

# Xplore®



## Xplore® MC 5 micro compounder 10 times faster, 10 times cheaper R&D

Xplore developed a twin-screw micro-compounder with a capacity of just a few grams of material. This micro-compounder, which is the smallest in the world, is a unique asset for the development of new material compound formulations. It will brighten your R&D by delivering reliable, reproducible and very fast and cheap test results. A fully-fledged material processing machine on a laboratory bench or in a hood.

The micro compounder can process batch volumes up to 5 ml. As an option the compounder houses the unique Vari-Batch™ concept, which gives you the opportunity to select your batch volume between 2 and 5 ml. In the past, testing and evaluating of new materials or formulations was very time consuming and costly due to large amounts of test material or too much of expensive additives needed.

Our micro-compounder offers you a solution: reliable and reproducible, very fast results with less material and waste and less equipment and infrastructure costs. Even more so when the compounder is used in combination with our laboratory injection molding machine, cast film or fiber line.

The core of this laboratory machine is formed by a divisible, fluid tight mixing compartment containing two detachable, conical mixing screws. These screws and the barrel are specially treated to minimise wear and to make them resistant against chemicals. Chemical resistance and hardness is essential to maintain its original geometry, which enables to generate reproducible data over the years.

The main drive is continuously digitally variable. It allows for vertical force and rheological data measurement and controls constant die pressure for film and fiber

applications, hence through put control. The processing temperature can be controlled in 2x3 separate barrel heating zones, which also enables to process with a temperature gradient over the barrel, or directly via an additional melt thermocouple.

Residence time (L/D in continuous extruders) can be varied via recirculation of the melt. No screw optimisation is needed. Mixing and dispersion are superb, preventing agglomeration. Shear can be set by adjusting the temperature, RPM or gap between screw flank and barrel. Other standard features are air and water cooling, N<sub>2</sub> purge, integrated touch screen control, vertical force measurement, estimation of the melt torque, viscosity and average shear rate.

Our dedicated software enables you to control the instrument parameters and to acquire data to fully analyse a processing run. Upscaling of this process to continuous parallel twin screw extruders can now also be achieved.

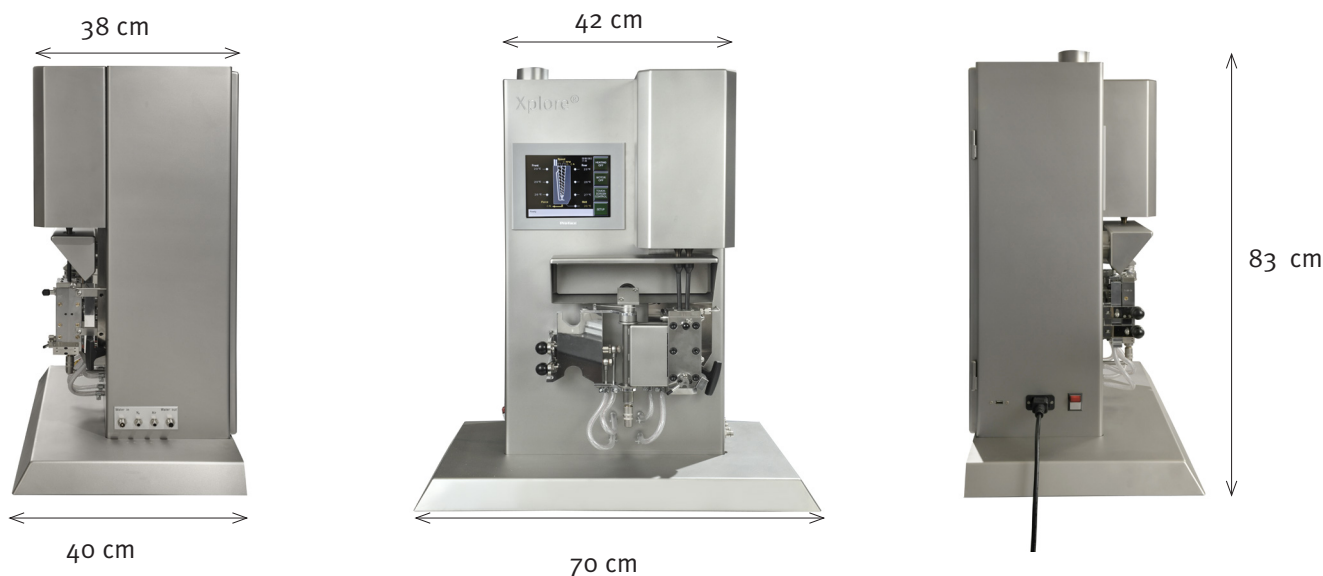
Materials - Health - Nutrition

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## Technical Specifications

- Abrasion resistant barrel (hardness 60 HRC), coating hardness 2000 Vickers
- Barrel and screws chemically resistant between pH 0 – 14
- Batch volume: 5 ml (Vari-Batch™ 2 or 5 ml)
- Vertical barrel, fluid-tight
- Heated by 8 thermo cartridges and controlled by 7 thermo couples (temperature gradient)
- Temperature control: in the melt and 2x3 barrel heating zones
- Detachable conical screws, fully intermeshing (Hardness 54 HRC), coating hardness: 1000 Vickers
- Maximum operating temperature: 400 °C (optionally 450 °C)
- Easy to clean with dedicated cleaning cycle
- Heating time (from 20 to 240 °C): 10 min
- Cooling time (from 240 to 80 °C): with cooling water in less than 10 min, with air in less than 35 min
- Acquisition of rheological data (screw torque in melt, melt viscosity, shear rate and shear stress)
- Maximum vertical force: 5 kN
- Screw speed: continuously variable 1 - 400 RPM
- Hopper volume: 5 ml
- Supply voltage: 208 - 240 V AC, others on request
- Main drive: DC controlled, 550 Watt
- Computer control via: USB port
- Maximum torque: 6 Nm per screw
- Overall dimensions (h x b x d): 80 x 70 x 40 cm
- Weight: 95 kg



## Xplore Instrumentst BV

For further information, please see:

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