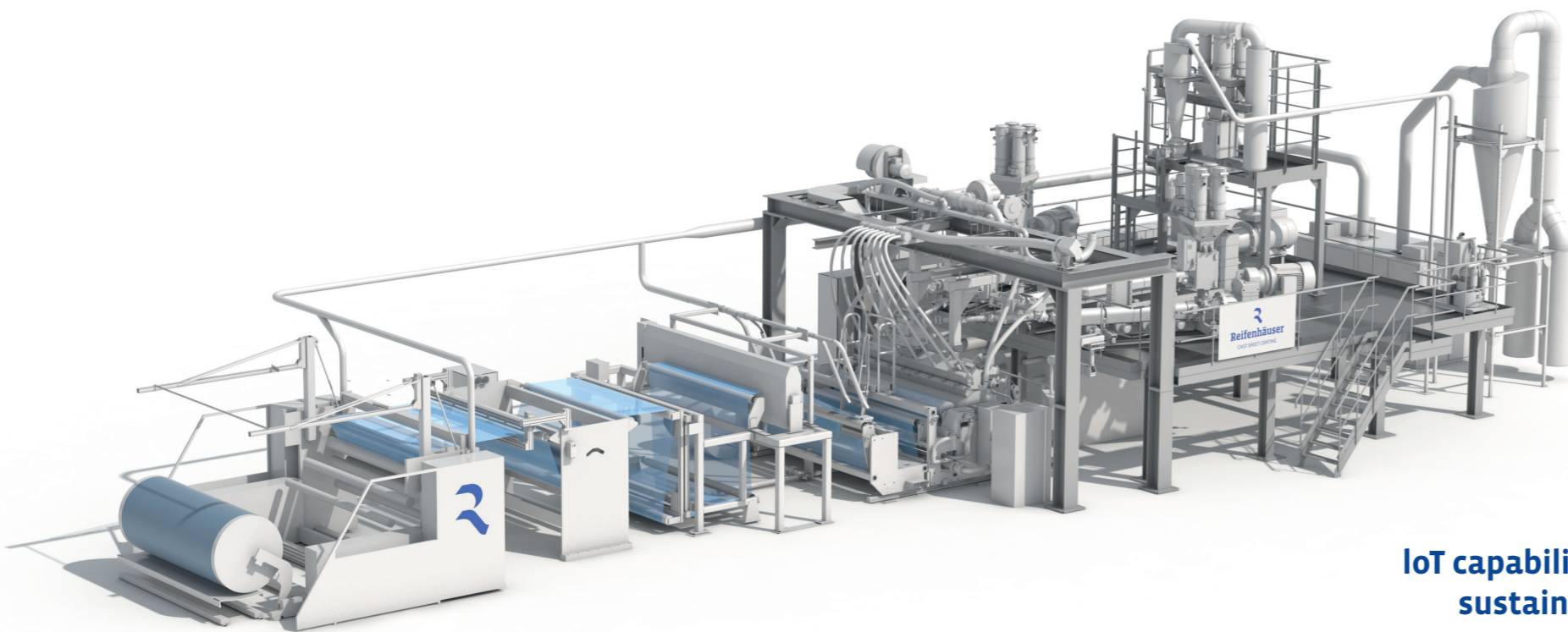
Constant high film quality and stable film properties are a matter of fact for us – this is made possible by a casting unit equipped with precise cooling and specially designed drive systems.



Value:CPP cast film lines High quality right from the beginning

Our Value:CPP line is ideal for launching on the market with a manageable initial investment. The same line is also expandable to keep pace with later growth and changes. A technology that reduces investment costs and perfectly combines state-of-the-art product quality and extraordinary scalability.

-20%
investment,
delivery time,
installation time



**IoT capability and
sustainability**

No-compromise quality

The Value:CPP line produces the same state-of-the-art film quality as our high-end lines – from day 1! We applied the same concept to manufacturing, the process, and the service – high quality with no compromises.

Lower investment

The procurement of Value:CPP lines is 20 percent less expensive. They can also be supplied and installed 20 percent faster than MIDEX lines. You also save money in the long term due to high availability, low maintenance, and high scalability.

Unlimited scalability

Investment in a new line to cover increased requirements or market changes becomes superfluous with Value:CPP. The lines simply grow with the demands and markets of their operators. The hardware can be scaled up to the level of high-end lines – to provide additional functions, high capacities, and more user-friendliness.

Future-oriented technology

The software for Value:CPP lines is prepared for Industry 4.0 capability to pave the way for intelligent production. The lines are also designed to produce film for monomaterial packaging to meet rising demand for sustainable products.

Applications

- Bread bags
- Film for packaging flowers
- Film for packaging textiles
- Film for metalizing food packaging
- Film for lamination with BOPP (pasta packaging)
- Film for office applications (file covers, transparent envelopes)
- Film for twist packaging
- Film for sterile packaging

Technical Highlights: from MIREX lines

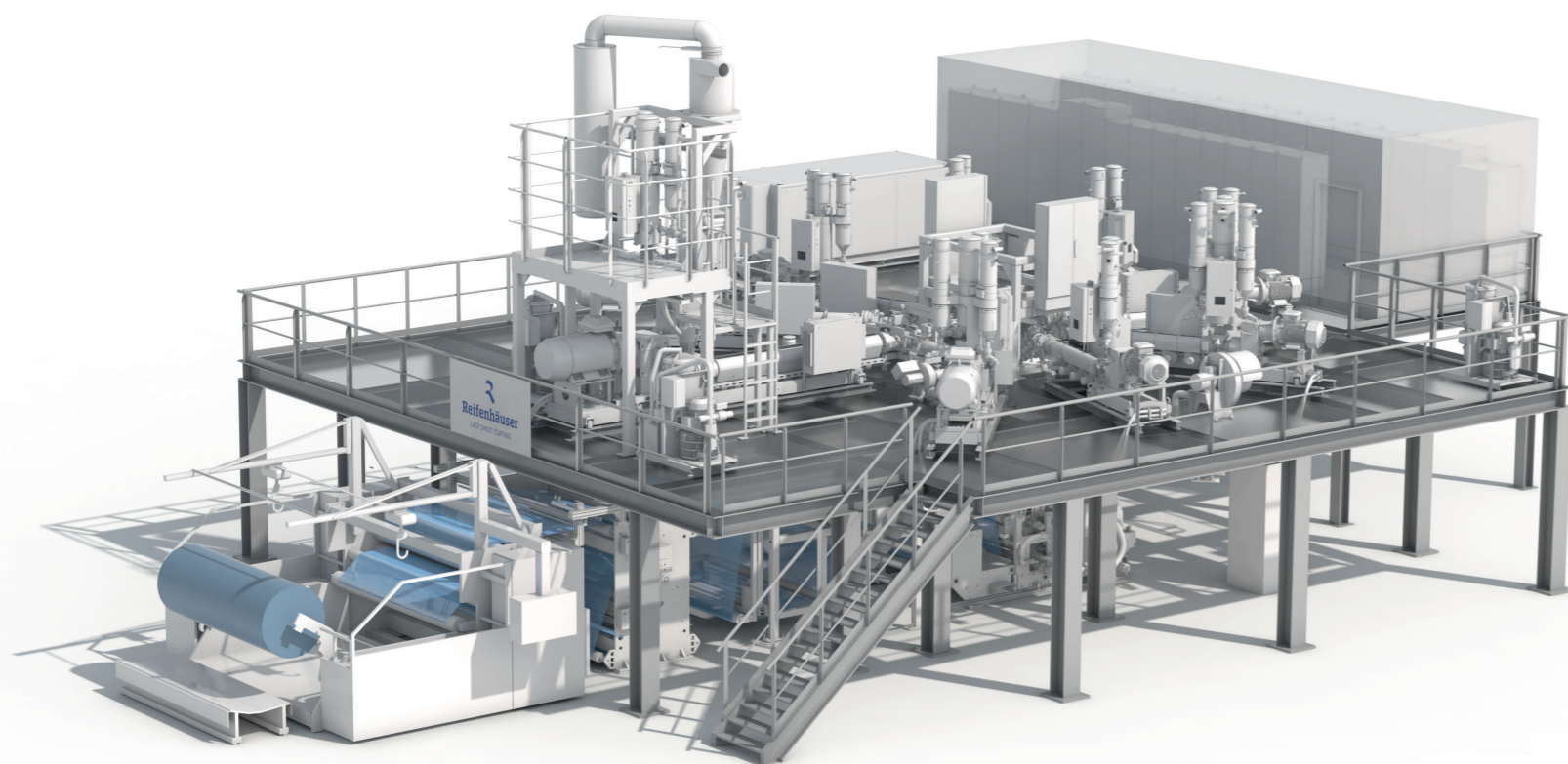
- **Reiloy inside:** Extruders manufactured inhouse with high wear-resistant screws and barrels.
- **High-performance winder:** The standard winder comes with a large reel diameter of 1200 millimeters instead of 1000 millimeters – and provides 40 percent more capacity on a single reel.



Cast film lines for barrier films

Quality and cost-effectiveness combined.

Producing multilayer films that fulfill their function is already standard procedure in modern plants. However, it is not always easy to solve this requirement and guarantee the lowest possible raw material consumption. Our cast film lines for barrier applications are designed to achieve exactly this – and obtain high-quality production that is cost-effective at the same time.



Minimum layer thickness tolerances

Our Reicofeed Pro feedback adjusts the layers of multilayer films in ongoing production. The technology guarantees minimum tolerances, resulting in a significant reduction in raw material consumption.

Efficient raw material consumption

Using cost-intensive barrier raw materials exclusively in the web area of the film – this is exactly what our dies ensure. At the edges, an optional adjustable encapsulation unit feeds standard polymers. Edge trim is returned to the line.

Continuous infrared thickness measurement

Our IR-Sensor and beta emitter execute a continuous twin thickness measurement in ongoing production. The IR-Sensor supplies exact, reproducible measurements of layer thicknesses in the production of barrier films made from EVOH or PA.

Maximum reel capacity

Our MIDEX-HS/HSD slide winder produces an increase in running meters per reel by about 45 percent. This results from a reel diameter of 1200 mm instead of the conventional 1000 mm. The best thing is: The winder is a standard component even in the simplest configuration of our barrier line.

Applications

- Lid film for MAP packaging
- Sealed-edge bags
- Packaging for food and animal fodder
- Packaging for medical applications

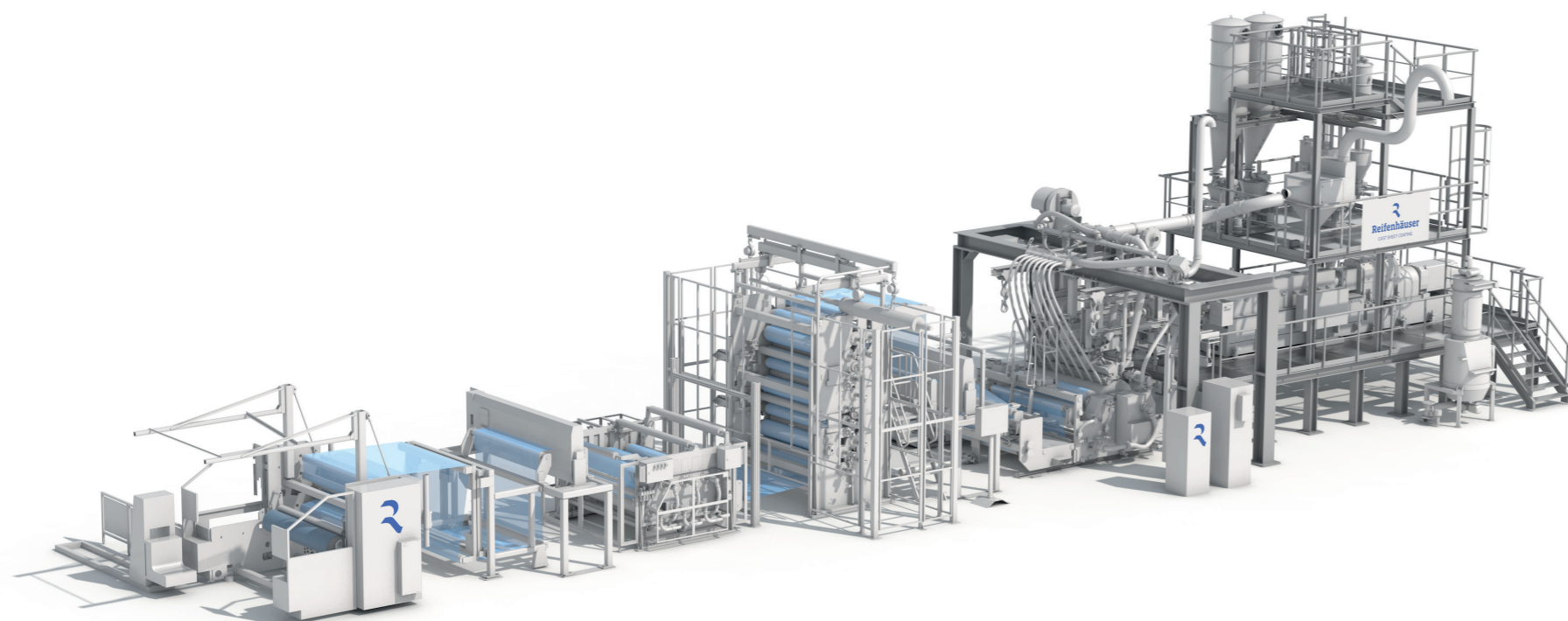
Layers	up to 11
Film thickness	40–300 µm
Film width	1500–3400 mm



Cast film lines for hygiene and industrial films

Mastering special challenges in production.

Producing hygiene and industrial films places special demands on production. A few examples include switching between breathability and non-breathability, or embossing the surface to give the film a pleasant soft touch and avoid rustling noises when the wearer moves. Our lines include practical functions to master challenges of this nature.



Applications

- Backsheet for baby and adult diapers
- Film for fem hygiene products
- Roofing

Inline embossing

Embossed films are produced without additional production steps. Our optional pressure unit is simply coupled to the casting unit.

Simple stretching

Stretching film saves raw materials and improves film properties. Our stretching unit (MDO) has intuitive operation thanks to a clever film feeding facility.

Processing high filler contents

REIfill technology ensures film breathability and saves costs. Depending on the application, the direct extrusion unit uses up to 50 percent mineral fillers.

Film width adjustable inline

We equipped our dies with internal or external width adjustment to adapt film width quickly and flexibly in ongoing production.

Layers	up to 5
Film thickness	12–40 µm
Film width	up to 3100 mm



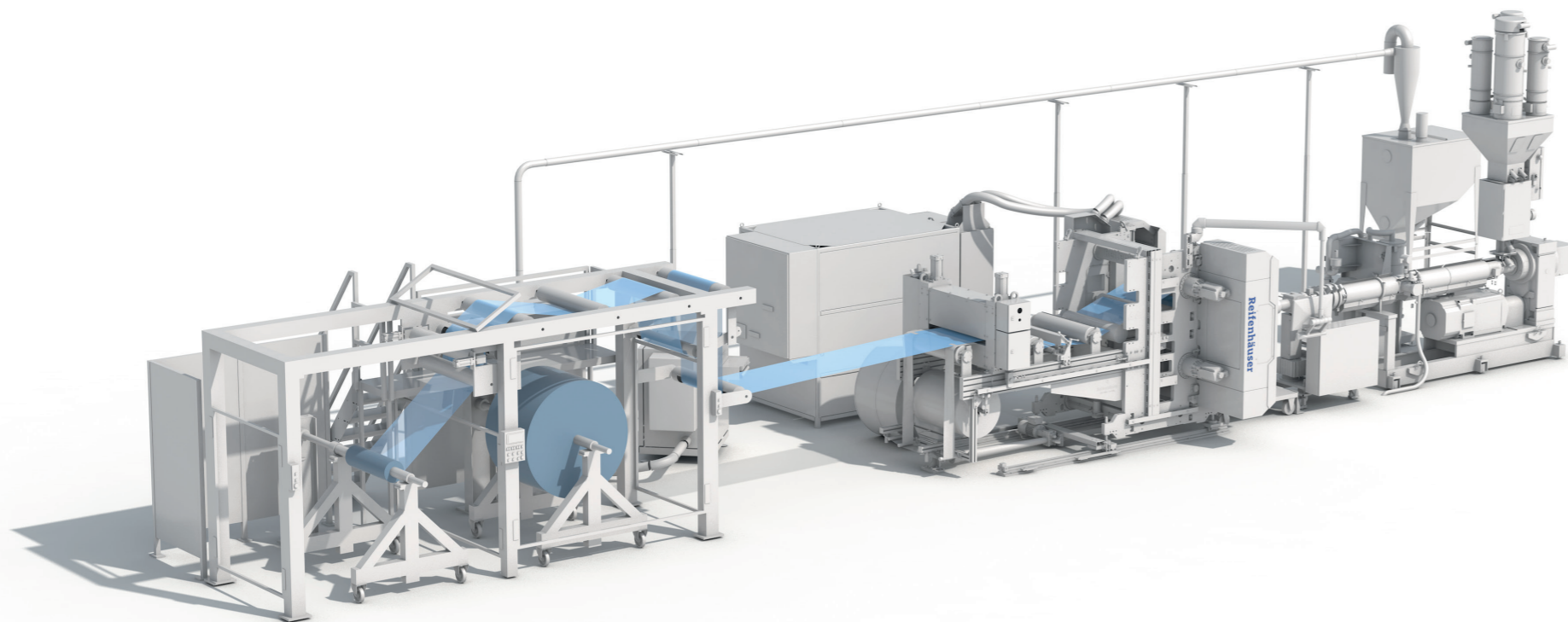
MIREX Sheet Lines

Our sheet lines stand for the production of polished products at a high level of perfection. For reproducibility, efficiency, and stable processes. Since the parts in contact with the melt and a good understanding of the process are essential requirements, we develop and manufacture all core components inhouse – from extruders, coextrusion systems, and flat dies, through to polishing stacks. The result: Reifenhäuser quality you can rely on. And a perfectly tuned modular system that leaves every opportunity open to configure a customized end product.

Sheet lines for PP and PS

Producing films for cups and trays.

For many years, there has been enormous demand on the market for hard packaging made from polypropylene (PP) and polystyrene (PS). Our sheet lines permit rapid switchover between two raw materials. They produce high-quality films with extremely low shrinkage, with high energy efficiency, and with no scrap.



Applications

- Yogurt cups
- Films for FFS
- Drink cups
- Food containers
- Blister
- Lids
- MAP packaging

High throughputs or raw material diversity

The requirements in production may often vary considerably. As a result, we offer two different extruders: a high-speed extruder for high performance on an extremely small footprint; and a multi-purpose extruder for maximum flexibility when it comes to the use of different raw materials.

Precision at the press of a button

Our MIREX-MT polishing stack adjusts a precise polishing nip at the press of a button. And it is freely selectable for vertical or horizontal extrusion. As an option, we couple the polishing stack to an air knife die to produce extremely thin lid films.

Production in cleanrooms

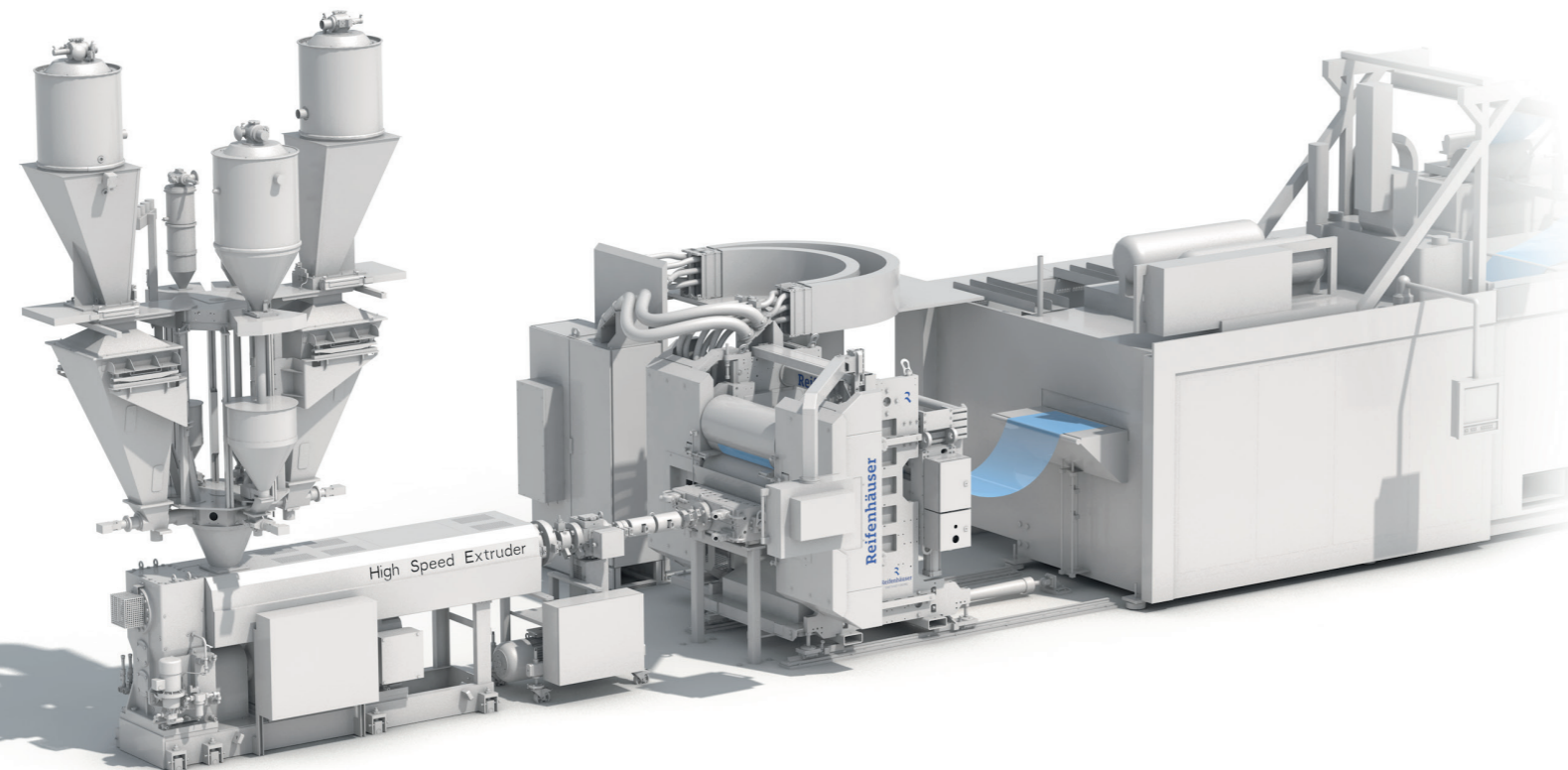
Our MIREX-MT polishing stack operates without hydraulic systems. Therefore it is ideal for applications in cleanrooms.



Inline-Machines

Producing high product volumes efficiently.

To produce large volumes of thermoformed products with high efficiency we can concatenate our Inline-Machines to conventional thermoformers. We then utilize the residual heat from the extrusion process. This allows us to reduce preheating in the thermoformer and reduce energy demand.



Applications

- MAP trays
- Drink cups
- Yogurt cups
- Food trays

High-performance production

Our high-speed extruders have an exceptionally high performance and a small footprint. They process up to 100 percent ground stock at low energy consumption.

100 percent reproducibility

Our MIREX-MT HI polishing stack adjusts reel and polishing nip at the press of a button. The system is motor-driven and precise – to ensure fast product changes and 100 percent reproducibility.

Small footprint

Our MIREX-MT HI polishing stack has a particularly compact design – to reduce its footprint in the line.

Production in cleanrooms

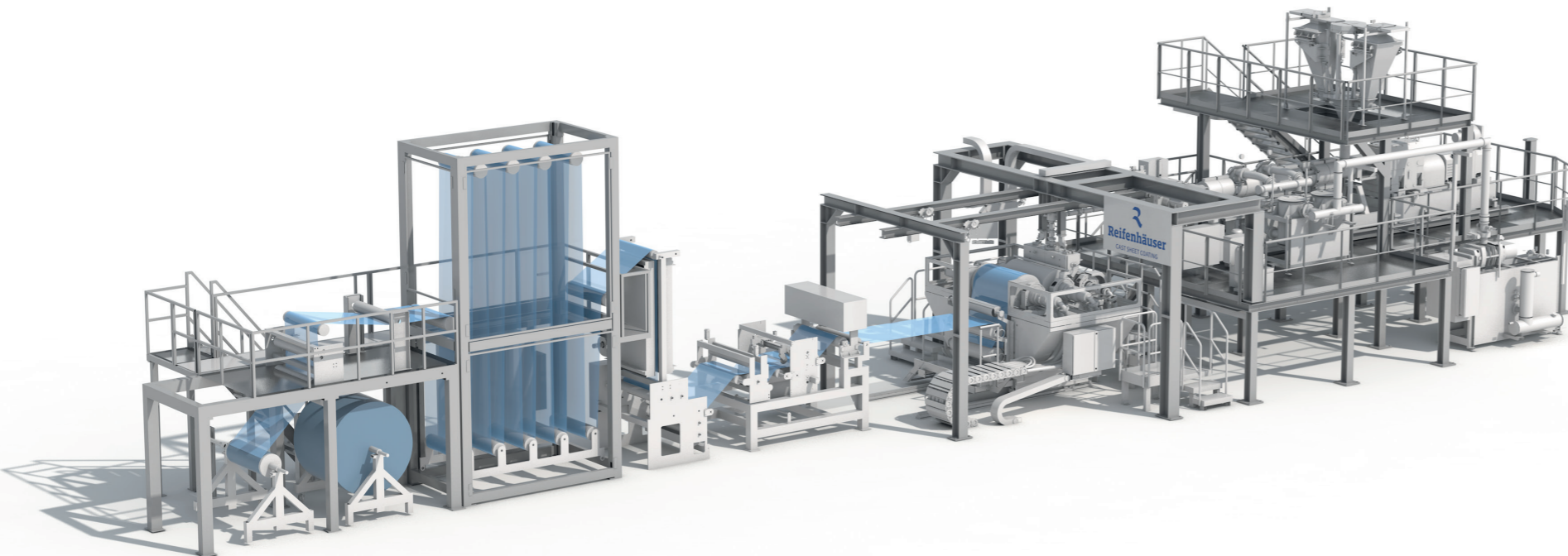
Our MIREX-MT polishing stack operates without hydraulic systems. Therefore it is ideal for applications in cleanrooms.



Sheet Lines for PET and PLA films

Successful production with sustainable raw materials.

PET and PLA films are indispensable when it comes to sustainable products. In order to make the production process sustainable as well, our polishing stacks process up to 100 percent PET flakes, PCR and polymers made from renewable raw materials – all without time- and energy-consuming predrying.



Applications

- Transparent blister packaging
- Transparent trays
- Laminated PET and PR trays
- Drink cups
- Industrial films

Processing 100% recycling material

Our Reitruder co-rotating twin-screw extruder processes 100 percent PCR material directly and without predrying.

EFSA and FDA certification for PET

Films produced with Reitruders on polishing stacks meet all the requirements of EFSA and PDA (FDA No Objection Letter on request). This also applies to films made from 100 percent recycling material.

PLA processing

All our core components are available in special design to process PLA materials.

Precision at the press of a button

Our MIREX-MT polishing stack adjusts a precise polishing nip in ongoing production at the press of a button. And it is freely selectable for vertical or horizontal extrusion.

Production in cleanrooms

Our MIREX-MT polishing stack operates without hydraulic systems. This makes it ideal for applications in cleanrooms.

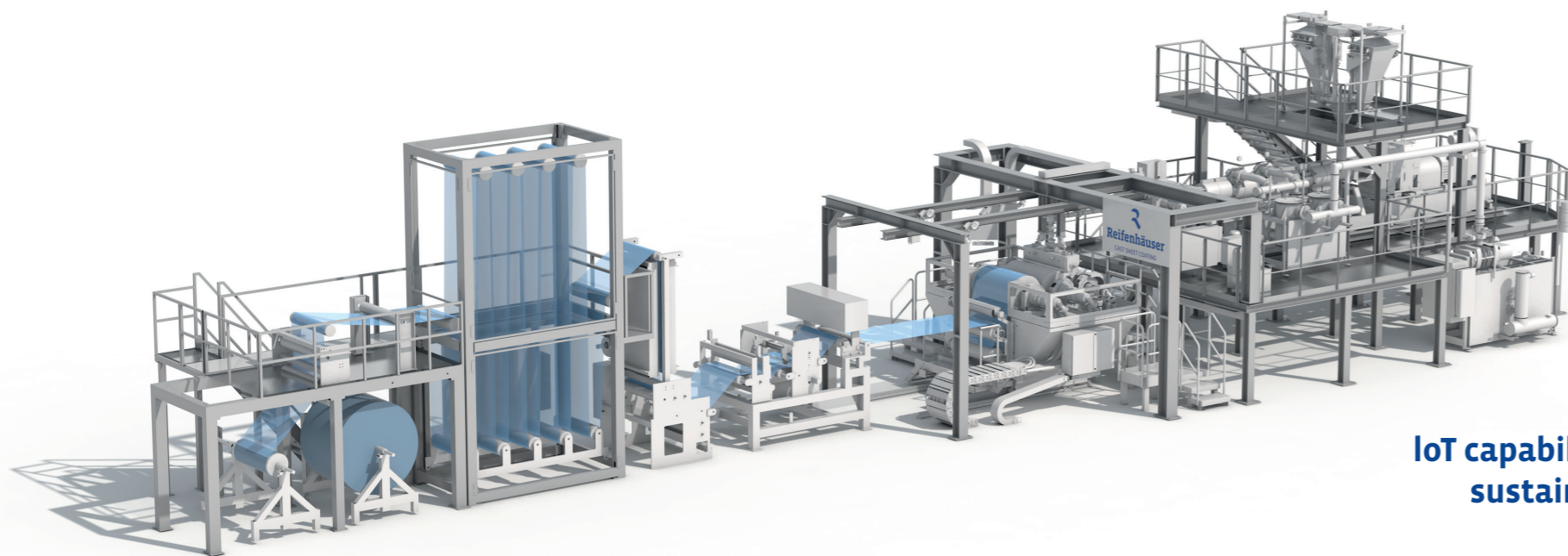


Value:PET sheet film lines

High quality right from the start.

Our Value:PET line is ideal for launching on the market with a manageable initial investment. The same line is also expandable to keep pace with later growth and changes. A technology that reduces investment costs and perfectly combines state-of-the-art product quality and extraordinary scalability.

-20%
Investment,
delivery time,
installation time



**IoT capability and
sustainability**

No-compromise quality

The Value:PET line produces the same state-of-the-art film quality as our high-end lines – from day 1. We applied the same concept to manufacturing, the process, and the service – high quality with no compromises.

Lower investment

The procurement of Value:PET lines is 20 percent less expensive. They can also be supplied and installed 20 percent faster than MIREX lines. You also save money in the long term due to high availability, low maintenance, and high scalability.

Unlimited scalability

Investment in a new line to cover increased requirements or market changes is superfluous with Value:PET. The lines simply grow with the demands and markets of their operators. The hardware can be scaled to the level of high-end lines.

Future-oriented technology

The software for Value:PET lines is prepared for Industry 4.0 capability to pave the way for intelligent production. The lines process up to 100 percent recycling materials to meet the rising demand for sustainable products.

Applications

- Transparent blister packaging
- Transparent trays
- Laminated PET and PCR trays
- Drink cups
- Industrial films

Technical Highlights: from MIREX lines

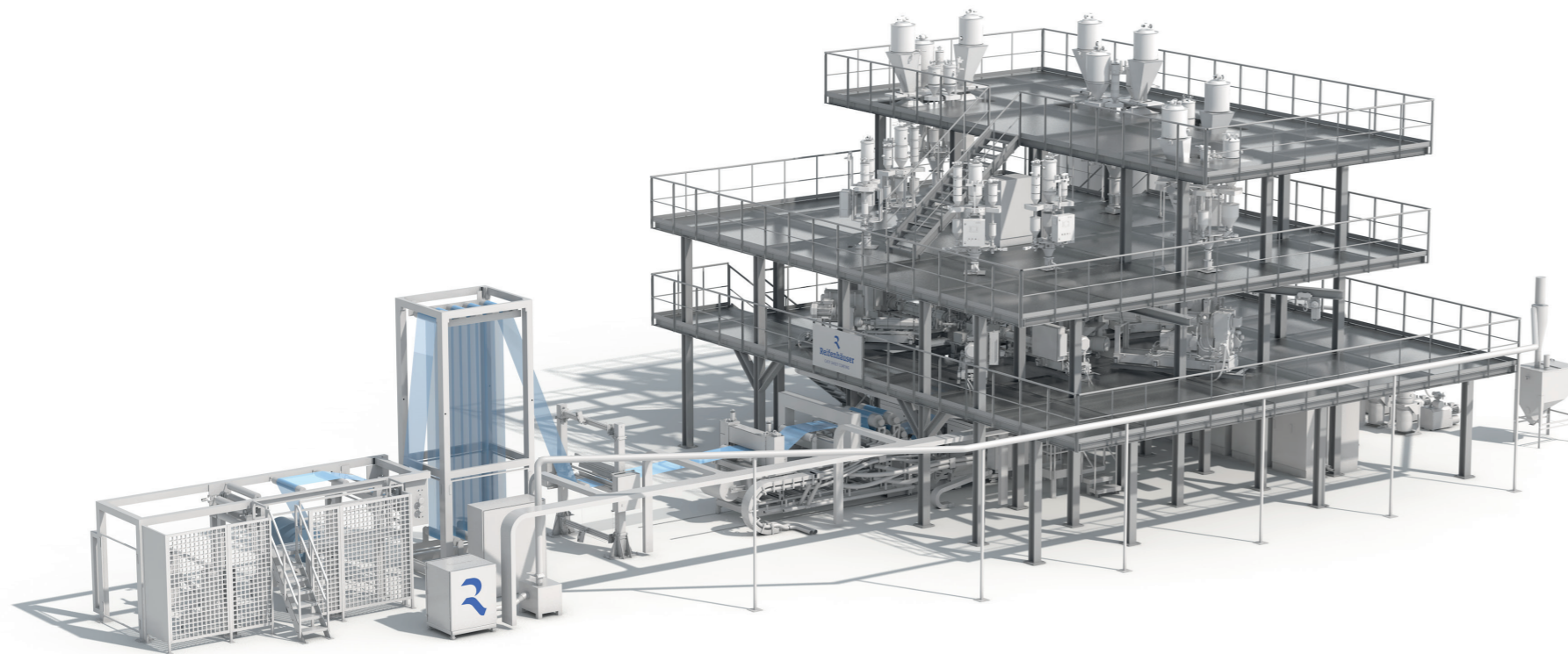
- **Reiloy Inside:** Extruders manufactured inhouse with high wear-resistant screws and barrels.
- **Mechatronic polishing stack:** Fully automatic adjustment of the polishing nip for constant thickness profiles and minimized energy and raw material consumption.
- **Reitruder twin-screw technology:** Energy-efficient, sustainable compounding and direct extrusion without predrying.



Sheet lines for barrier films

Producing complex structures at very tight tolerances.

Barrier films for food packaging assume vital tasks, such as aroma sealing and increasing shelf life. As a result, film structures are often complex and the raw materials are cost-intensive. Our barrier lines are therefore designed with maximum precision. This achieves minimum tolerances and high cost-efficiency.



Applications

- Aroma-tight packaging for cheese and fish
- Aroma-tight packaging for ready meals
- Coffee capsules
- Tea capsules
- MAP packaging for fresh meat

Flexible layer distribution

Rapid and precise adjustment of layer distribution to meet production requirements: Our Reicofeed Pro coextrusion feedblock is highly flexible in the production of barrier films.

Efficient use of raw materials

Lower raw materials costs are achievable thanks to the patented edge encapsulation of central layers.

Precision at the press of a button

Our MIREX-MT polishing stack adjusts a precise polishing nip at the press of a button. It is freely selectable for vertical or horizontal extrusion with 100 percent reproducibility. As an option, we add an air knife to the polishing stack to produce extremely thin lid films.

Production in cleanrooms

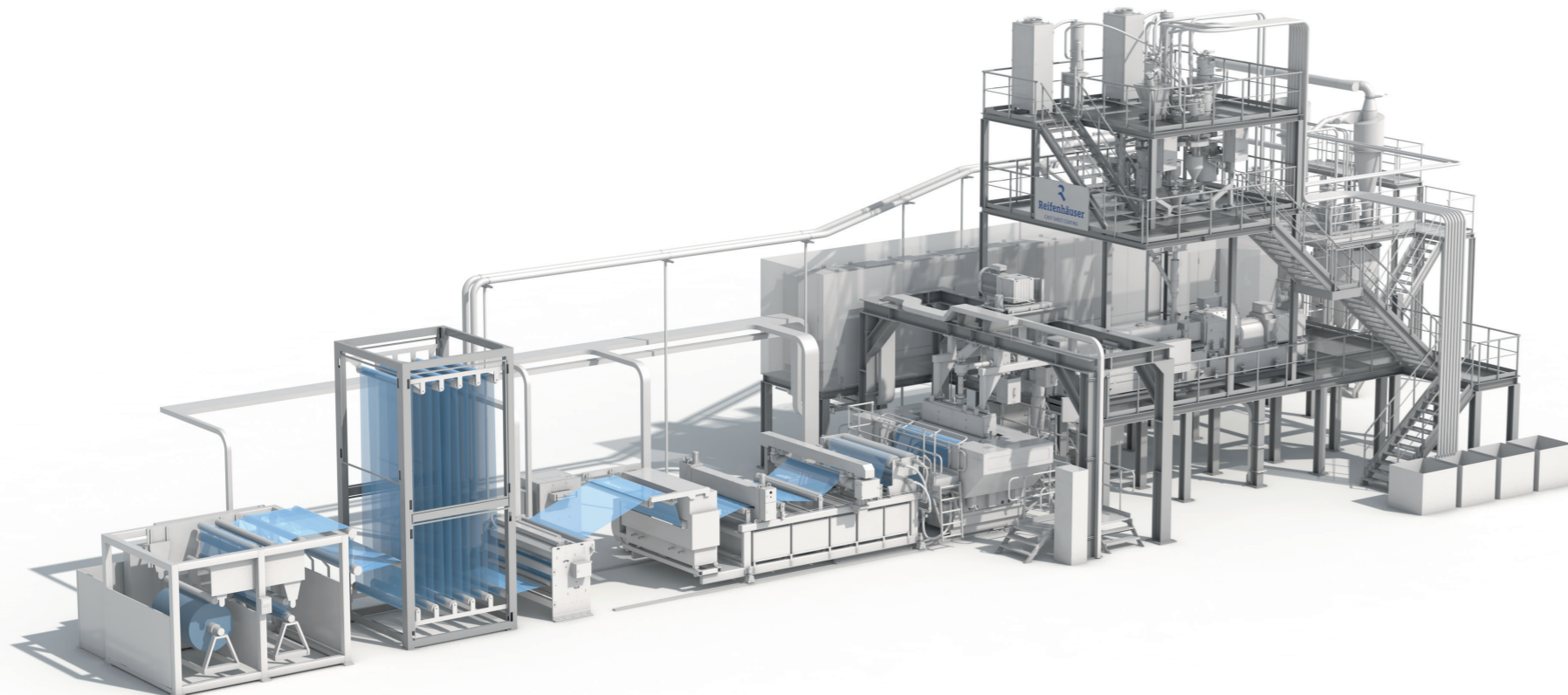
Our MIREX-MT polishing stack operates without hydraulic systems. Therefore it is ideal for applications in cleanrooms.



Sheet Lines for special films

Special applications for efficient production.

There are some applications where our modular system alone is insufficient to cover all production requirements. In this case, we develop a special line concept – a combination of modular and custom-designed components. We also provide our know-how and our Research & Development Center for product development.



Applications

- Automotive industry (e.g. interior trim)
- Shipbuilding and aircraft industry
- Construction industry (e.g. seals)

Production of PET films <120 µm

Our polishing stack with axis crossing was specially developed to produce extremely thin PET films – <120 µm depending on the width.

Direct extrusion of TPO

Our Reitruder co-rotating twin-screw extruder processes TPO with multiple additives to produce a homogeneous melt – and excellent product quality.

Developing products in collaboration

Beside the development of line technology for special products we also support product development at our Technology Center.



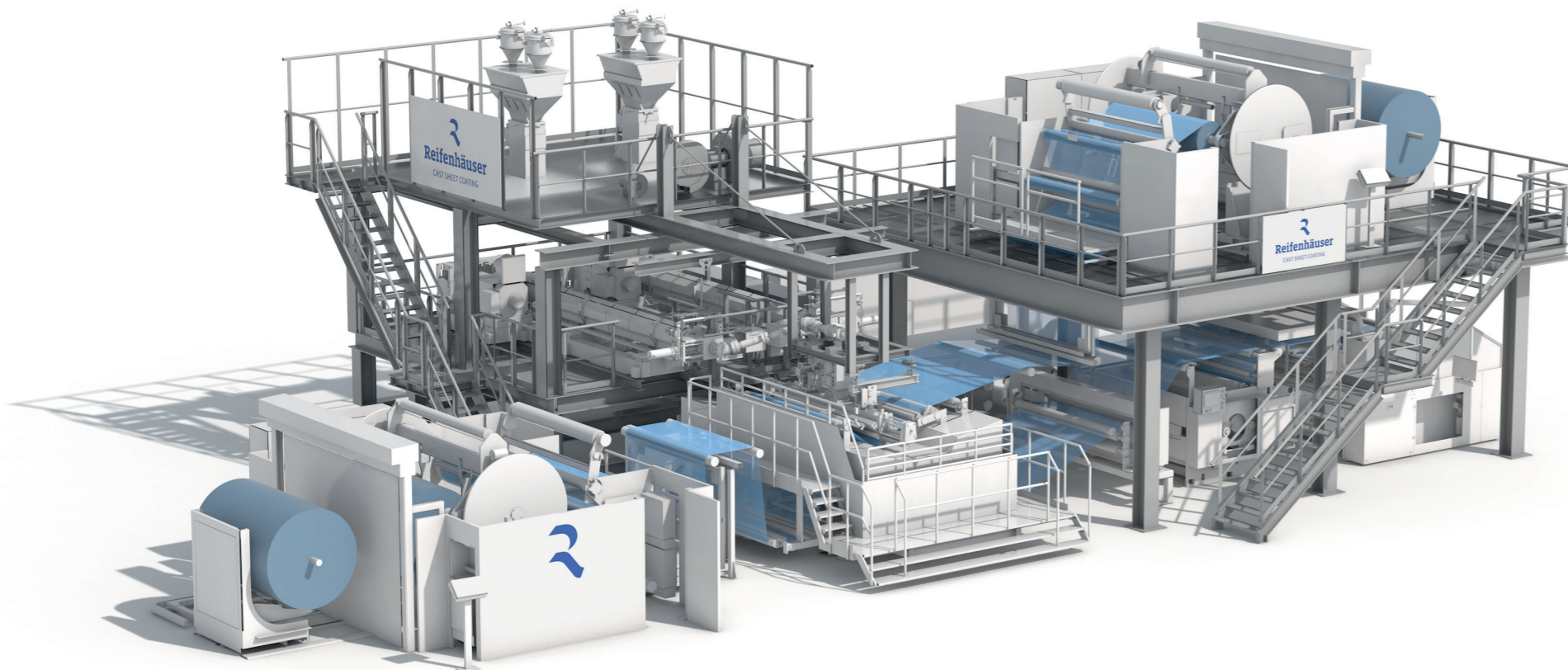
LAMICOR Coating Lines

A single material is often insufficient when product function requirements are complex. Our extrusion coating lines combine films with other materials, such as textiles or nonwovens, to produce high-quality composites with higher performance. Our extrusion coating lines are designed for single-step production. This makes them extremely space-saving and energy-efficient.

Extrusion coating lines

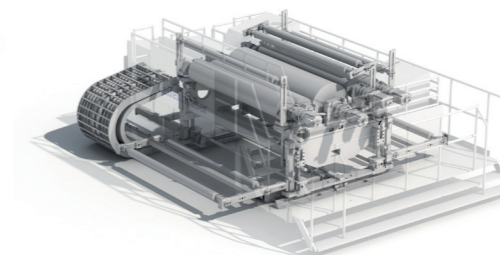
Producing high-quality composites with or without glue.

Our extrusion coating lines produce films and composites in a single operating step. In fact, we extrude the plastic film directly on the substrate. As required, we integrate optional components for subsequent processing, quality control, or finishing directly in the line. This is fast and simple.



Laminator rolls for coating unit

We have taken the field-proven mechatronic nip adjustment system from our polishing stacks and integrated it in our laminators. This technology runs with contact pressure and gap winding. The embossing roll is driven via the support roll as required and is quick to change.



Applications

- Roofing materials
- Interior for automobiles
- Textile backsheet for diapers

Substrates	Spunbond, Fabric mesh, BOPP film, BOPET film
Net widths	700–4000 mm
Coating thicknesses	from 3 g/m ² and higher
Coatings	PP, PE, TPU, TPO, ABS, filled PP



Research and Development

At the Troisdorf location, the Reifenhäuser Group currently operates the largest research and development center for plastics extrusion technology. Here, we further develop our own technologies under production-related conditions and accompany the developments of our customers, suppliers and partners – often in joint cooperation projects from which everyone benefits. Whatever the future holds: We are happy to support you with our technologies, our experience and our knowledge.

**THANK YOU FOR
TAKING THE TIME
TO BROWSE
THROUGH OUR
BROCHURE.**

**We would be glad to
hear your requirements.
Contact us. We look
forward to talking with you.**

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