

# 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

<b>Nominal screw diameter</b>	21mm
<b>Length / Diameter</b>	40:1
<b>Machine material</b>	Full stainless steel
<b>Screw speed</b>	0-300rpm (or 0-600rpm optional)
<b>Screw configuration</b>	Segmented screw design fully interchangeable
<b>Footprint</b>	1.2m <sup>2</sup> / 12.92sq.ft
<b>Dimensions</b>	2000mm x 600mm x 1220mm (6.56ft x 1.97ft x 4.00ft)
<b>Motor power</b>	4.5 KW
<b>Electrical consumption</b>	7.56kWh (standard's maximal temperature and speed: feeder + extruder + cast film die + haul-off winder film)
<b>Torque output</b>	55N.m per shaft maximum
<b>Number of barrel zones</b>	8 temperature-controlled zones (heating / cooling)
<b>Temperature range</b>	15-300°C (or 15-450°C optional)
<b>Dies</b>	Standard: strand die Options: cast film, strip, tube, co-extrusion
<b>Plug-and-play feeding</b>	Options: main powder, pellet, or side feeder, liquid and/or gas feeders
<b>Maximum output</b>	Up to 8kg/hr (up to 16kg/hr optional)
<b>Maximum pressure</b>	100 bars
<b>Product cooling systems</b>	Options: air / stainless steel cooling systems
<b>Plug-and-play downstream equipment</b>	Options: haul off winder (filament, film or strip), varicut pelletizer, calendaring, implant cutting device
<b>Human machine interface</b>	15.6" touch screen with PLC-controlled data logging and audit trail, remote diagnostic tool Option: controlled by PC or Tablet
<b>Electrical power Requirements</b>	40 amp, 3 x 276/480V+1N+1PE, 50/60Hz (North America) 40 amp, 3 x 230/400V+1N+1PE, 50/60Hz (Europe)
<b>Water supply requirements</b>	4-6 bars
<b>GMP Package (Option)</b>	SAT, IQ/OQ, FDA and EMA compliant, Materials certificates, Login etc