

NEW**Mini Scientific Combi**

Single-Layer Film Blowing and Cast Film/Sheet Line

We are thrilled to launch one of our latest innovations, the Mini Scientific COMBI Film Blowing and Cast Film/Sheet Line. This system integrates a 16 mm Single-Screw Extruder (LME16-30) to both the Film Blowing (LMF-200) and the Cast Film/Sheet (LMCR-150) attachments, presenting a pioneering solution for optimizing small-scale production and gives processors the flexibility to create films with different properties for a wider range of applications.

By combining two separate machines into one system, this modular design not only streamlines operations but also offers substantial cost savings and space efficiency. Its low power consumption and minimal material usage contribute to operational efficiency and sustainability.

Our COMBI Line excels in handling diverse polymers, whether you're working with conventional polymers like PET, PE, and Nylon, or exploring biodegradable options such as PLA and TPS, and even recycled materials. This capability enables users to explore a wide range of materials with ease for experimentation and innovation. With this COMBI Line, switching between film blowing and cast film/sheet production is engineered for quick conversion, minimizing downtime and maximizing productivity.

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Mini Single-Screw Extruder Type LME16-30/C

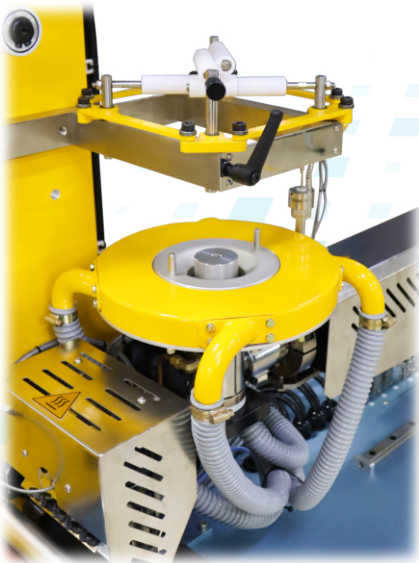
In the COMBI Film Blowing and Cast Film/Sheet Line system, the Mini 16 mm Single-Screw Extruder, with a diameter of 16 mm and an L/D ratio of 30, processes the raw polymer materials, extruding them into a homogeneous melt.

- Mounted on linear slide rail for easy separation from the die for quick changeover or maintenance
- Durable construction of barrel and screw made of high-grade nitrided steel (optional bi-metallic barrel and hard-chrome screw)
- Polished stainless steel hopper with slide valves for convenient resin handling



Film Blowing Attachment

The Film Blowing Attachment is easily setup by swinging the spiral mandrel die assembly from its off-line position at the side of the film tower towards the single-screw extruder and using a c-clamp on the barrel to secure connection. The tower assembly is attached to a vertical frame enabling easy access to the die and air ring.

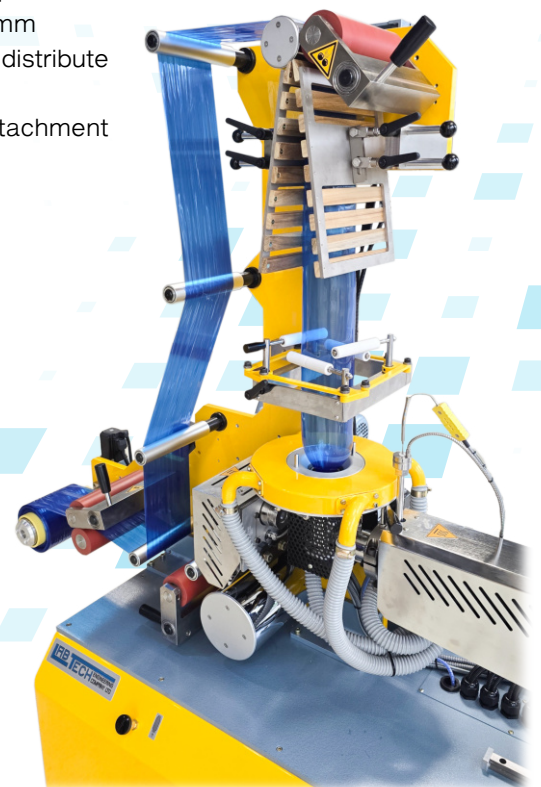


Spiral Mandrel Annular Die Assembly

- Ø25 mm spiral mandrel annular die produces a maximum layflat film width of 180 mm
- Helical grooves decreasing in depth distribute the melt for uniform polymer flow
- Pivoting arm for quick extruder attachment and die centering

Tower Structure

- 0.7 m die-to-nip distance and 200 mm nip-roll width for a max 180 mm lay-flat film width
- 4 guide rollers downstream for maintained tension before wind-up
- High-efficiency cooling ring for optimal bubble stability
- Single-level cage with Teflon rollers for various film diameters with 2 lockable positions along the tower frame
- Collapsing frame with adjustable polished teak wood slats to smoothly guide delicate films
- The haul-off tower nip-rolls consisting of a hard-chrome and a rubber roll for steady pull-off of the flattened film

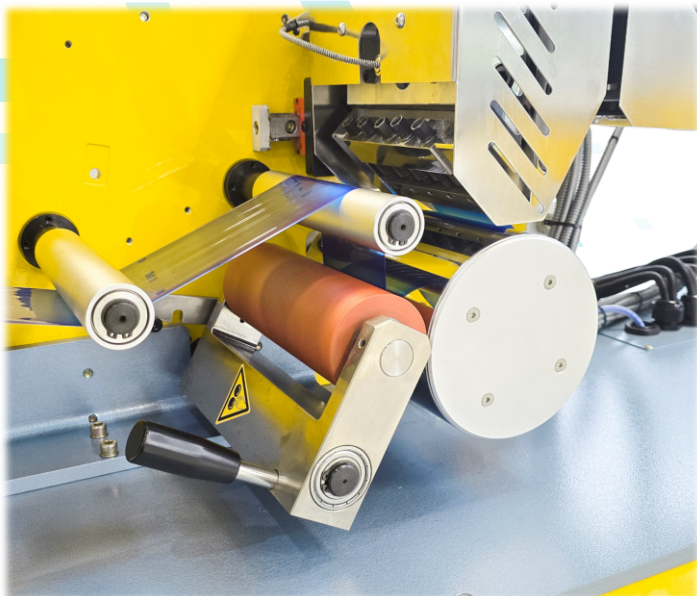
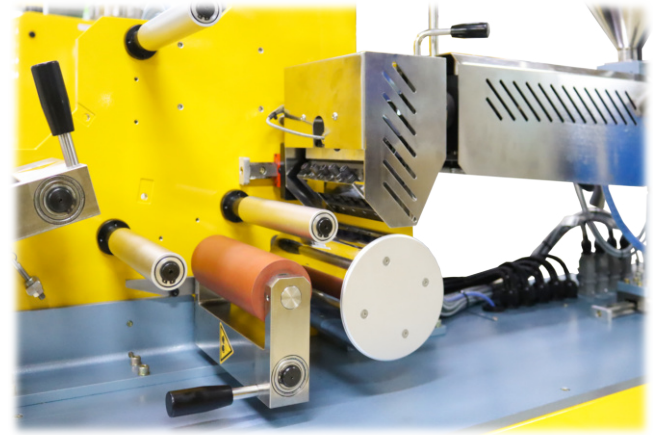


Cast Film and Sheet Attachment

The Cast Film & Sheet Attachment is easily setup by connecting the Single-Screw Extruder via a linear sliding rail and c-clamp to the Flat Die which controls the film/sheet thickness and width prior to wrapping around the chill roll for efficient cooling.

Flat Die

- Vertically oriented coat-hanger type die versatile for thin films and sheets up to 1.2 mm thick and 125 mm wide
- Adjustable lip with push-pull bolts for fine-tuning thickness of 0.3 to 2.0 mm
- Dual left and right zone heating with individual controllers for optimal temperature control
- Standard max temp of 300°C and optional high-temperature reaching 400°C for a wider polymer range compatibility



Chill Roll

- Diameter of 145 mm and width of 150 mm for an efficient heat transfer and uniform cooling
- Rubber Pressing Roll equipped with swiveling handle to allow positioning against the chill roll for optimal film/sheet contact during operation, or disengaged for easier threading. A spring-loaded screw fine-tunes pressing roll pressure for thickness control
- Fine vertical adjustments of chill roll to control the gap distance from the flat die, crucial for polymers with varying viscosities

Optional

Edge-Cutter with Wind-Up Cassettes for the Edge-Trims for smooth film/sheet edges and convenient waste collection

Fully Computerized Control

Features a user-friendly 7-inch touchscreen interface controlling all functions of system operation such as:

- Extruder Temperature & RPM Control
- Flat Die & Chill Roll Temperatures
- Tower Haul-Off Nip-Roll & Blower Speed
- Downstream Nip-Roll & Winder Speed



Technical Specifications

Mini Scientific Single-Screw Extruder Type LME16-30/C

Maximum Output (LDPE)	2.3 kg/hr
Maximum Processing Temperature	300°C (optional 400°C)

Mini Scientific Cast Film and Sheet Line Type LMCR-150

Flat Die Width	125 mm
Die Lip Gap Range	0.3 mm – 2.0 mm
Chill Roll Width	150 mm
Chill Roll Diameter	Ø 145 mm
Maximum Film/Sheet Width	115 mm (untrimmed)
Minimum Film Thickness	10 – 20 microns (depends on material)
Maximum Sheet Thickness	1.2 mm

Mini Scientific Film Blowing Line Type LMF-200

Film Die Diameter	Ø 25 mm
Die Lip Gap	0.8 mm
Nip Roll Width	200 mm
Maximum Film Layflat Width	180 mm
Minimum Film Thickness	10 – 20 microns (depends on material)

General Information

Maximum Line Speed	10 m/min
Total Electric Consumption	17.3 kW
Dimensions (L x W x H)	2023 x 873 x 1749 mm