Break Through in R&D and Battery Components

with RONDOL's

VERTICAL ALL-IN-ONE Twin-Screw Extruder

Optimum Performance, Weight and Cost-Efficiency in Battery R&D

Our unique set-up **improves material flow, facilitates smoother mixing**, provides **superior temperature management** and **preserves the integrity of sensitive components** with varying melt degradation properties, enhancing your medicines and medical devices performance. Additionally, the vertical design decreases the machine's footprint and minimizes cross-contamination risk, offering you a high-quality manufacturing solution with **lower capital and operational expenses**.

RONDOL's groundbreaking "All-in-One" vertical twin-screw extruder makes it possible to manufacture **complex polymer thin films** that can be used in all battery parts (**cathode**, **anode**, **electrolyte**, **separator** or **box**) in order to optimize the overall performance of the battery.

Key Benefits of our Vertical Extruder:

Compact and efficient design: Maximize productivity and space utilization with our innovative vertical orientation which reduces the extruder footprint and allows for low capital intensity.

Materials versatility and durability: Our contact parts are capable of processing a wide range of products with different physical and chemical properties while experiencing minimal abrasion and corrosion.

Easy to clean barrel: Ensure traceability with different sources of critical materials thanks to inside liners easy to disassemble and clean.

Versatile screw design and die options: Cater to diverse R&D and production applications with our flexible design features such as our cast film die with various width and thickness options.

Scalability of our continuous manufacturing process: Seamlessly transition from lab testing to industrial production with our scalable geometric proportions.

Precise monitoring of process temperature with autonomous control for each of the 8 zones up to 300 °C (450 °C optional).

Integrated controls for feeders: Enhance operational convenience with our advanced control panel and compatible feeders from which you can inject in-the-barrel additional materials, additives and even gases.

Rondol

VERTICAL ALL-IN-ONE

SPECIFICATION SHEET: BATTERY / R&D

Screw diameter	10.5 mm
Length / Diameter	40:1 (adjustable with side feeding option)
Machine material	Full stainless steel
Screw speed	0-300 rpm (or 0-600 rpm optional)
Screw configuration	Segmented screw design fully interchangeable
Footprint	0.497 m² / 5.350 sq.ft
Dimensions	828.5 mm x 600 mm x 1960 mm (1.97 ft x 2.72 ft x 6.43 ft)
Motor power	1.45 kW (or 2.85 kW optional)
Electrical consumption	1.89 kWh (standard's maximal temperature and speed: feeder + extruder + pelletizer)
Torque output	14 N.m per shaft maximum
Number of barrel zones	8 temperature-controlled zones (heating / cooling)
Temperature range	15-300 °C (or 15-450 °C optional)
Dies	Standard: strand die Options: cast film, strip, co-extrusion, swan-neck dies Cast film specifications: Die Width: 75 mm or 100 mm Thickness: 100 µm, 150 µm, 200 µm, 250 µm, 300 µm
Plug-and-play feeding	Options: side powder, pellet, liquid and/or gas feeders
Minimum lot size	50 g or less with the side feeding option
Maximum output	Up to 1 kg/hr (up to 2 kg/hr optional)
Maximum pressure	100 bars
Product cooling systems	Standard: air cooling ring Options: stainless steel cooling systems
Plug-and-play downstream equipment	Standard: varicut pelletizer Options: haul off winder (filament, film or strip), calendaring
Human machine interface	10.1" touch screen with PLC-controlled data logging and audit trail, remote diagnostic tool Option: controlled by PC or tablet
Electrical power requirements	32 A, 230 V, 1-phase + N + PE, 50/60 Hz (Europe)
Water supply requirements	Specific design for glovebox