Product specifications

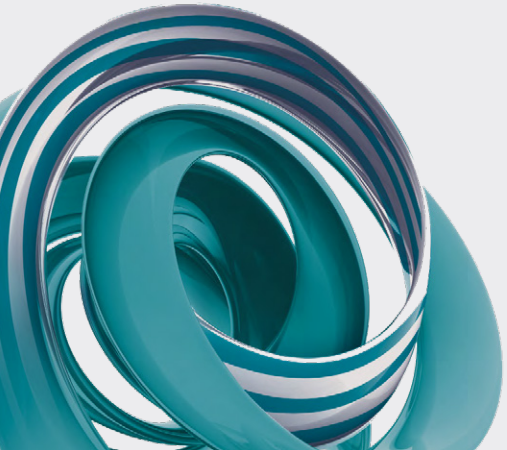
Thermo Scientific HAAKE MiniCTW

Micro-compounder for industrial research and development

When developing new products, shortening time-to-market and reducing raw material waste and overall development costs provide a distinct competitive advantage. Thus, a quick and early assessment of new material is key. The Thermo Scientific™ HAAKE™ MiniCTW Micro-Conical Twin-Screw Compounder allows researchers to extrude as little as five grams of material, helping to accelerate product development.

Industrial markets

- Automotive
- Aerospace
- Electronics
- Polymer processing
- Polymer screening
- Colorants
- Specialty inks/toners
- Building and construction
- Consumer products
- Pulp & paper



The challenge

Customers in industrial research and development need to assess and optimize hybrid materials to keep production costs low: They focus on improving the relative performance of supplied polymers concerning temperature stability, weight, and rigidity profiles by introducing additives, fillers, or fibers. Often basic compounding can be enough to validate materials science requirements. Therefore, a partner specializing in polymer optimization with a broad product portfolio is appreciated. The portfolio must support compounding needs and only requires small sample volumes or enables further mechanical testing or color matching, i.e., tensile, elastic modulus, impact, DMA, or melt rheology.

The solution

When compounding expensive or small-scale materials such as nano-composites or engineered polymers, you need a fast, dependable, cost-efficient method to obtain tangible results.

The HAAKE MiniCTW Micro-Conical Twin-Screw Compounder requires as little as five grams or seven milliliters (ml) of material for compounding. This is especially beneficial for industries that compound expensive or small-scale materials such as nano-composites, bio-polymers, or pharmaceuticals. By using the optional force feeder, customers can continuously extrude very small material volumes.

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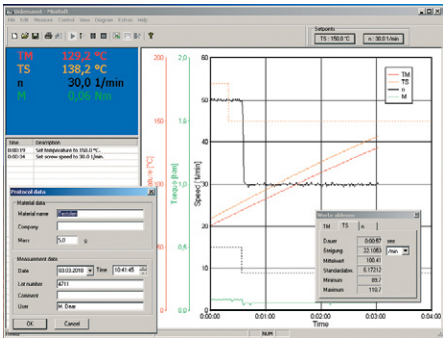
The instrument is based on proven, conical twin-screw technology with co- and counter-rotating screws, and it works as a standalone unit with data export. Due to the channel and a bypass valve, the residence time is well-defined.

The HAAKE MiniCTW Micro-Conical Twin-Screw Compounder is ideal for the precisely controlled reactive extrusion of high-viscous melts that is being done via an Windows® based software that offers several test set-ups. By running the instrument in circulation mode, the required reaction time for the reactive mixture can be controlled easily. At the end of the test, the bypass valve can be opened and the sample is extruded as a strand. By measuring the torque of the drive motor, the reaction process can be monitored effectively. Test results are stored in the software.



A complementary workflow solution is available when coupling the microcompounder with the mini-injection molder HAAKE MiniJet Pro Injection Molding System. Various test specimens can be easily produced from the compounded material in the HAAKE MiniJet Pro Injection Molding System and measured with a HAAKE MARS™ Rheometer afterward.

Features and benefits

- Requires only seven ml of material for compounding
- Removable top barrel for easy and quick cleaning
- Software for user-friendly process monitoring
- Windows based
- Storage of test set-up and results
- Recorded data: torque, temperatures, and speed
- Complementary workflow solution when coupled with the MiniJet Mini-Injection Molder

The HAAKE MiniCTW Micro-Conical Twin-Screw Compounder is one model within our suite of micro-conical twin-screw compounders that serves a variety of markets, including polymer, bioscience, nanotechnology, and pharmaceutical. The instrument differs from the well-established HAAKE MiniLab 3 Micro-Compounder in that it is designed specifically for industrial research and development, whereas the HAAKE MiniCTW Micro-Compounder is focused on polymer development applications.

To complete our comprehensive solutions, our international team of material characterization experts provides proven answers for small sample compounding.

Key factors for new product conception

- High heat performance
- Chemical resistance
- Heat and light stability of colors/tints
- Wear resistance
- Moisture resistance
- Electrostatic dissipation
- EMI and RFI shielding
- Energy consumption
- Reduction of material costs

Technical specifications

Drive	
Motor power	400 W
Speed range	1…360 min^{-1}
Max. torque	5 Nm per screw
Control mode	Constant speed Constant torque
Power supply	230 V ± 10 %, 50/60 Hz 115 V ± 10 %, 60 Hz

Force feeder	
Max. speed	30 min^{-1}
Material	Stainless steel 1.4122 Cr
Power supply	230 V ± 10 %, 50/60 Hz 115 V ± 10 %, 60 Hz

Extruder	
Design	Conical co-counter rotating
Temperature	300 °C
Heating time (80°-240°C)	< 10 Minutes
Barrel & Screws	High performance plastic mold steel (M340)
Cooling	Forced convection
Pressure	Up to 200 bar
Volume	7 ml
Bypass	Manual valve
Feeding	Manual feeding Force feeder (optional)

Learn more at **thermofisher.com/extruders**