



Reifenhäuser

BLOWN FILM

The Extrusioneers



EVO Blown Film Lines

Technology portfolio for a broad range of
high-quality blown film products.

FLEXIBLE

The product should determine the choice of technology, not the other way round. That's why we have compiled a comprehensive portfolio for the production of blown films. As no portfolio can cover all special cases, we develop tailor-made solutions if the product so requires. Thus, our customers can be sure to receive what is best for them and not what is most convenient for us.

Eugen Friedel
Sales Director

“For me, listening carefully to the customer is just the start of a good consultation. The decisive factor then is to react with flexibility. Our portfolio and the know-how within the Reifenhäuser Group that goes far beyond blown film give me the tools to do just that.”



RELIABILITY

We have one thing in common with our lines: We are real workhorses. Once we start, we keep on going. Since we strive to set up long-term business relations with our customers, we are willing to go the extra mile to pursue a jointly agreed goal. We stay until the job is done. Always. That's our philosophy.

Ewald Hamm
Head of Technology Center

“For me and my colleagues, it's all about bringing commissioning and service assignments to a successful completion. We provide our customers with support until they can start up production with certainty and as agreed. We walk the talk.”



INNOVATION

If there is one thing we do not shy away from, it is a technical challenge. Setting new standards in blown film extrusion is what has driven us from the start right up to the present. To create genuine competitive advantages for our customers, we think outside the box. We dare to break new ground, and we work closely with all the parties involved along the entire value chain. For technologies that give our customers the opportunity to take the next decisive step forward.

Dr. Christoph Lettowsky
Technical Director

“Today, we are far more than just technology developers. Thanks to the combination of our Technology Center and our know-how from raw materials through to end products, we can support our customers’ developments along the entire value chain.”



REIFENHÄUSER BLOWN FILM

Reifenhäuser Blown Film is a business unit of the family-owned Reifenhäuser Group. As specialists for blown film technology, we have made it our task to develop technologies that ensure the success of our customers by creating competitive advantages when it comes to sustainability, quality, flexibility, and cost-effectiveness. That's why we manufacture all of our core components in-house, continuously increase our know-how from raw materials through to the end-products, and enter into long-term collaboration with our customers and partners.

Ultra Outstanding technology.

Our “Ultra” quality seal stands for solutions beyond state-of-the-art technology. Ultra features guarantee a decisive difference on a highly competitive market – in regards to sustainability, quality, profitability, flexibility, or efficient energy and raw material consumption.

EVO Ultra Extruder

Swap raw materials
without any change
to the hardware.

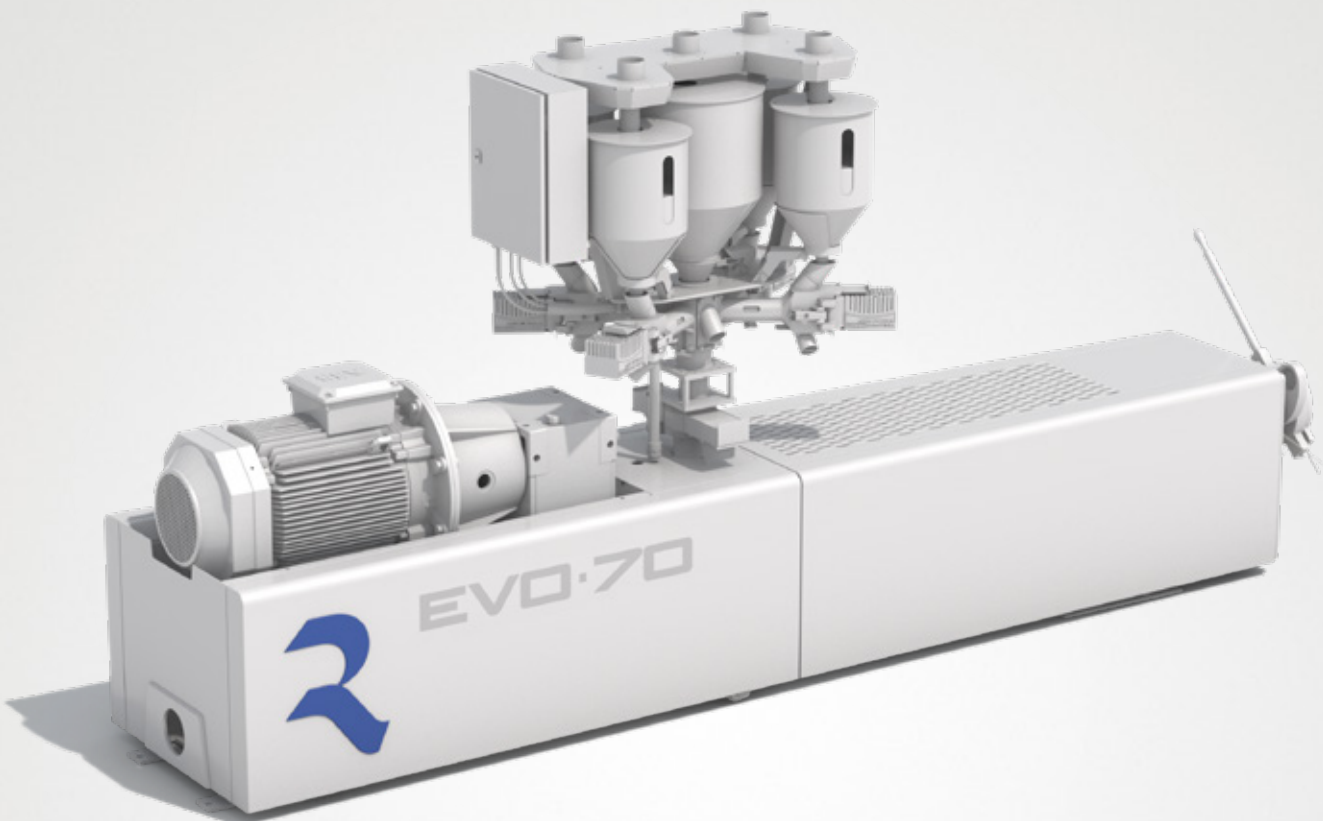
Producing PE film today and barrier film tomorrow? No problem with our EVO Ultra Extruders. They process any raw material with the same hardware configuration and combine maximum flexibility in film structure design at very high throughputs.

20%
more throughput

Save maintenance costs Save production costs

Operating for years without any maintenance is quite normal for EVO Ultra Extruders. This is due to their long lifetime and the fitted highly corrosion- and wear-resistant screws and barrels produced by Reifenhäuser Reiloy.

The high throughputs of our EVO Ultra Extruders help you to make your production more cost-efficient. Benefit from additional 20 percent compared to standard extruders.



ONE 4 ALL

LDPE, LLDPE, mLLDPE,
MDPE, HDPE, EVA, PET,
EVOH, PA6, CoPA, CoPP, PP,
Adhesives, Ionomers,
PS, PLA, you name it.

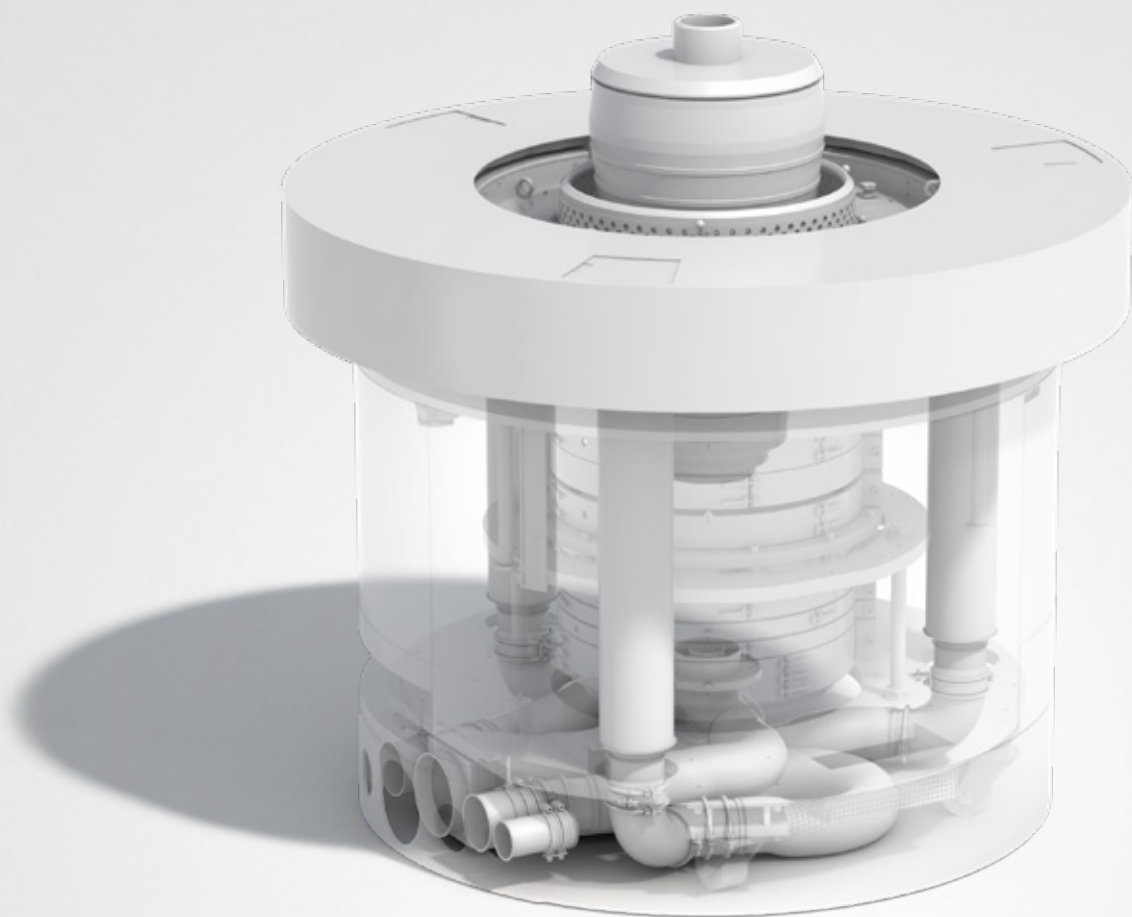
Fast response

In case your customers require different products tomorrow our Extruders will make it easy for you to meet their needs quickly. There is almost no limit for the processing of different raw materials and additives. The wide temperature range from 20 to 250°C in the feed zone makes this possible.

EVO Ultra Cool

Double your output
and still achieve
best film quality.

EVO Ultra Cool perfectly combines high productivity and quality. Our high-performance cooling system maintains maximum mechanical film properties even at maximum outputs.



EXCELLENT COOLING

Uniform inside and outside

Increase film quality

Get both: excellent film quality and high productivity. The homogeneous cooling inside and outside of the film bubble guarantees best mechanical properties for any production setting.

Save raw material

Don't waste material. EVO Ultra Cool achieves excellent thickness tolerances due to the long film guide and thus save raw material and costs.

Easy operation

Starting and operation EVO Ultra Cool is as easy as starting a conventional cooling air ring. The system assists operators by motorized height adjustment and fully accessible key components. The system is also available as an upgrade and there are no additional trainings required to enter the next level of productivity.

1–2.5
die factor

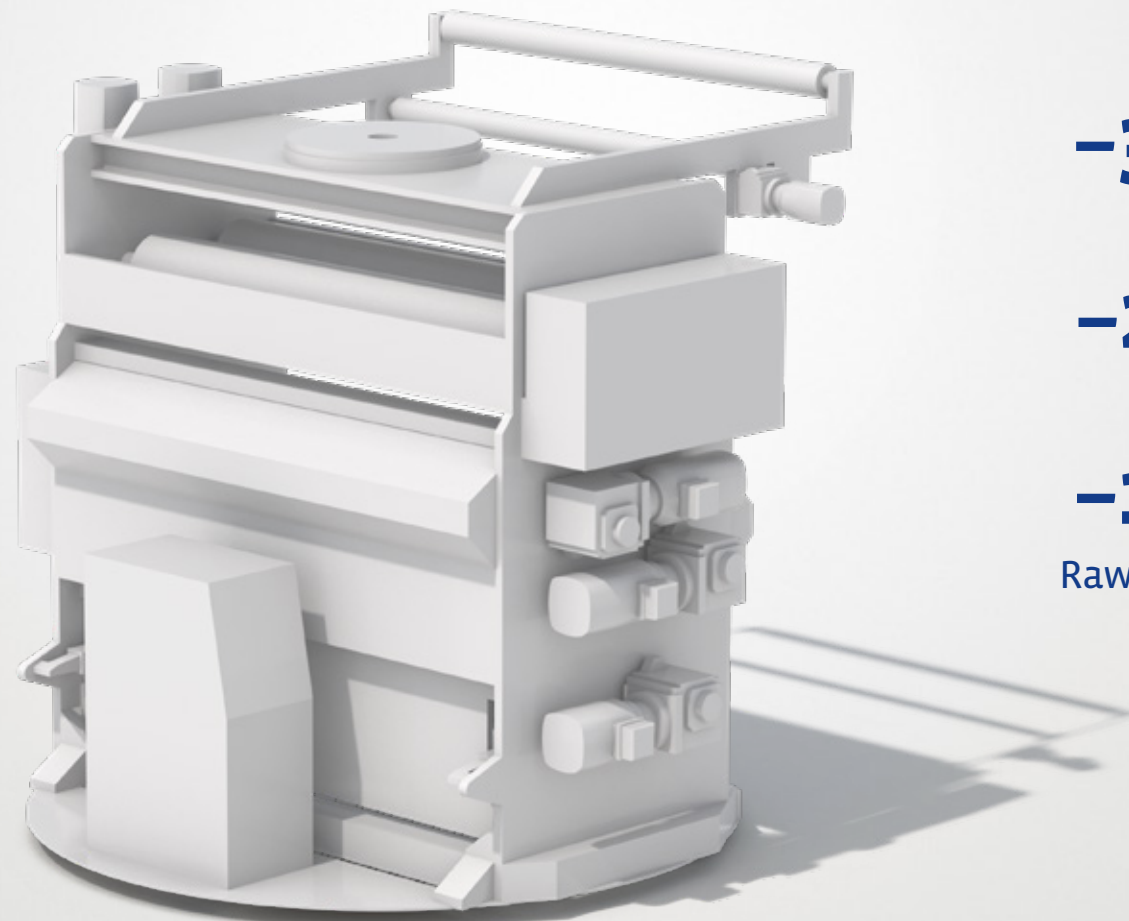
Superior technology

With EVO Ultra Cool and the innovative operating concept, you will immediately enter the world of high output beyond a die factor of 2. The cooling system is based on a conventional, height-adjustable dual lip cooling ring and a special inner cooling device for increased cooling capacity.

EVO Ultra Flat

Producing the flattest film on the market – efficient and sustainable.

No more bagginess or camber: Thanks to its patented position within the haul-off, our EVO Ultra Flat redefines film flatness and sets new standards regarding energy efficiency.



-30%
Glue

-20%
Ink

-10%
Raw material

Ultra Flat Measurement

High film quality is what convinces your customers. That's why EVO Ultra Flat not only produces extremely flat film but also proves it: A laser-supported inline measurement reliably determines the measured flatness value and takes over the precise adjustment of all parameters. Thus, you achieve ideal film flattening easily, quickly, and reproducibly via HMI input.

PERFECTLY FLAT FILMS

Minimize bagginess and camber by up to 50 to 90 percent.

Convince with faster and cheaper converting

Printing and converting Ultra flat film is faster, cheaper, more sustainable, and leads to end products with an enhanced visual appearance. These are benefits that help to close a deal and increase market share.

Save energy

EVO Ultra Flat requires much less energy to flatten films than any comparable system on the market because we stretch from initial heat directly in the haul-off. This position is patented.

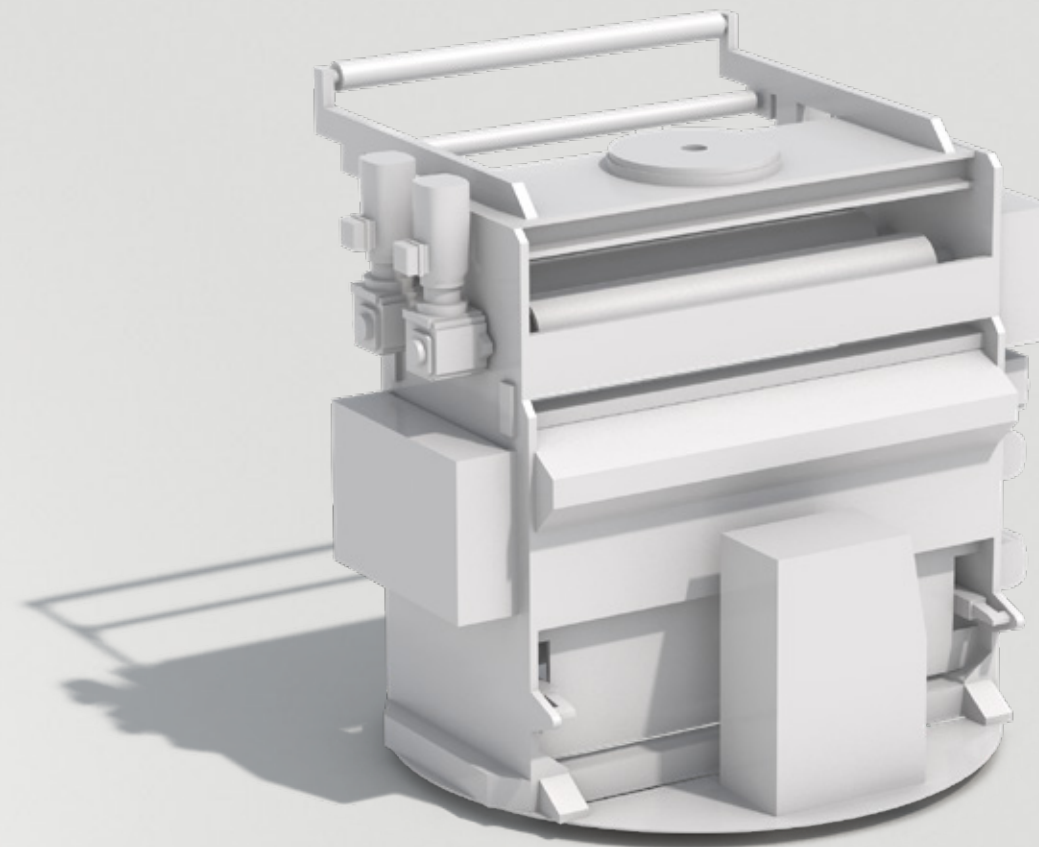
A quality seal for perfect films: We certify all customers that produce with EVO Ultra Flat technology.



EVO Ultra Flat Plus

Producing ultra flat film and enhance mechanical properties.

The perfect combination of moderate stretching for ultra flat film or stretching up to 100% to enhance specific mechanical properties – it's your choice! You can achieve both with our EVO Ultra Flat Plus stretching unit that offers best energy efficiency.



FLEXIBILITY

Stretching rates from
1 to 100%

> 60%

lower energy
requirements

Save raw material

With EVO Ultra Flat Plus films, you achieve the required mechanical properties at reduced thicknesses. Thus, production becomes more cost-efficient and sustainable.

Save energy

Compared to conventional MDO systems, EVO Ultra Flat Plus requires more than 60% less energy. Thanks to its patented positioning, we stretch from initial heat and at the ideal time.

Increase film quality

Enhanced flatness and greater stiffness: EVO Ultra Flat Plus significantly lowers bagginess and camber and increases mechanical film properties. The recipe memory makes it easy to keep a constantly high product quality.

Convert faster and cheaper

Printing, laminating, and converting EVO Ultra Flat Plus film are faster, cheaper, and more sustainable and results in end-products with enhanced visual appearance. These are benefits that help to close a deal and increase market share.



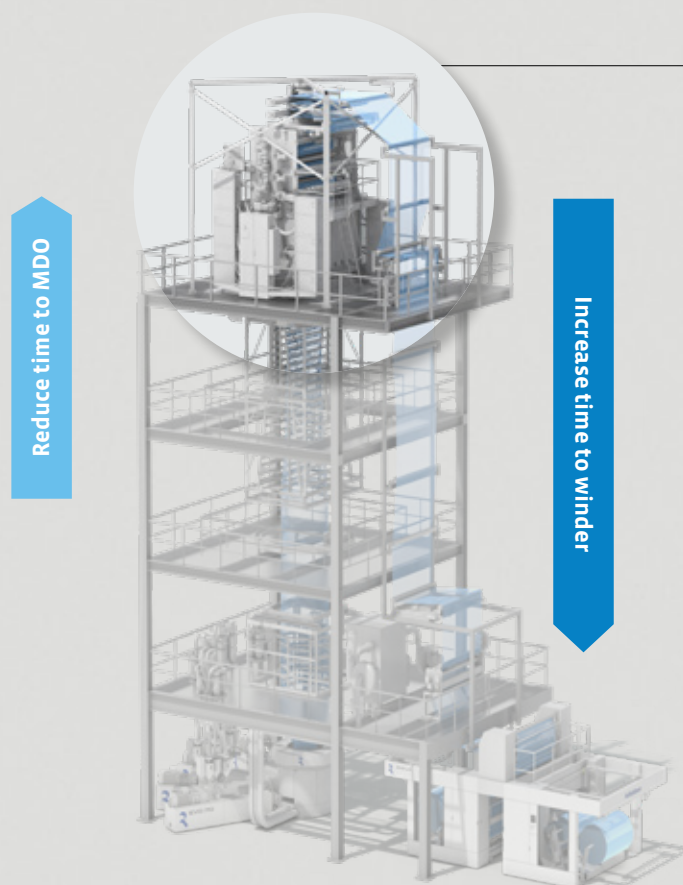
Application example: biodegradable fruit and vegetable bags

On many markets, there are legal requirements for the obligatory use of biodegradable fruit and vegetable bags in grocery stores. However, the use of biopolymers leads to higher raw material costs. With EVO Ultra Flat Plus, you compensate for additional costs with material savings of up to 40%. Stretching achieves greater strength and stiffness. Thus, you can produce correspondingly thinner film with identical or better properties. Furthermore, stretching also improves the optical appearance.

EVO Ultra Stretch

Improving film properties at maximum process stability and efficiency.

Our EVO Ultra Stretch unit (MDO) is the only system on the market that stretches film from first heat. What are the advantages? Optimum film properties, no shrinkage or blocking, stable process, high efficiency, and greater film widths.



Position matters

We stretch from initial heat with great efficiency due to the patented position directly in the haul-off. Our solution ensures maximum process stability since the film is stretched when it is the simplest – in heat and at low crystallization. This results in excellent film properties due to a greater annealing distance (haul-off to winder).

Unblocked film

EVO Ultra Stretch produces unblocked tubular film that permits winding on two rolls at half web speed. This ensures an absolutely stable process. Additionally, it offers greater flexibility to produce different film structures - ultra-stretched film can be symmetrical or asymmetrical.

MAXIMUM STRETCHING

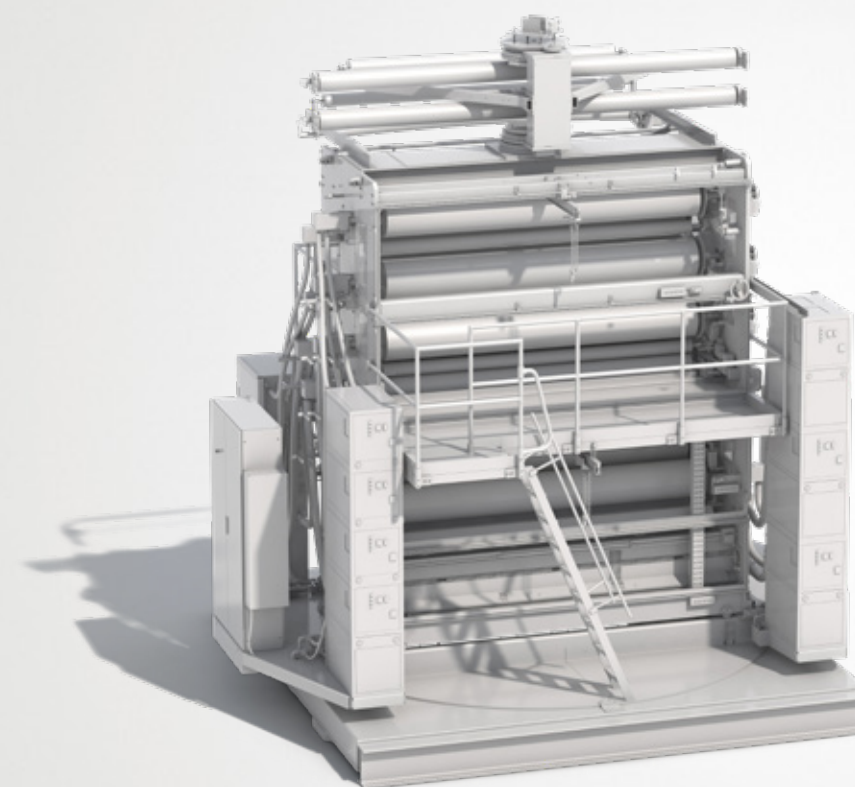
up to 1:10

FILM WIDTH

up to 3 meters

Best film properties:

- Shrinkage
- Stiffness
- Strength
- Heat-Sealing
- Flatness
- Printability
- Optical appearance



Application example: ALL-PE pouches



Ultra Stretched PE film permits the production of fully recyclable monomaterial pouches by replacing PET. With a maximum stretching rate of 1:10 to enhance the mechanical properties, even standard PE then becomes a genuine alternative to PET. Ultra-stretched PE film meets all the requirements for high-performance packaging due to its high stiffness, excellent sealing, and basic barrier properties. It is ideal for processing on conventional conversion lines - a sustainable and economical solution.

EVO Ultra Quench

Producing highly transparent films with water cooling.

If high transparency, formability, and puncture resistance are required, water-cooled film is unbeatable. Our EVO Ultra Quench high-performance water cooling and calibration unit guarantees highest performance and process stability in film production.

MONO UP TO 11 LAYERS

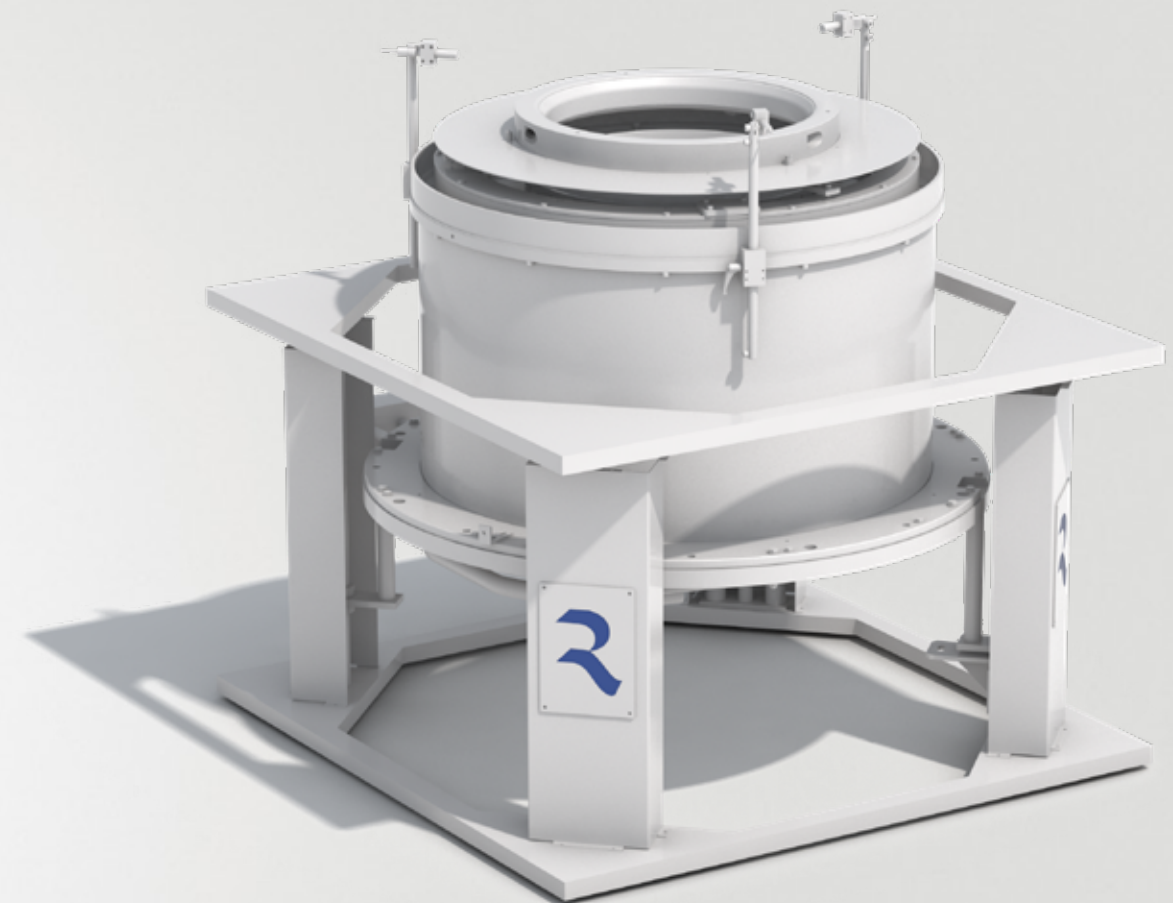
Using the stable top-down process

Stable process

In line with the force of gravity, the extrusion direction is reversed – vertically from top to bottom. The film tube is inflated to the required diameter and then shock-cooled by water running down the bubble, thus creating the special optical and mechanical film properties. Water is then removed from the film by vacuum.

HIGH COOLING RATES

For excellent optical properties, formability and strength



Increase film properties

Due to their excellent optical and mechanical properties, films produced with EVO Ultra Quench are perfectly suited for food packaging, such as shrink film, sausage film, thermoforming film, and packaging for medical products.

Increase uptime

Lines with EVO Ultra Quench technology operate with high stability and reliability – irrespective of the processed material and melt flow index. Top-down extrusion with vacuum calibration really makes the system highly efficient.

Increase efficiency

There is no need for complex film post-drying with EVO Ultra Quench. Our efficient vacuum calibration provides perfectly dry film. The quasi closed-loop cooling circuit also brings high reductions in energy and water consumption.

EVO Lines for blown film production.

With their modular design, EVO blown film lines are always adapted to our customers' requirements and a broad range of applications. No matter what the application is, they guarantee high film quality, efficiency, and cost-effectiveness by using state-of-the-art technical solutions.

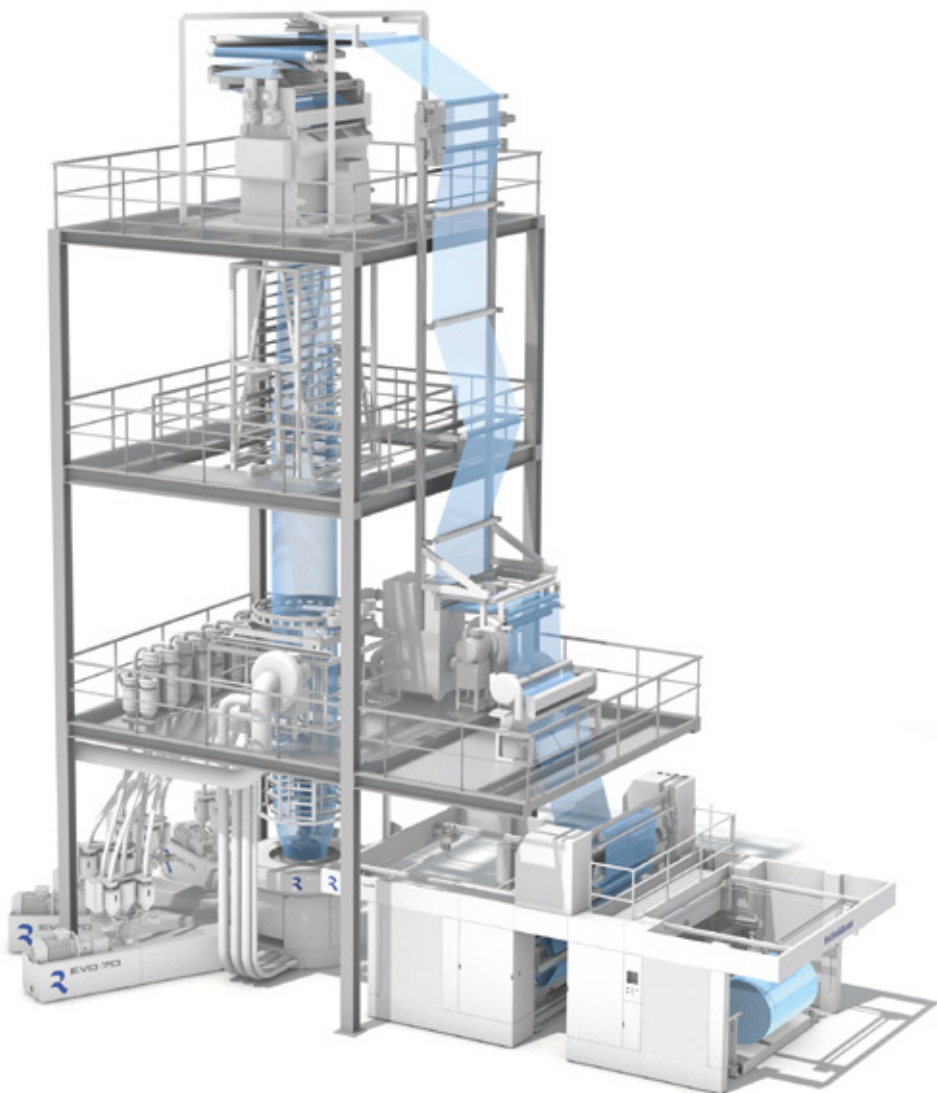
EVO

Tailor-made blown film lines for your applications.

Flexible, reliable, and future-proof: Our EVO lines cover a wide range of applications – even many special ones – and can simply be integrated in an Industry 4.0 production environment. They always come with a high level of digitalization and automation.

Applications

- Flexible packaging film
- Barrier film
- Collation shrink film
- Compression bag film
- Lamination film
- Tube lamination film
- Film for frozen food packaging
- Label film
- Surface protection film
- Biodegradable film
- And many more



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Extruders

Save maintenance costs

Our EVO extruders are designed to process a very wide range of materials. Thanks to Reiloy screws and barrels, they are extremely wear-resistant and long-lasting.

Operation

Increase automation

Intelligent features will make operating easy for you. Profit from recipe memory, start-up assistant, fully automated product changeover, and troubleshooting guide.

Blown film die head

Get what fits best

All our blown film die heads are very compact and designed for short residence times and high film quality. You will get the best option for your needs from our broad portfolio.

Winders

Rely on perfect rolls

We have the right winder for all applications. All models have one thing in common: simple handling and perfect wrinkle-free winding results.

EVO

Modular production lines

We adapt each line to specific customer requirements to achieve highly efficient production for a wide range of applications by choosing from our broad spectrum of components – a variety of extruders, winders, cooling systems, haul-off units, etc.

Layflat widths	1000–3300 mm
Extruder diameter	50–180 mm
Number of layers	1–12
Die diameters	120–800 mm

EVO Micro

Laboratory lines with production capabilities

Our EVO Micro lines are designed for conducting tests and trials. However, they are also ideal for small production jobs. Their upscaling capabilities permit the simple transfer of test results and process parameters to larger production lines – the design of both line types is the same.

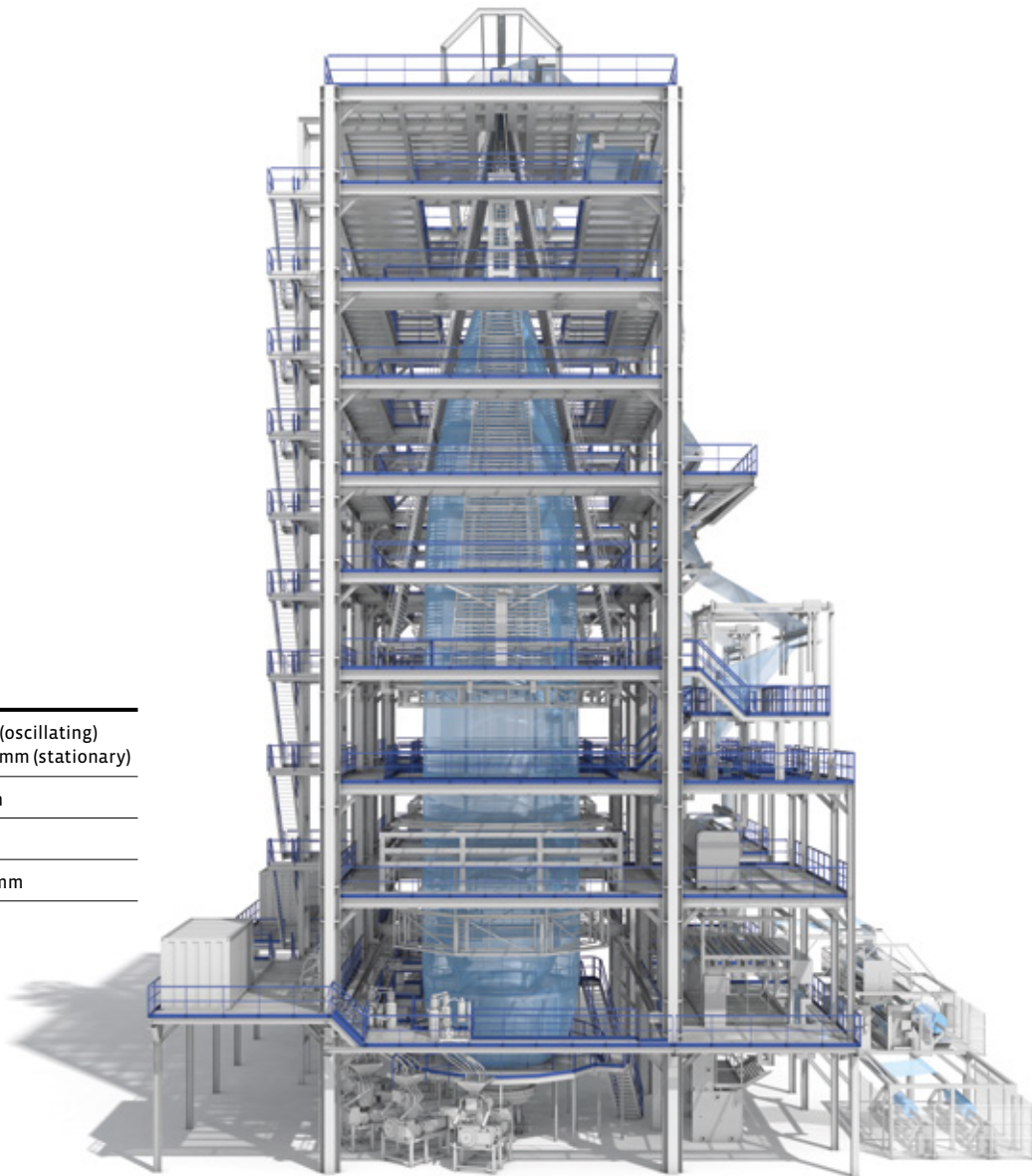
Layflat widths	300–1000 mm
Extruder diameter	30–80 mm
Number of layers	1–9
Die diameters	40–400 mm

EVO Agriculture

Large multilayer films for higher crop yields.

Our EVO Agriculture lines help to significantly increase crop yields in agriculture. We therefore transferred our multilayer technology to large film dimensions – for highly functional, innovative agricultural products.

Layflat widths	up to 4300 (oscillating) up to 6500 mm (stationary)
Extruder diameter	70–200 mm
Number of layers	5–7
Die diameters	600–2500 mm



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Raw materials

Reducing consumption

The multilayer configuration distributes film functions to several thinner layers in order to reduce raw-material consumption, while maintaining product properties.

Throughput

Achieving high productivity

EVO Agriculture extruders are equipped with Reiloy low-temperature screws for remarkable high throughputs and minimum maintenance effort.

Film properties

Meeting product requirements

Bubble diameter and product requirements always match. This is achieved by adjustable dual lips on the air ring. Optional control systems also ensure constant film thickness.

Application	Older films	Present standard	Trend	Raw materials	Thickness [µm]	Width [mm]	Circumference [m]
Mulching film				LL, mLL, LD, bioresin	10 to 100	600 to 1600	
Greenhouse				LD, LL, EVA, EBA	120 to 250		8 to 18
Silage stretch film				LL, mLL, EVA, PIB, LD	17 to 25	500 / 750 mm per roll	
Silage bags				LL, mLL, LD, MD	120 to 240		4.7 to 13.4
Silage cover film				LD, LL, mLL, MD	125 to 250		6 to 24
Venting				LD, LL, mLL, EVOH, PA	25 to 70	2000 to 4600	
Container / bulk liners				LD, LL, mLL, EVOH, PA	50 to 500		3.5 to 9.5

For increased film functionality and higher crop yields, more and more producers in the agricultural sector are now using multilayer films – some with a barrier component. Today, the production of such complex films is easily possible thanks to advanced Reifenhäuser blown film technology.

PE
 Barrier layers

Easy operation:
Our human-machine interface guides operators through the process intuitively and its intelligent features support production.



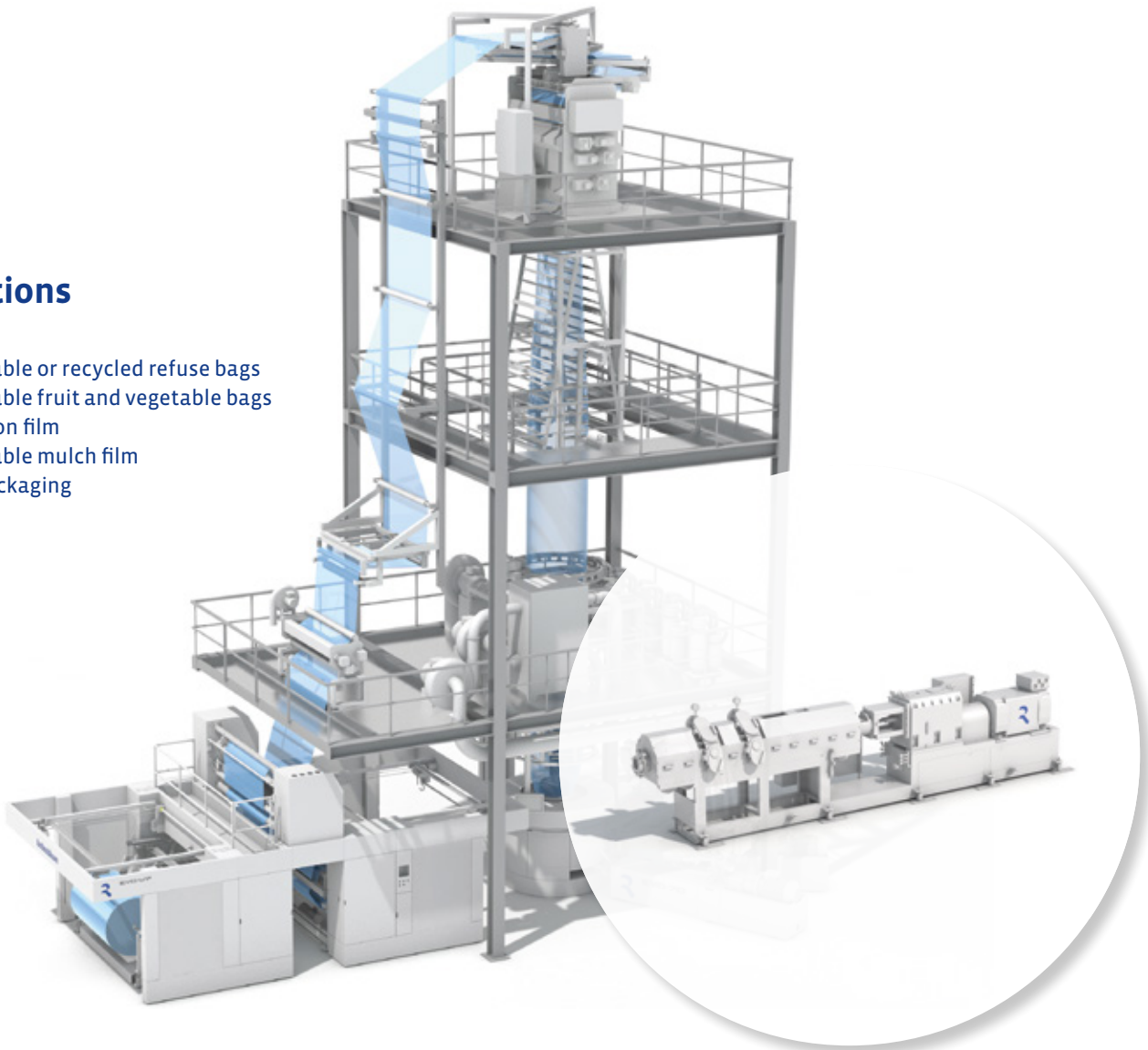
EVO Fusion

Processing plastic waste without regranulation.

Circular Economy in perfection: EVO Fusion lines permit the direct fluff-to-film production (without cost- and energy-intensive pelletizing and predrying) as well as inline compounding of biomaterials. This is made possible by the fusion of blown film and twin screw technology.

Applications

- Biodegradable or recycled refuse bags
- Biodegradable fruit and vegetable bags
- Construction film
- Biodegradable mulch film
- Flexible packaging



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COST EFFICIENCY

ENERGY EFFICIENCY

RAW-MATERIAL EFFICIENCY

Increased sustainability with twin screw technology

Inline compounding

Lowering material and energy costs

No more purchasing expensive ready-made compounds or energy-intensive pre-compounding. EVO Fusion lines are designed for inhouse compounding of bio-based materials and the direct feed of fillers and liquid additives. This reduces raw-material and energy costs significantly.

Fluff to Film

Processing 100% recycled material

EVO Fusion lines process up to 100% waste material, such as post-consumer and post-industrial film scrap, directly and without previous pelletizing.

Profitable combination

Sustainability at best film quality

Eliminating the step of pelletizing leads to superior material quality, since this significantly reduces shear and thermal stress. Not only that. Venting units extract impurities, such as ink, moisture, and solvents, directly from the extruder to ensure maximum film quality and a stable process.

EVO Fusion can be operated as a mono or coextrusion line setup. It is possible to integrate a twin screw in every EVO line.

Layflat widths	800-2600 mm
Extruder diameter	70-120 mm
Number of layers	1-5
Die diameters	180-600 mm

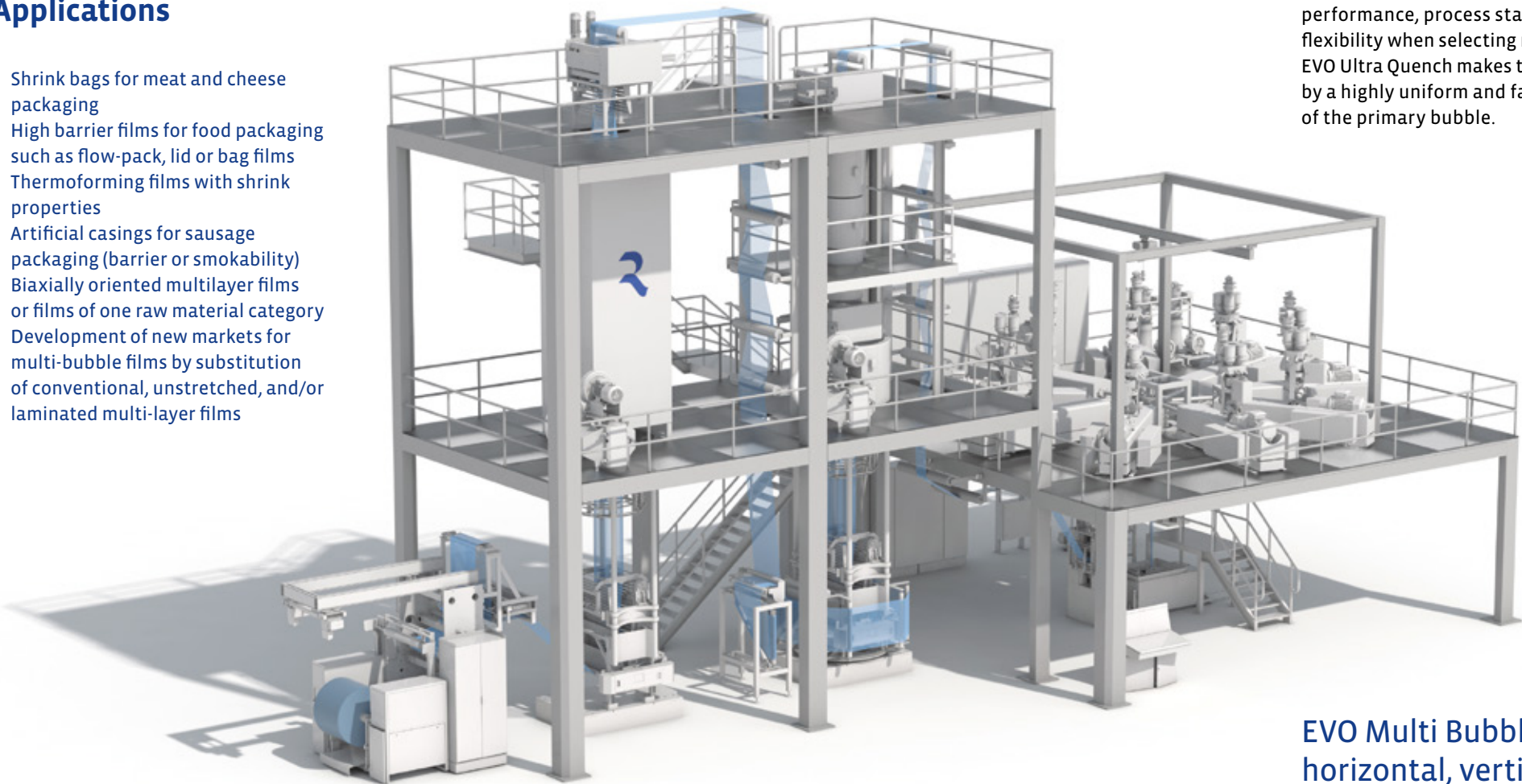
EVO Multi Bubble

Producing biaxially oriented film in one work step.

Our EVO Multi-Bubble lines produce highly functional, biaxially oriented packaging films in a multi-stage blown film process. This enables you to achieve outstanding transparency, gloss, puncture resistance, seal ability, and adjustable shrinkage properties.

Applications

- Shrink bags for meat and cheese packaging
- High barrier films for food packaging such as flow-pack, lid or bag films
- Thermoforming films with shrink properties
- Artificial casings for sausage packaging (barrier or smokability)
- Biaxially oriented multilayer films or films of one raw material category
- Development of new markets for multi-bubble films by substitution of conventional, unstretched, and/or laminated multi-layer films



Film cooling

Fast and even

Simultaneous biaxial stretching and the perfect combination of high performance, process stability, and flexibility when selecting raw materials: EVO Ultra Quench makes this possible by a highly uniform and fast cooling of the primary bubble.

Film production

High quality and flexibility

Very short residence times, best quality, process reliability, and a wide range of possible raw materials and layer combinations: This is what our EVO Multi Bubble blown film die heads stand for - always selected to meet the requirements of a specific application.

Film properties

Adjustable

EVO Multi Bubble lines produce crystal-clear high-performance films with variable shrink properties. The required characteristics of the films can be specifically adjusted and fixed in the third and last film bubble.

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Operation

Integrated and simple

An integrated overall system control and a high level of automation make operation easy.

EVO Multi Bubble lines are available in horizontal, vertical, or combined design.

Layflat widths	25–1100 mm
Extruder diameter	30–80 mm
Number of layers	1–11
Die diameters	15–475 mm

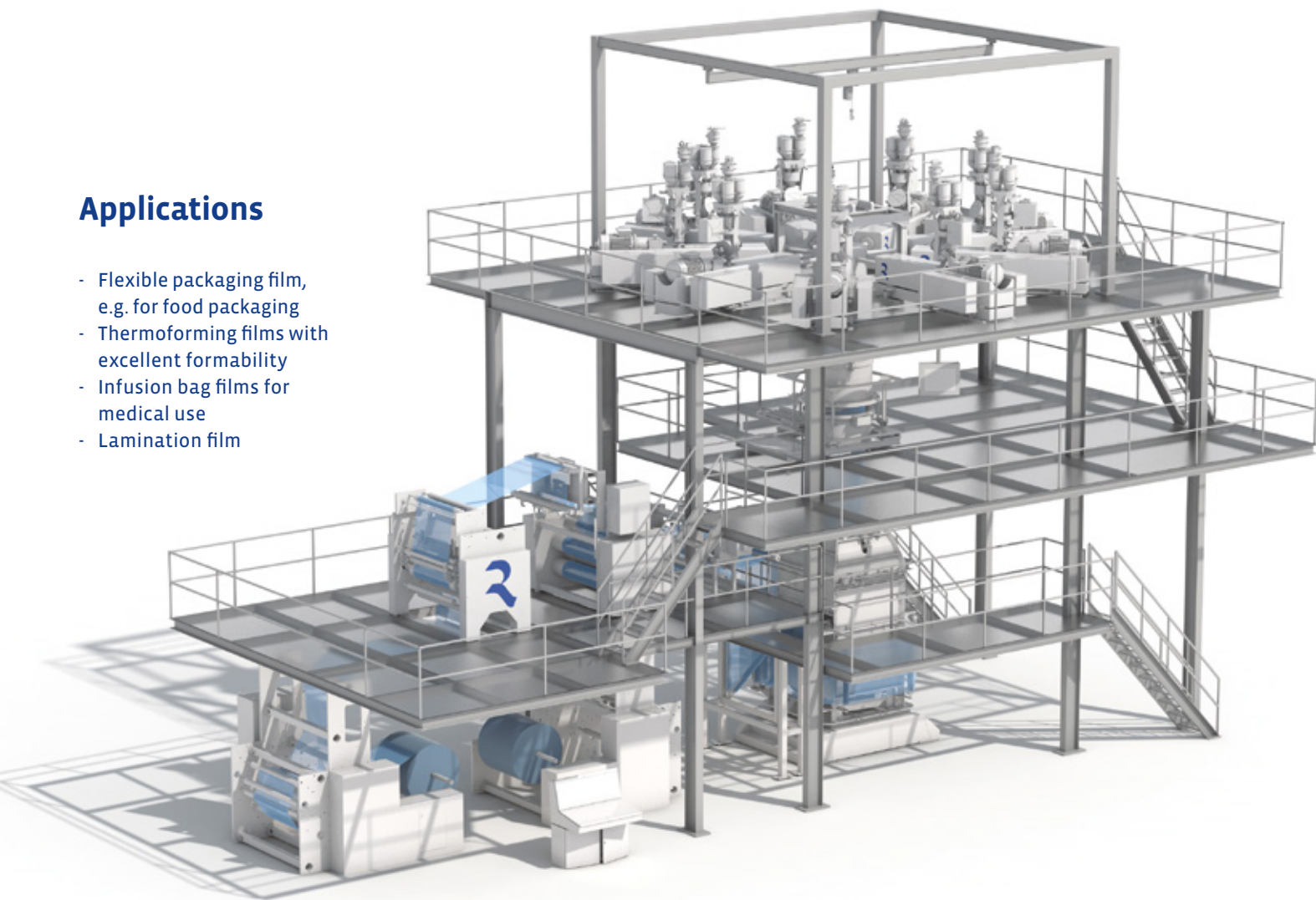
EVO Aqua Cool

Watercooling for films with excellent appearance and function.

Highly transparent, soft, and flexible films with excellent thermoformability and superior mechanical properties – EVO Aqua Cool lines can be used to achieve film properties that set new standards for the packaging industry and for medical applications.

Applications

- Flexible packaging film, e.g. for food packaging
- Thermoforming films with excellent formability
- Infusion bag films for medical use
- Lamination film



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Technology

Stable process for efficient production

Automatic bubble profile control and EVO Ultra Quench ensure a stable process. Profit from high throughputs, no edge trimming, well-balanced film properties (in longitudinal and transverse direction), and low space requirements.

Film properties

Excellent optics, feel, and function

- Highly transparent and glossy
- Soft feel and formability
- High puncture resistance, elongation, and tear resistance
- Uniform thickness distribution and barrier properties
- Ideal for thermoforming applications and packaging goods

Raw material

Saving resources and costs

EVO Aqua Cool lines achieve superior film properties and minimized thickness tolerances. Thus, you profit from the potential of downgauging and the use of cheaper raw materials at constant film performance in production, e.g. barrier layers.

The process

Following the gravity of water, the EVO Aqua Cool process extrudes from top to bottom. The film tube is inflated to the required diameter and profile-controlled in an automatic process. It is then shock-cooled on entry to the EVO Ultra Quench water vacuum calibration unit to achieve the required film properties. After the film bubble collapses, the film web passes through a reversing turner-bar haul-off unit. Downstream, film properties, such as stiffness, barrier, or flatness, are optimizable by passing through an EVO Ultra Flat unit, without compromising transparency throughout.

Layflat widths	200–1600 mm
Extruder diameter	30–120 mm
Number of layers	1–12
Die diameters	180–600 mm

Research and Development

In Troisdorf, Germany, Reifenhäuser 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 know-how.

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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07/2021