Xplore
Xcelerate your polymer innovation

Elastocon®

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MC 15 HT

High-Torque | Advanced R&D

Advanced R&D Solution

The MC 15 HT is a **high-torque laboratory micro-compounder designed for advanced R&D and high-viscous material development.** By working with small material volumes, it reduces waste, cost, and development time while maintaining precise control and robust construction. Its compact design fits on a laboratory bench or inside a standard fume hood, eliminating the need for additional infrastructure.

Precision & Control

- **High-Torque Performance:** Designed for demanding and high-viscosity materials, enabling stable processing under high-load conditions with consistent mixing and reliable results.
- **Advanced Drive System:** Ensures precise shear rate control with continuous torque monitoring for consistent and data-driven results.
- **Superior Mixing:** Engineered for effective dispersion and uniform distribution, ensuring stable and reproducible performance across various processing conditions.

Flexible Workflow

- **Processing Modes:** Batch compounding, Vari-Batch®, and continuous extrusion.
- **Integrated Feeding:** Optional continuous pellet and powder feeders ensure accurate dosing for extrusion and stable operation, with consistent flow and adaptable screw configurations for diverse materials.
- **Direct Post-Processing & Shaping:** Compatible with Xplore's post-die add-ons, such as injection moulding, cast film extrusion, fiber spinning, impregnation, or pelletizing.

System Capabilities

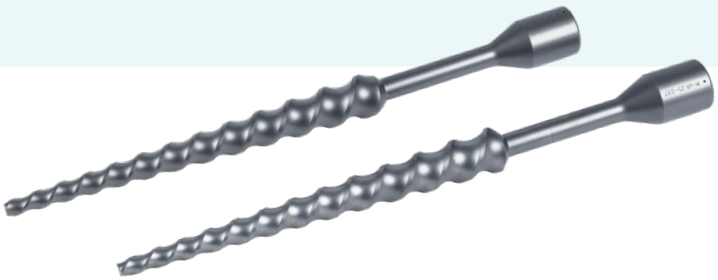
- **Stable Feeding & Residence Time:** Equipped with a water-cooled feeding hopper, precisely controlled melt temperature and barrel temperature zones to prevent premature melting and ensure stable residence time.
- **Durability:** Features abrasion- and corrosion-resistant barrel with robust housing for long-term reliability. Suitable for processing commodity to high-performance polymers such as PEEK and PPS, as well as demanding systems like battery slurries and rubber.
- **Smart Upscaling:** Incorporates proprietary rheological software capable of producing in-line rheological data, providing enhanced understanding of structure evolution during compounding and facilitating reliable scale-up to industrial/pilot extrusion systems.
- **Minimized Cleaning Downtime:** The integrated, automatically controlled cooling jackets enable rapid barrel cooling as part of Xplore's cleaning cycle.
- **Atmosphere Control:** Integrated inert gas supply prevents thermo-oxidative degradation and preserves material integrity during high-temperature processing.

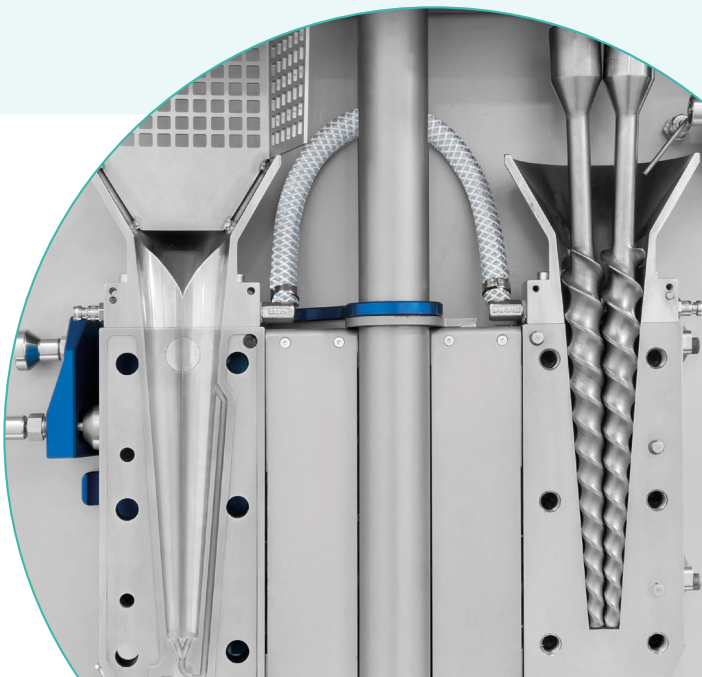
Double feeders

Scan for more info

Technical Specifications

- Batch volume: 15 ml (Vari-Batch® option: 3 ml, 7 ml, and 15 ml)
- Recirculation channel volume: 2.7 ml
- Continuous or batch operation
- Mixing screws: Fully intermeshing, detachable, nitrated coating with a hardness of 1100 ± 100 HV
- Barrel: Abrasion-resistant, hardness 63 ± 1 HRC, coating hardness 2000 ± 100 HV
- Maximum melt torque: 40 Nm (20 Nm per shaft)
- Maximum pressure: 600 bar
- Gear-box: Co- and counter-rotation standard
- Screw speed: 0.1–500 RPM, continuously variable. Between 0.1–10 RPM with 0.1 RPM incremental steps; between 10–500 RPM, 1 RPM incremental steps
- Maximum operating temperature: 475°C
- Temperature control and heating: Front and rear barrel with 3 heating zones, 8 heating cartridges, 8 thermocouples, plus a melt thermocouple
- Heating time (80°C → 240°C): <10 min
- Cooling time (240°C → 80°C): <10 min with water; <25 min with air
- Operation control: Integrated 12-inch touchscreen or USB interface
- Software: Data acquisition and instrument control
- Optional inline-process monitoring:
  - Melt pressure transducers
  - Melt-tension sensor for fiber application
  - Spectroscopic (NIR/Raman/UV-Vis) sensor-port on the recirculation channel
- Main drive power: 1350 W
- Power supply:
  - 380–415 Vac / 50–60 Hz, 3 phase, 16 A
  - 190–208 Vac / 50–60 Hz, 3 phase, 20 A
- Utility connections:
  - Cooling water inlet/outlet: Min. 5 l/min, 0–6 bars (chiller connectivity is also possible)
  - Cooling air inlet: Min. 150 l/min, 0–6 bar
  - Purge inert gas: N_2, Ar, etc., with 0–6 bar inlet pressure
  - Fume extraction: Min. 20 m^3/h from the top
- Dimensions (H × W × D): 97 cm × 60 cm × 45 cm
- Weight: 145 kg





Contact us at
xplore-together.com