

TECHNICAL DATA SHEET

Extrova[™] Micro-conical Extruder

Micro compounding · Efficient dispersion · Precise control



ACS Material Extrova[™] Micro-conical Extruder

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SECTION I

Product Overview

The Extrova™ Micro-conical Extruder is a micro-scale platform for compounding, plasticizing, dispersing and sample preparation — built for high-value polymers, functional composites and pilot scale-up.

Key strengths: lower trial cost (screen high-value resins, drug carriers or nano-fillers without kilogram-scale consumption), fast changeover (180° split-open barrel and removable screws for easy cleaning, ideal for multi-formulation small batches), scale-up ready (torque, temperature and pressure data map directly to pilot extrusion parameters), and an easy-clean design that prevents batch-to-batch contamination.

SECTION II

Specifications

Extrova™ Micro-conical Extruder	
Micro feeding	5–15 g per batch
Temperature	RT–450 °C, precise temperature control
Online process data	Torque / temperature / pressure
Barrel	180° split-open, with removable screws

SECTION III

Application Fields

- **Engineering plastics** — formulation screening & process-window exploration for PEEK, PI, PPS high-temp systems
- **Bio-based materials** — low-thermal-history compounding & degradation evaluation for PLA, PBS, PHA
- **Nanocomposites** — high-shear dispersion of CNT, graphene, SiO₂, TiO₂ & masterbatch development
- **Medical polymers** — small-batch clean sampling & process validation for PLGA, resorbables, drug carriers
- **3D printing filament** — compounding & drawing validation of flame-retardant, conductive, magnetic filaments
- **Pre-scale-up review** — traceable process data as a reliable basis for pilot scale-up



Application fields

SECTION IV

Typical Experimental Workflow

- 01 Micro feeding — 5–15 g batch
- 02 Melt compounding — twin-screw shear dispersion
- 03 Data acquisition — torque / temperature / pressure
- 04 Modular sampling — injection / film / fiber
- 05 Performance test — mechanical / rheology



Typical experimental workflow

SECTION V

Modular Sampling & Digital Twin

Modular output samples

- Injection molding — standard test bars
- Cast film — film samples
- Spinning — fibers & filaments
- Pelletizing — small-batch pellets

Digital twin system

- Real-time monitoring — torque, temperature, pressure, speed
- Virtual simulation — process visualization and playback
- Intelligent optimization — formulation screening & process-window recommendation
- Scale-up prediction — data mapping from lab batches to pilot scale

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