

NEWSLETTER

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MINI SCIENTIFIC 3 & 5-LAYER CAST FILM AND SHEET CO-EXTRUSION LINE



The **Mini Scientific 3 & 5-Layer Cast Film and Sheet Co-Extrusion Line (LMCR-150 COEX)** is one of the most compact and precise co-extrusion systems from Labtech Engineering, designed to produce three- or five-layer films and sheets with precise layer ratio control. It can process a wide range of polymers into films or sheets from **20 μm to 1 mm** in thickness, at line speeds up to **10 m/min**, with a maximum film width of **100 mm**. Despite its compact size, the line delivers precision and consistency ideally suited for advanced laboratory scale research and material development.

Developed for R&D centers, universities, and small testing facilities, this compact unit provides full multilayer co-extrusion capability without the complexity of pilot - scale equipment. The complete setup, measuring only **1.7 x 1.0 m** with a **height of 1.4 m**, integrates all core components including extruders, feedblock, die, chill roll, and wind up assembly into one efficient structure. Equipped with a **Optional Loss In Weight (LIW) type Weighing Hopper**, the system ensures accurate and continuous resin dosing for each layer, maintaining consistent material flow and reliable film uniformity. The result is a clean, repeatable process that saves space, minimizes waste, and offers exceptional control for multilayer film and sheet studies.

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16 MM SINGLE-SCREW EXTRUDER TYPE LME16-30/C

The line is equipped with three units of extruders melting and conveying polymer pellets into the feedblock allowing simultaneous feeding of multiple resins for multilayer production.

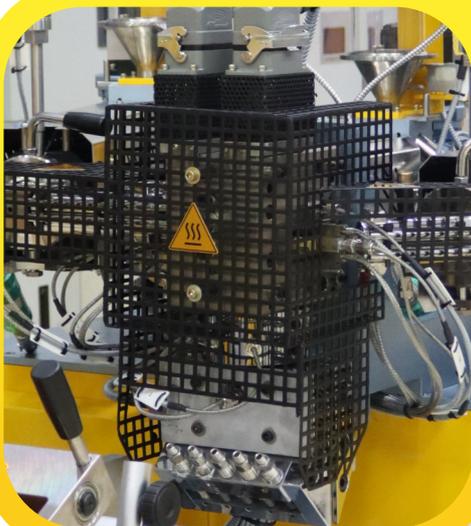
- Screw diameter of 16 mm and L/D ratio of 30
- Forced air cooling for barrel and water-cooled feed section
- Quick-access barrel design with sliding rails for purging and screw removal

OPTIONAL LOSS-IN-WEIGHT (LIW) TYPE WEIGHING HOPPER

Achieving uniform multi-layer co-extrusion depends on the precise feeding of each polymer stream. Optional Loss In Weight (LIW) type Weighing Hopper from Labtech Engineering ensures this precision by continuously monitoring the actual resin weight and maintaining an exact feed-rate to each extruder.

This advanced weighing system ensures each layer receives the correct resin quantity, eliminating fluctuations that could affect layer balance or film thickness.

- Precision load cell for accurate sensing of hopper weight
- Stainless-steel refill hopper with pneumatic slide gate for automatic material refill
- Volumetric capacity of 2.2 liters
- Closed-loop control ensures automatic regulation of screw RPM to maintain exact feed

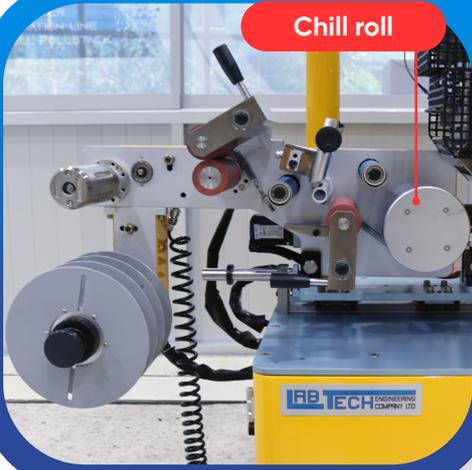


CO-EXTRUSION FEEDBLOCK AND FLAT COAT-HANGER DIE

The feedblock and die assembly distribute molten polymer streams into uniform multi-layer films with excellent interfacial bonding. The feedblock ensures an even layer formation, while the flat coat-hanger die converts the combined melt into a thin, precise film or sheet.

- 3-layer standard configuration (ABC), expandable to 5 layers (ABCBA)
- Adjustable layer thickness externally via valves
- Integrated thermocouples for precise temperature control

Chill roll



CHILL ROLL SHEET AND FILM ATTACHMENT

The chill-roll cools the extruded film / sheet and ensures smooth, uniform handling with accurate tension control. Its large-diameter roll provides extended surface contact for efficient heat transfer, while a rubber pressing roll keeps the film firmly on the roll for improved cooling and thickness uniformity.

The chill roll can be connected to an optional water-tempering unit that circulates heating or cooling water through the roll.

- Vertically and horizontally adjustable gap to reduce neck-in
- Rubber pressing roll with spring-loaded handle for adjustable force
- Haul-off nip rolls driven by AC servo motors with maximum take-off speed of 10 m/min

AIR SHAFT FILM WIND-UP SYSTEM



Efficiently collects the finished film or sheet onto cores while maintaining precise tension and alignment.

- Servo-driven for precise speed regulation and smooth operation
- Easy loading and removal of 3-inch core bobbin
- Integration with line control for synchronized operation

Edge cutter knife



Cassette unit

OPTIONAL EDGE-CUTTER AND CASSETTE WIND-UP SYSTEM

The downstream section trims film edges and collects the final product. The mainframe holds a sliding bar with edge-cutter knife holders for easy gap adjustment to match the film width.

Edge-trims are gathered downwards to the wind-up cassettes, while the main film is wound onto air-shaft bobbins.