

PME

hot melt extrusion

Tabletop twin-screw extruder for pharmaceutical
and biomedical R&D applications



Profitable savings with tabletop HME equipment



Need a convenient and efficient way to screen pharmaceutical or biomedical products with Hot Melt Extrusion (HME)? The new micro extruder makes your R&D life brighter. Fast and reliable, it shortens development times and expands your commercial window for new medicines.

Hot Melt Extrusion is gaining much popularity in the pharmaceutical industry because it formulates insoluble compounds into successful drug/polymer systems with better bioavailability. Until now, it was difficult to develop these medicines cost-efficiently. The new equipment from Xplore is a tabletop, twin-screw micro extruder that is cost-effective, fast, flexible and very reliable. It meets the demanding screening requirements of pharmaceutical and biomedical R&D applications.

Cost-effective - cut sample costs in half

New drug substances are expensive, especially when synthesized at laboratory scale in early stage development. The new micro extruder offers a 2 ml barrel liner, which allows you to perform twin-screw extrusion with a minimum amount of product. That is less than half the amount of sample required for a 5 ml barrel volume, which cuts your sample costs in half.

Fast - perform 30 percent more tests per day

Engineered for speed, the barrel liners and screws can be quickly exchanged, so you can run more and different experiments in the same time frame. Cleaning can be done in parallel. You can even sterilize these components for more rigorous tests.

Flexible - handle diverse experiments

The interchangeable barrel liners and screws are available in 2 ml and 5 ml working volumes, and other volumes as needed. The residence time can be adjusted for specific test requirements. Barrel liners without a recirculation channel can be used for continuous experiments. The extruder outlet can be set to continuous mode or batch mode. Different types of screws can be ordered. Materials can be fed via a water cooled top hopper (fluffy or static pharmaceutical powder blends) or the front feeding hopper (polymer/granules).

Reliable, reproducible high quality products

The new micro extruder generates tremendous extensional flow and sufficient screw torque values at low processing temperatures. This delivers maximal dispersion and enables operation just above the glass transition temperature, which lowers the risk of drug degradation. Inline temperature control provides reliable feedback on what is happening in the melt. This system can be used for GMP operations.

Easy and convenient operation

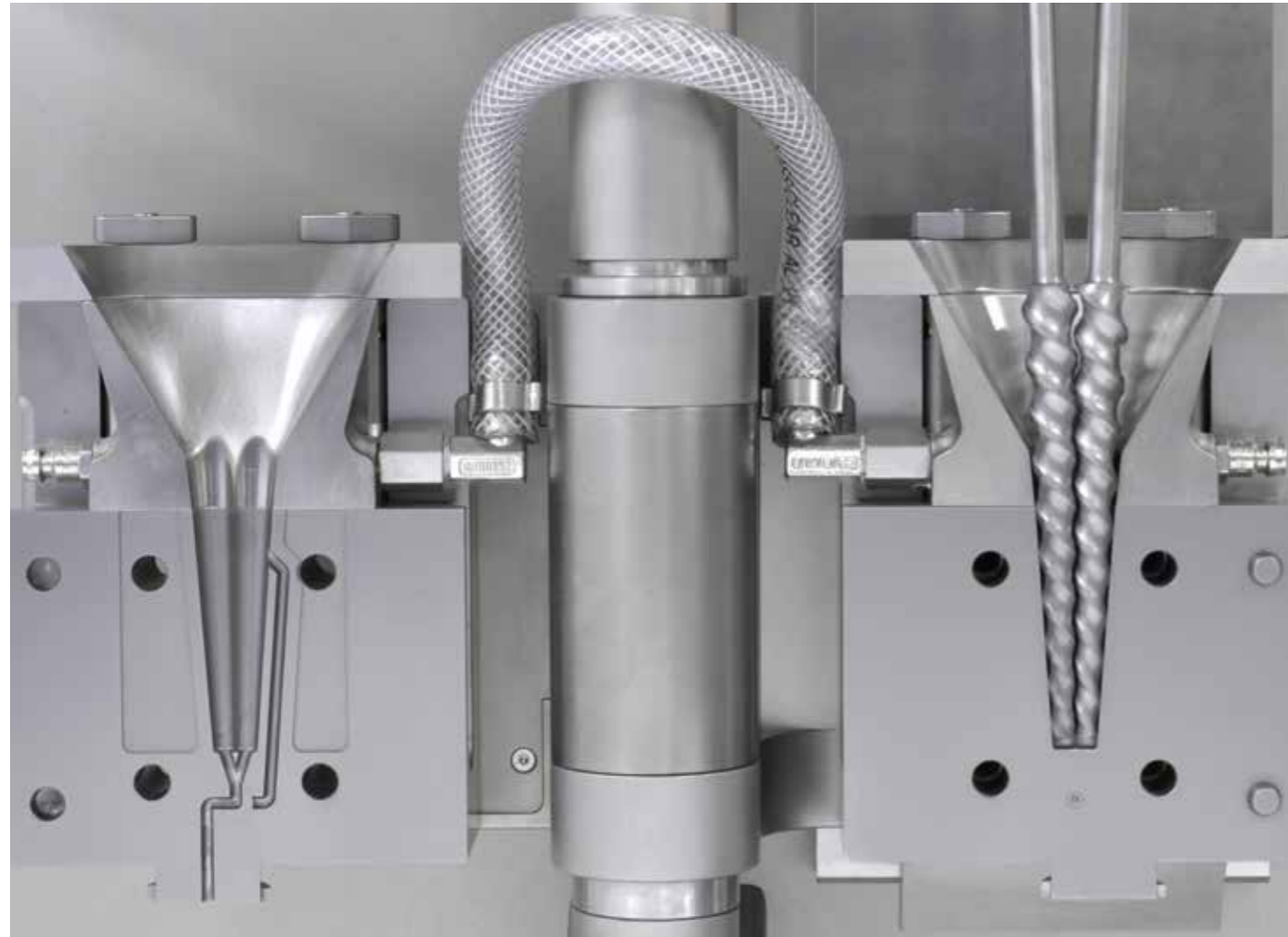
This system is easy to run in R&D screening environments as no optimization of screw geometry is needed and variations in L/D are mimicked by shorter or longer residence times. Users can control the system at the machine or from a distance with a computer. Rheological information and process data can be quickly acquired and further processed with our dedicated software packages.

Pioneer in micro-extrusion and - shaping

For over 15 years, customers across the polymer value chain have chosen Xplore as their partner for micro extrusion equipment. Our advanced technologies enable R&D departments to drastically shorten their development time and costs, thus reducing their time-to-market. Our new micro extruder now offers a dedicated new solution for cost-effectively screening of pharmaceutical and biomedical applications.

Test facility

Want to try the equipment yourself? In our classified laboratory (suitable for HPC class I - IV) we offer the possibility to conduct a guided trial with our micro extruder.





- Easy to fill with fluffy and static excipients and drug substances
- Easy to clean through fast removable barrel liners and screws
- Various machines in one by using different barrel liners (2 ml, 5 ml, batch or continuous)
- Lower material costs with 2 ml or 5 ml working volumes
- Minimal degradation risk due to precise temperature control and use of extensional flow screws
- Compact tabletop equipment fits in fume hood or classified room

Technical Specifications

- Interchangeable barrel liners (with recirculation channel)
 - Working volume 2 or 5 ml
 - 2 x 3 controlled heating zones
- Interchangeable screws: conical, fully intermeshing, co-rotating
- Feeder: water cooled top hopper for easy feeding
- Outlet: divisible, detachable cap with 2.4 mm die, also compatible with fiber and film device
- Maximum operating temperature: 400 °C
- Supply voltage: 208 – 240V AC
- Overall dimensions (h x w x d): 80 x 50 x 50 cm
- Weight: 120 kg
- Data connection to pc: USB 2.0
- Rheological data (software). Melt torque, melt viscosity, shear rate and shear stress
- Splash waterproof (IP 65)

Optionally

- Interchangeable barrel liners
 - 2 ml
 - 5 ml
 - Other volumes on request
 - Without recirculation channel
 - With or without inline product temperature probe
- Interchangeable screws
 - Co- or counter rotating screws
 - Elongated forced feeding screws (in combination with top feeder)
 - Screws with flight slots for maximal dispersion
- Cooled top feeder; water cooled hopper for optimal powder feeding
- Co/counter rotating gearbox; gearbox with built-in switch for co- or counter rotating operation
- Software for online data monitoring and rheological data acquisition

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