Break Through in Drug Delivery and Formulation, Medical Device Manufacturing with RONDOL's

21mm Twin-Screw Horizontal Extruder

Optimum Performance, Cost and Resource Management in Drug Delivery and Formulation

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 device performance.

RONDOL's 21mm twin-screw extruder makes it possible to manufacture:

- Solid oral dosage forms (tablets, hard and soft capsules)
- Orodispersible drugs (film granules, tablets)
- Semi solids (ointments, creams, pastes, gels, suppositories)
- Transdermal (implants, films)
- Extrudates for injection molding, calendaring or 3D printing
- Implants (ophthalmic, transdermal, vaginal)
- Medical plastics (strip, straps)
- Co-crystals
- Dry and wet granulations
- Amorphous solid dispersions
- Solid lipid nanoparticles
- Plant extractions
- Cyclodextrins
- Bioavailability enhancement
- Active pharmaceutical ingredients (APIs)

Key Benefits of our Extruder:

Durable material contact parts: Experience minimal abrasion extended machine life span with our optimized components.

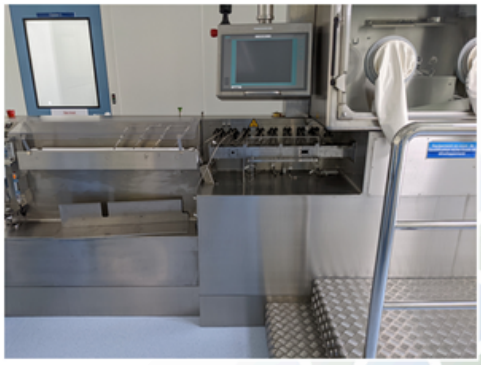
Easy to clean barrel: Ensure traceability with different sources of critical materials thanks to inside liners easy to disassemble and clean.

Smooth mixing of fragile active pharmaceutical ingredients (APIs) and proteins.

Versatile screw design and die options: Cater to diverse R&D and production applications with our flexible design features.

Precise monitoring of process temperature with autonomous control for each of the 8 zones.

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.



21MM HORIZONTAL

SPECIFICATION SHEET: PHARMA

Nominal screw diameter	21mm
Length / Diameter	40:1
Machine material	Full stainless steel
Screw speed	0-300rpm (or 0-600rpm optional)
Screw configuration	Segmented screw design fully interchangeable
Footprint	1.47m2 / 15.83sq.ft
Dimensions	2000mm x 600mm x 1220mm (6.56ft x 1.97ft x 4.00ft)
Motor power	3.3KW
Electrical consumption	7.56kWh (standard's maximal temperature and speed: feeder + extruder + cast film die + haul-off winder film)
Torque output	45N.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, tube, co-extrusion
Plug-and-play feeding	Options: main powder, pellet, or side feeder, liquid and/or gas feeders
Maximum output	Up to 8kg/hr (up to 16kg/hr optional)
Maximum pressure	100 bars
Product cooling systems	Options: air / stainless steel cooling systems
Plug-and-play downstream equipment	Options: haul off winder (filament, film or strip), varicut pelletizer, calendaring, implant cutting device
Human machine interface	15.6" touch screen with PLC-controlled data logging and audit trail, remote diagnostic tool Option: controlled by PC or Tablet
Electrical power Requirements	40 amp, 3 x 276/480V+1N+1PE, 50/60Hz (North America) 40 amp, 3 x 230/400V+1N+1PE, 50/60Hz (Europe)
Water supply requirements	4-6 bars
GMP Package (Option)	SAT, IQ/OQ, FDA and EMA compliant, Materials certificates, Login etc