

NEWSLETTER

NOVEMBER 2025

FULLY AUTOMATIC CAST FILM/SHEET CO-EXTRUSION LINE

WITH MOTOR-DRIVEN DIE LIP ADJUSTMENT, MCAD THICKNESS CONTROL,
AND INTEGRATED FILM SPOT READER



Discover True Flexibility in Polymer Processing with Labtech Engineering!

The new **TILTEX Cast Film Co-Extrusion Line** from Labtech Engineering is designed for pilot plants as well as research centers that require maximum precision and process reliability. Accurate film thickness, reproducible results, and continuous quality monitoring are critical in modern material development, yet conventional cast film systems often rely on manual die adjustments and repeated trial-and-error. TILTEX overcomes these limitations by combining fully automatic thickness control with direct film thickness and quality monitoring.

This line features two 25 mm single-screw extruders paired with the Automatic Flat Die equipped with MCAD Thickness Gauging System, ensuring precise and stable thickness across every trial. A new multi-angle roll stack with hydraulic adjustment allows operation in vertical, horizontal, or inclined positions, enabling smooth processing of polymers ranging from low-viscosity polyolefins to high-viscosity resins. To control material quality, a high-resolution Film Spot Reader provides real-time detection of gels, pigment clusters, and other film defects.

Capable of producing both thin films and thicker sheets, the LCCR-350-SR/M/COEX delivers excellent compatibility with a wide selection of resins, including polyolefins (PE, PP), polyamides, PET, biodegradable polymers (PLA, PBAT, PHAs), and numerous specialty blends.





LABORATORY SCIENTIFIC SINGLE-SCREW EXTRUDERS TYPE LE25-30/C

Engineered for stable output and consistent melt quality, our single-screw extruders deliver precision, reliability, and flexibility for a wide range of polymer processing applications.

- 25 mm diameter screw, L/D ratio of 30
- Nitrided steel barrel and screw
- Special mixing screw for excellent homogenization
- Four heating zones, each equipped with heaters and air-cooling fans
- Water-cooled feed section to prevent premature melting
- Rupture disk for overpressure protection and full steel barrel cover with air venting.

SCREW AND BARREL OPTIONS

- Bi-metallic screws and barrel for maximum wear and acid resistance.
- Custom screws for specific resins (EVOH, PA, TFE, etc.).

FEEDING SYSTEM

- Stainless steel hopper with 3-position safety valve for resin infeed, shut-off and discharge
- Optional weighing hopper system with bypass valve for controlled resin feeding.

CONTROL SYSTEM

- User-friendly control panel with digital RPM, power indicators, and temperature readouts
- Optional computerized version fully integrated with the co-ex chill roll control system.



NEW AUTOMATIC FLAT DIE WITH FEEDBLOCK AND MCAD THICKNESS GAUGING SYSTEM

The new **Automatic Flat Die with Feedblock and MCAD Thickness Gauging System** delivers exceptional precision for laboratory and pilot-scale film and sheet production. Its automated die lip adjustment system regulates the gap with micro-step accuracy, ensuring constant thickness across the web. Because all bolts are adjusted simultaneously, thickness deviations are corrected quickly and efficiently, while the system consumes up to 20 times less energy than conventional thermal-bolt designs. The optimized feedblock provides even melt distribution, guaranteeing uniform profiles and stable surfaces across a wide range of polymers.

- **Precise thickness control:** auto-adjustable lips (0.1–0.8 mm) for films from 20 μm to 0.25 mm and sheets up to 0.5 mm, with closed-loop feedback from the integrated in-line scanner ($\leq \pm 1 \mu\text{m}$ repeatability, measuring up to 3 mm thickness across 500 mm width). It can also be configured to produce sheets up to 3 mm thick, with an optional larger die lip opening available upon request.
- **Flexible operation:** the lip gap to be adjusted during production, while the flat die can be set in either horizontal or vertical positions for versatile processing.
- **Safe and user-friendly:** no manual intervention near the hot die is required; automated control enhances both operator and machine safety.
- **Durable construction:** mirror-polished, hard-chrome plated lips or specialty coatings for demanding resins.

In-line Scanner



MACD Control System



Auto-Adjusting Die



LABORATORY SCIENTIFIC CAST FILM/SHEET ATTACHMENT WITH MULTI-ANGLE CHILL ROLL STACK TYPE LCCR-350-SR/M/COEX

The **Multi-Angle Roll Stack** is a heavy-duty chill roll system that combines laboratory precision with production capability. Its robust design and flexible positioning make it adaptable to a wide range of processes. The large chrome-plated rolls provide excellent contact surfaces for smooth finishing and consistent cooling, enabling high-quality cast film, sheet, and lamination trials. With this flexibility and control, the system can accommodate diverse material properties and processing requirements, making it equally valuable for research labs and pilot production environments.

ROLL STACK

- Heavy-duty design with hydraulic lay-on for stable nip pressure.
- Three large rolls (Ø 300 mm, 350 mm width) with smooth chrome-plated surfaces.
- Individual servo motor drives for each roll, providing precise speed control.
- Hydraulic quick-opening system with an emergency gap of 50 mm between center and top/bottom rolls
- Flexible roll positioning: vertical, horizontal, or custom angles (e.g., 30° or 45°)



TEMPERATURE CONTROL

Internal spiral channels for uniform heating/cooling; optional tempering units allow water heating up to 120 °C and oil heating up to 180 °C at the roll surface.

CONTROL SYSTEM

- Swing-away control panel with digital speed controls for top, middle, bottom rolls, nip-rolls, and wind-up
- Optional fully computerized central touch-screen control



WIND-UP SYSTEM



- Optional edge-cutter and wind-up cassettes for trimming and collecting edges with thicker edges caused by the "Neck-In" effect.
- Combined surface and center winding system
- Optional pneumatic expansion bobbin-free wind-up system

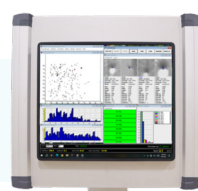


FILM SPOT READER SYSTEM TYPE LWIS-1000

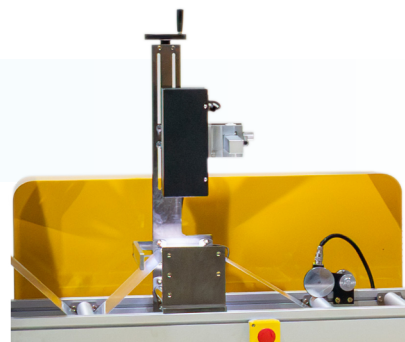
The Film Spot Reader is a specialized inspection unit designed to provide real-time identification of gels, pigment spots, and other surface defects on cast films and sheets with high precision. By continuously monitoring the film surface during operation, it ensures that even the small imperfections are detected early, allowing operators to take corrective action immediately.

This function is essential because defects such as gels or black specks can negatively affect film optical performance and mechanical properties. For laboratories and R&D centers, the Film Spot Reader provides critical data when evaluating new formulations, recycled resins, or bio-based materials where contamination or agglomeration is a frequent concern.

- High-resolution 8K CMOS camera capable of detecting defects as small as 15 μm within a 50 mm FOV and minimum gel sizes of 80 μm across a 300 mm film width.
- Integrated LED illumination and software for real-time monitoring, defect mapping, and analysis.
- Web speed and length tracking via incremental encoder for accurate defect positioning and reporting
- Two setup modes: transmittance for transparent films and reflectance for opaque films or sheets



Display monitor



TECHNICAL SPECIFICATIONS

MINI SCIENTIFIC SINGLE-SCREW EXTRUDER		LE25-30/C
Screw Diameter	mm	Ø 25
L/D Ratio (others on request)	-	30:1
Max Screw Speed Range	RPM	200
Max Barrel Temperature	°C	300 (optional 400)
Max Estimated Output (LDPE)	kg/hr	11
FLAT DIE WITH MCAD SYSTEM		LFD-350/MCAD
Die Width	mm	350
Die Lip Opening (Adjustment Range)	mm	0.1-0.8
Film Thickness	mm	0.02-0.5
Maximum Process Temperature	°C	300 (optional 450)
Motorized Adjustable Bolt	pcs	13
Maximum Bolt Movement	mm	2.3
Maximum Scanning Width	mm	500
Maximum Scanning Thickness	mm	3
LABORATORY SCIENTIFIC CAST FILM & SHEET ATTACHMENT		LCCR-350-SR/M/COEX
Roll Diameter	mm	Ø 300
Roll Width	mm	350
Max Film/Sheet Width (Untrimmed)	mm	300
Gap Fine Adjustment	mm	0.1-6
Take-Off Speed	m/min	0.5-40