

Micro Compounder / Extruder 15 ml



DSM Xplore developed a twin screw 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 compounds. A full-pledged material processing machine on a laboratory bench or in a fume cupboard! The micro-compounder can process batch-volumes up to 15 ml. As an option our compounder houses the unique Vari-Batch™ concept, which gives you the opportunity to select your batch-volume, via multiple recirculation channels, from 3 ml, 7 ml up to 15 ml. In the past, testing and evaluating of new materials or formulations was not possible due to lack of sufficient synthesized material or too expensive

additives. Our micro-compounder offers a solution to these issues. Even more, when it is used in combination with our laboratory injection moulding machine. The core of this laboratory compounder is formed by a divisible fluid tight mixing compartment containing two detachable, conical mixing screws. Both the screws and the housing are specially treated to minimize wear and to make them resistant against chemicals. Chemical resistance and hardness of the barrel is essential to maintain its original geometry which enables to generate reproducible data over the years. The main drive is continually digitally variable and allows for axial force measurement which controls constant die pressure for film and fiber applications, hence through-put control. The processing temperature can be controlled in 6 separate heating zones which enable to process with a temperature gradient or directly via an additional melt-thermocouple. Residence time can be varied via recirculation of the melt. Mixing and dispersion are superb preventing agglomeration; shear can be set by RPM or axial force control. In addition screw flank barrel gap is also adjustable. Other standard features are air and water cooling, N2 purge, integrated touch screen control, axial force measurement (determination of viscosity). Dedicated software enables you to control the instrument parameters and to acquire data to analyse a processing cycle/run.



Technical Specifications

- Batch-volume: 15 ml (Vari-Batch™ batch size 3-7-15 ml multiple recirculation channels)
- Divisible barrel (Hardness 65 HRc)
 - Coating hardness: 2000 Vickers
 - Chemical resistance up to 450 °C between pH 0-14
 - Fluid-tight, so added liquid remains in barrel (also due to vertical position of barrel)
 - Easy to clean; real tough remains to be removed with a stainless steel brush without damaging
- Detachable conical screws (Hardness 54 HRc)
 - Coating hardness: 1000 Vickers
 - Chemical resistance up to 450 °C between pH 0-14
 - Easy to clean; real tough remains to be removed with a stainless steel brush without damaging
- Temperature control: Up to 6 heating zones or via melt thermo couple
- Standard maximum operating temperature: 350 °C
- Heating time (from 80 to 240 °C): < 10 min.
- Cooling time (from 240 to 80 °C): air < 35 min., water < 10 min.
- Controlled heating zones: 2x3,
- Heated by 8 thermo cartridges and controlled by 9 thermo couples (temperature gradient)
- Mixing/Dispersion control: RPM or Axial Force
- Standard maximum axial Force: (for mixing/dispersion) up to 8000 N
- Screw speed: continuously variable 1 - 250 RPM
- Hopper volume: 15 ml
- Supply voltage: 208 - 240 V AC, others on request
- Main drive: DC controlled
- Overall dimensions: 80x70x40 cm
- Weight: 150 kg

Optionally

- Counter Rotating Gearbox
- Varibatch™
- Maximum operating temperature: 400 or 450 °C
- Pneumatic Feeder
- Safety transfer coupling for our Injection moulding machine
- Continuous mode
 - Special feeding screws
 - Cooled hopper
 - Maximum axial Force up to 9500 N