

Xplore FL fibre line

Table top micro fibre line for R&D applications



xplore

The platform for
polymer and rubber R&D

Fast screening of new fibre formulations: a microfibre spin line

This innovation enables you to obtain mono or multi-filament fibres from small amounts of material in 10 - 15 minutes. Material need and development time are drastically reduced, and considerably less R&D budget is needed.

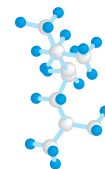
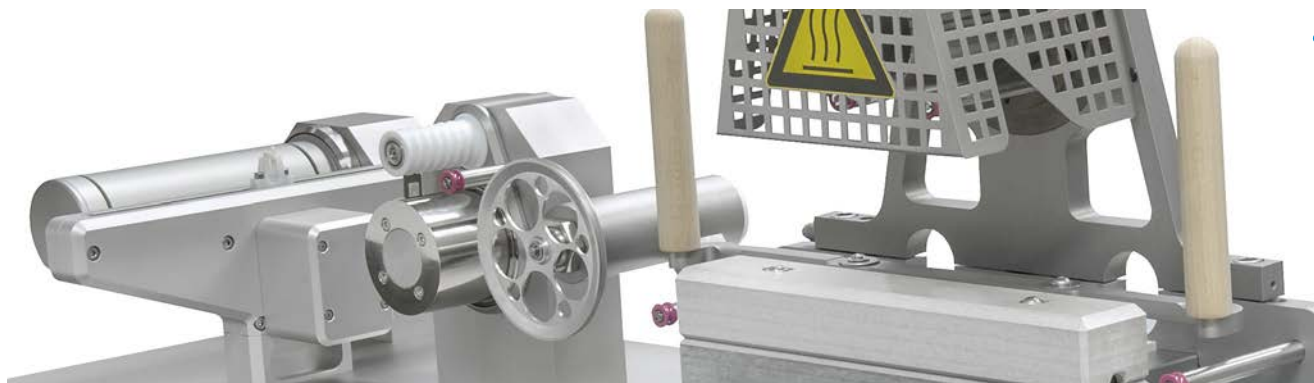
Representative test fibre(s) can now be obtained in a few minutes with only a fraction of material used compared to conventional fibre development on laboratory equipment. The microfibre line is especially useful when only small amounts of material are available or when expensive additives are used.

Extremely long fibre samples can be obtained with our compounders in combination with a continuous feed kit. There is no need for an additional spinning pump, as our micro compounder is featured with throughput control to secure uniform fibre diameter. To prevent fibre breakage at the beginning of a stretching process, a "slow start-up sequence" can be programmed.

The instrument consists of two units: a high-speed winding unit (winding speed up to 200 m/min) and a low-speed conditioning unit. Such design keeps the equipment to fit on a table in your R&D laboratory.

The conditioning unit has a controlled supply and take-up roll and a heating element to accurately control fibre drawing speed, draw ratio and drawing temperature. The unit can be configured to perform hot or cold drawing/stretching of filaments using independently speed controlled godets. The speed of the winder godet can be controlled accurately from 0.5 to 90 m/min.





The lateral moving speeds of the traverse guides on both units are (in)dependently controlled to generate a variety of filament overlap pitch patterns. The pitch between adjacent fibres can be controlled within 0.1 mm to 4.0 mm. The units accommodate 0.75 mm cardboard bobbins. The fibre heating options of the conditioning unit consist either of a hot shoe, which heats the fibre by radiation, or optionally, a heated metal cylinder, which heats the fibre by conduction.

These features accurately heat the fibre(s) and enable accurate and reproducible stretching conditions of the fibre(s). Once a steady

stretching process is established, the traverse guide laterally shifts to a defined area of the bobbin to wind the fibre(s) in a pre-programmed pitch pattern.

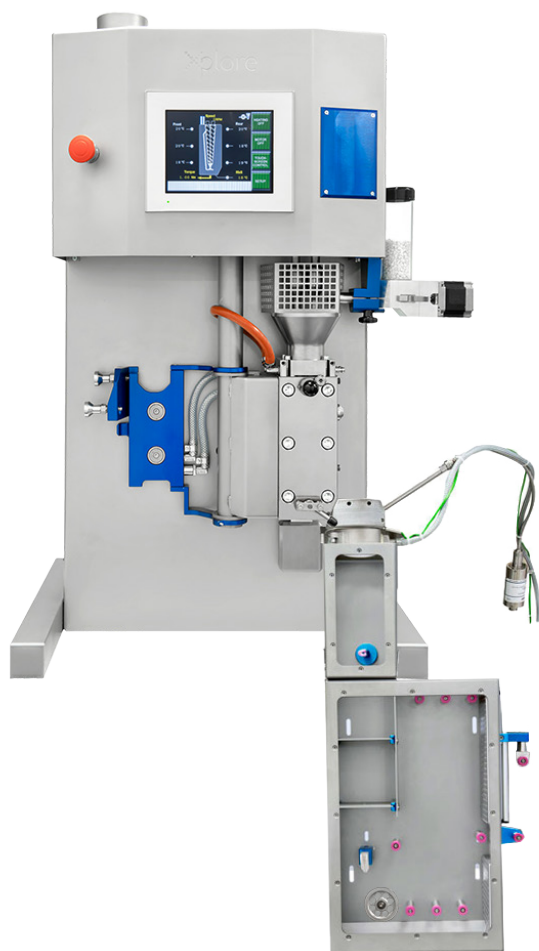
Optionally a high-end multi-filament die, a quench box with the wetting unit and an optional melt strength measurement can be mounted onto our MC 15 compounder which enhances the spinning process even more (see last page). Several (multi) fibre dies are available for multiple fibre spinning applications.



Technical Specifications:

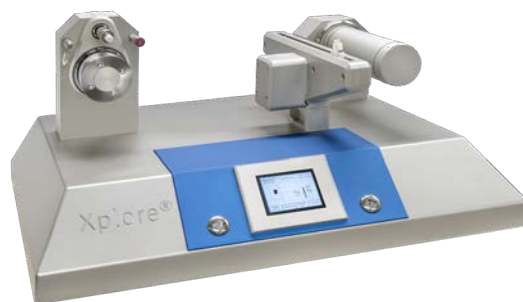
Winding unit:

- Godet drum diameters: 0.75 mm
- 1 Drum winder
- Controlled winding speed: 5 - 200m/min
- Controlled traverse guide pitch: 0.1 - 4.0 mm (increments of 0.1 mm)
- Controlled winding width: 10 - 150 mm (increments of 1 mm)
- Fibre die: diameter between 0.25 - 1.50 mm (increments of 0.25 mm)
- Controls: integrated touch screen with graphical user interface
- Overall dimensions (l x w x h): 67 x 50 x 34 cm
- Weight: ca. 35 kg
- Supply voltage: 220-240 Volts (others on request)



Conditioning unit:

- Godet drum diameters: 0.75 mm
- 2 Drum winders
- Controlled speed: 0.5 - 90 m/min (increments of 0.01 m/min)
- Controlled traverse guide pitch: 0.1 - 4.0 mm (increments of 0.1 mm)
- Controlled winding width: 10 - 150 mm (increments of 1 mm)
- Torque winding rolls: -250 - +250 Nmm (increments of 0.05 Nmm)
- Adjustable stretch factor 1:10
- Temperature range of hot shoe: ambient - 300°C (increments of 1°C)
- Nitrogen purge
- Hot shoe length: 300 mm
- Controls: integrated touch screen with graphical user interface
- Overall dimensions (l x w x h): 172 x 50 x 35 cm
- Weight: ca. 75 kg
- Supply voltage: 230 Volts (others on request)



Options:

- Hot pin (heating by conduction)
- Air-cooled godet rolls
- Custom defined surface finish of godet drums
- Fibre tension meter to estimate impurities in the fibre
- Fibre slip measurement
- Additional options for utilisation with an Xplore compounder:
 - Volumetric mini dosing unit
 - Water-cooled top hopper
 - Continuous forced feeding screws
 - Multi-filament die
 - Quench box
 - Wetting ("avivage") unit
 - Melt strength measurement

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