

# Xplore PME

## pharma melt extruder

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



# Profitable savings with a tabletop Hot Melt Extruder

Need a convenient and efficient way to screen pharmaceutical, biomedical and nutritional products with GMP compliant Hot Melt Extrusion? The new PME makes your R&D life easier, reliable, reproducible and fast. It shortens development times and expands your commercial window for new developments.

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 instrument from Xplore is a tabletop, twin-screw micro extruder that is cost-effective, fast, flexible and reliable. It meets the demanding screening requirements of pharmaceutical, biomedical and nutritional R&D applications.

## **Cost-effective - cut sample costs in half**

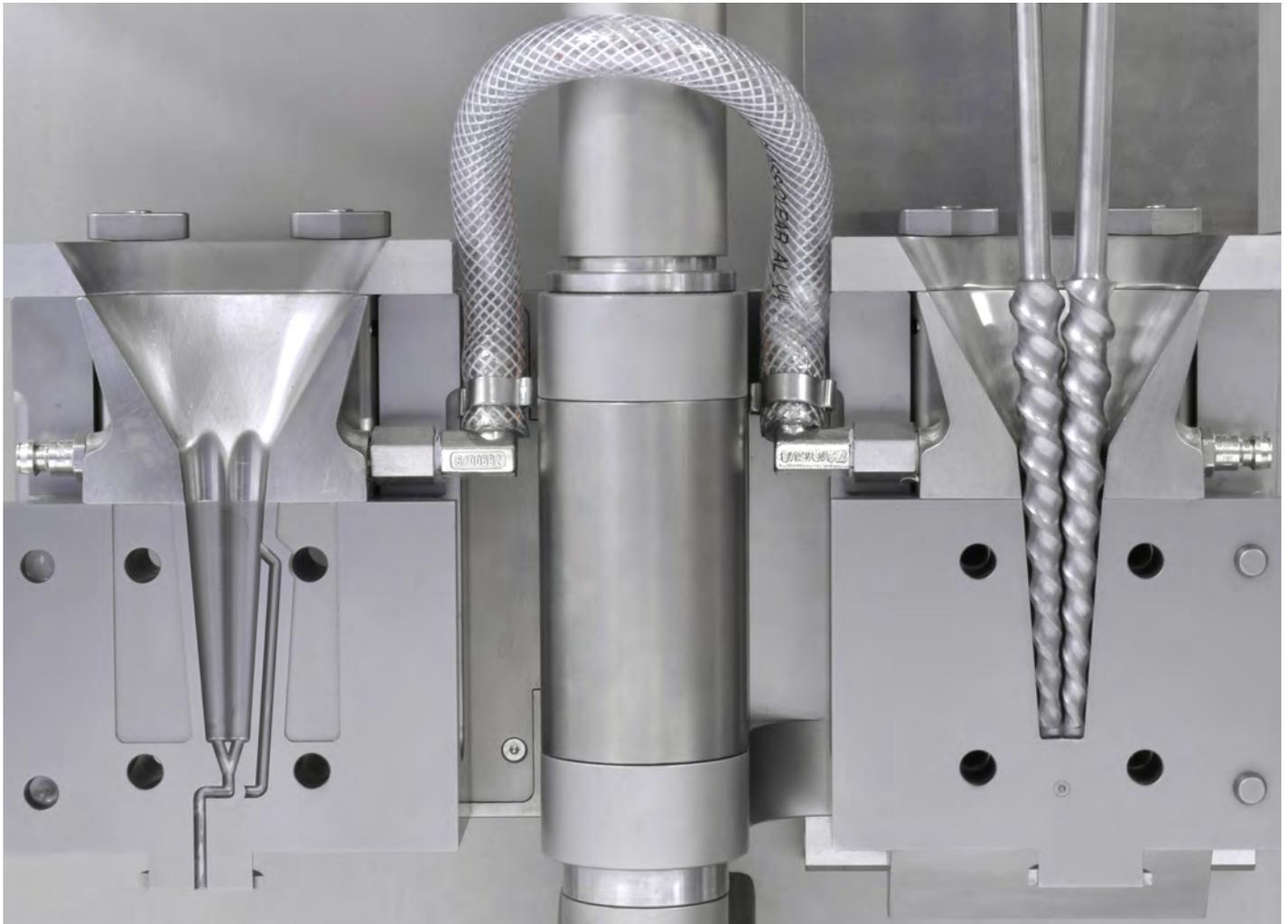
New drug substances are expensive, especially when synthesized at laboratory scale in early stage development. The new micro extruder offers a 2 ml barrel liner, which allows you to perform twin-screw extrusion with a minimum amount of product. That is less than half the amount of sample required for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

## **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 are fed via a water cooled top hopper (fluffy, sticky or static powder blends) or with a front feeding hopper (polymer granules).





### Reliable, reproducible high quality products

The PME 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 under GMP conditions.

### Easy and convenient operation

This system is easy to run in an R&D screening environment as no optimization of screw geometry is needed and variations in L/D are mimicked by shorter or longer residence times controlled by a recirculation valve. Users can control the system at the instrument 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 times and costs, thus reducing their time-to-market. The Xplore PME offers a dedicated solution for cost-effectively screening of pharmaceutical, biomedical and nutritional applications.

### Test facility

Want to try the equipment yourself? In our test laboratory we offer the possibility to conduct a guided trial with our PME.





- Easy to fill with fluffy and/or 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/API 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 – 240 V AC
- Overall dimensions (h x w x d): 83 x 90 x 50 cm
- Weight: 120 kg
- Data connection to pc: USB 2.0
- Rheological data (software): screw torque in melt, shear 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 top 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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Trade Register: 60040114