

NEWSLETTER

JANUARY 2026

MINI SCIENTIFIC COMBI PELLETIZING AND 3D FILAMENT EXTRUSION LINE

A Space-Saving, Economical Dual-Purpose Solution for R&D Labs, Academy and Small-Batch Productions!

The Mini Scientific Combi Line is an innovative, compact system designed for laboratories and R&D centers, QA labs and academic institutions. It integrates **3D filament extrusion** and **pelletizing extrusion** on one platform, minimizing space requirements, reducing material consumption and offering an economical solution. Engineered for precision and repeatability at laboratory scale, it supports rapid prototyping, material testing and small-batch production without the need for dedicated lines. Maximize your workspace efficiency while expanding development capabilities from one versatile platform.

The line features a 16 mm single-screw extruder for precise polymer processing, producing strands with a standard 1.75 mm for 3D filaments (other sizes are also available on request). A dual-mode cooling system functions as either a water bath or air-cooling setup, allowing users to adapt the process to different materials and production goals. The water bath provides effective cooling for non-sensitive polymers such as ABS, PLA, PP, and PE. In contrast, air-cooling is preferred for water-sensitive materials, particularly starch-based formulations that may absorb moisture during processing.



When the line is in **filament production mode**, the strand passes through press and nip rolls before being wound onto spools at speeds of up to 10 m/min. In **pelletizing operation mode**, the strand bypasses the winder and is directed straight to the pelletizer, which produces pellets with a standard length of 3 mm, with optional adjustable pellet length available to meet different processing requirements.

The system is equipped with a touchscreen control panel for monitoring and adjustment, and safety features to ensure the operator is protected. Overall, the Mini Scientific Combi Line offers an efficient, user-friendly solution for producing both filaments and pellets within a single, space-saving platform.



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MINI SCIENTIFIC SINGLE-SCREW EXTRUDER



TYPE LME16-30-MCP-3D



Compact, high-precision single-screw extruder for laboratory-scale testing, compounding and filament production.

- ▶ Ø 16 mm screw with 30:1 L/D ratio
- ▶ Nitrided steel barrel and screw (optional bi-metallic barrel or hard-chrome screw)
- ▶ Two heating zones with heaters and air-cooling fans
- ▶ Servo-driven system supports speeds up to 150 RPM
- ▶ Feeding section cooling blocks to prevent premature melting
- ▶ Stainless steel hopper feeder with slide valves for infeed and resin discharge
- ▶ Optional melt temperature and pressure transducer for auto-pressure control

STRAND / FILAMENT DIE

The precision die enables reliable strand and filament production at line speeds of up to 10 m/min. The standard filament diameter is 1.75 mm, widely used for 3D printing materials such as PLA, ABS and PETG.

NOTE: For customers requiring other sizes, alternative die diameters can be provided on request.

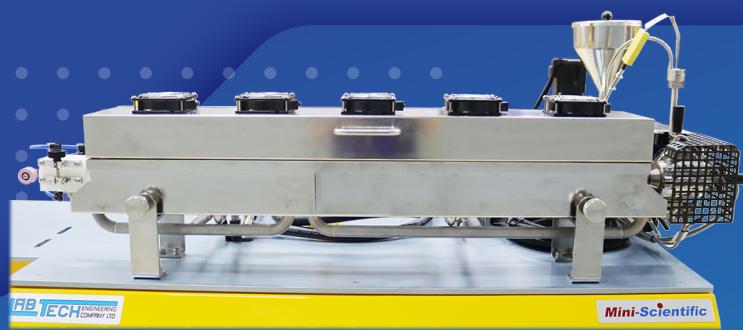


MINI SCIENTIFIC COMBI WATER BATH AND AIR-COOLING CHAMBER

TYPE LMW-10



The Combi Water Bath and Air-Cooling Chamber is a versatile dual-mode cooling system for extruded strands and filaments. It allows easy switching for optimal stabilization, temperature control, and material compatibility.



WATER BATH CHAMBER

- ▶ Dual-chamber stainless-steel tank with submerged filament guide to ensure full contact with water for uniform cooling
- ▶ Calibration rings maintain filament shape and alignment while serving as a flood seal to prevent water spillage
- ▶ Air wipe nozzle removes residual water from the strand at the exit

OPTIONAL WATER TEMPERING UNIT AND CHILLER

The water bath is connected to a water tempering unit that provides precise high-temperature control, with heating capability up to 120 °C. For applications requiring lower cooling temperatures, an optional chiller can be integrated, allowing enabling cooling temperatures as low as 10 °C, ensuring stable and flexible thermal control across a wide processing range.



AIR-COOLING CHAMBER

- The filament is guided smoothly through a metal guide positioned inside the chamber, ensuring proper alignment and helping to minimize filament breakage during operation
- Hinged cover designed to provide easy access for initial filament or strand threading inside the chamber, while also offering protection during operation
- Top-mounted fan provides controlled airflow for surface cooling
- Simple mode selection via touchscreen control panel



MINI SCIENTIFIC TRAVERSE SPOOL WINDER

TYPE LCWU-10



Designed for collecting continuous filaments or extruded profiles with controlled winding, the system combines rubber pull rolls, a strand guide assembly on a traverse unit, and a servo-driven winder to coil filaments onto the reel.

- Maintains filament tension during the winding process across different operating conditions
- Pull roll assembly with spring-loaded press roll for firm grip and traction
- Adjustable nip roll speed up to 10 m/min via touchscreen
- Traverse unit with automatic direction reversal via front and rear limiters
- Quick-lock spool retainer for fast spool replacement



OPTIONAL VERTICAL ACCUMULATOR

The accumulator uses a pulley set that travels along a linear guide. This allows the operator enough time for spool changeover without interrupting the full-speed operation.

MINI SCIENTIFIC STRAND PELLETIZER

TYPE LZ-80



Engineered for consistent pelletizing of extruded strands into uniform pellets by directing the material straight from the cooling section to the pelletizer, bypassing the spool winder.

- Equipped with a 6-blade rotary knife for precise pellet cutting
- Hinged clear polycarbonate window for safe cutting process monitoring
- Polyurethane idler roller with adjustable external handle for secure strand grip
- Pellet discharge chute directs pellets into collection bin conveniently supported by an adjustable stainless-steel table
- Touchscreen control panel for easy operation and adjustments

