

Xplore MC 15 HT micro compounder

A high torque 15 ml micro compounder for material R&D



xplore

The platform for
polymer and rubber R&D

Xplore micro compounders: your platform for feasibility studies, fast screening and technical marketing issues

This high torque micro compounder, with a capacity of 15 ml of material, will improve your R&D performance by its reliability, ease of use and robustness. It is a unique asset for you in the development of new material compound formulations: a full-fledged material processing instrument that fits on your laboratory bench or in your fume cupboard.

More than 30 years of Dutch craftsmanship, dedication to perfection! For those who are never satisfied: better mixing, more reliable and faster R&D.

Inspired by Xplore's customers' wishes and our drive to continuous improvement: the next generation MC 15 HT is stronger, faster, smaller and easier to operate, with improved dimensional stability of filaments and films than its predecessor, the MC 15 (legacy).

The Xplore MC 15 HT is the next generation. It gives you even more value for money than before: better mixing, longer lifetime (> 10 y) by the extremely robust design (motor drive, housing, barrel and screws), higher long term reproducibility, higher output by fully intermeshing screws, faster and more reproducible in-line injection moulding, film, or (multi) filament extrusion than any competing lab extruder. Now, with continuous monitoring of the melt torque, easy and fast cleaning. There is no need for screw design and easy to scale up to larger parallel twin-screw extruders (not possible? Fake news from the competition!). It can also be used in continuous mode if only melting and extrusion is needed (filaments, films), also vertical extrusion possible; fluids can be dosed without leakage.

Built the Xplore way for durability and reliability, the MC 15 HT features unprecedented mixing, extrusion and upscaling capabilities:

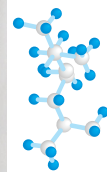
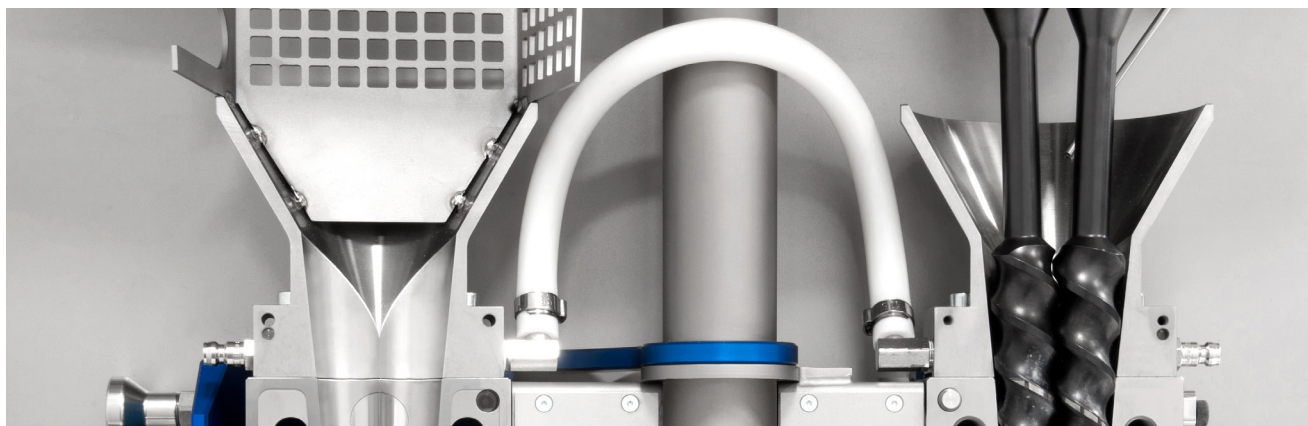
the high screw torque (40 Nm), continuously monitored, is now standard over the entire rpm range, which is doubled from 1 – 500 rpm. This results in higher shear rates, better mixing and finer dispersion of viscous compounds, and filaments and films of much improved dimensional stability.

With 40Nm of torque processing rubbers and elastomers becomes easy, even with fully intermeshing screws, which have better mixing capabilities vs a tangential mixer; commonly used in rubber mixing. As a result, every cm³ has the same properties, as opposed to a tangential screw design, where generating a consistent sample is still a challenge.

Its smaller and stiffer housing has a smaller footprint (less than half). It is lower, so easier to move or install in a fume hood, with extrusion now also possible in a vertically downward direction. Its new, state-of-the-art robust, precise and reliable continuously digitally variable 24 bits motor drive, enables accurate monitoring of the screw torque and easy upscaling to any larger parallel twin screw extruder; it also requires less service by improved design.

Now standard equipped with a co- and counter-rotation option and Xplore's superlative hard and scratch-resistant barrels and fully





intermeshing screws. The Xplore MC 15 HT guarantees better and more reproducible mixing with high yields.

Besides, advanced temperature control and a water-cooled top hopper for secure and reliable sample dosing are standard, together with a swift, water-cooled cleaning cycle. Its improved design simplifies service and instalment of post die add-ons such as a cast film or a (multi) filament lines. Our specs guarantee you faster operations, ease of residence time variation and a higher cycle speed of compounding, extrusion, shaping and cleaning.

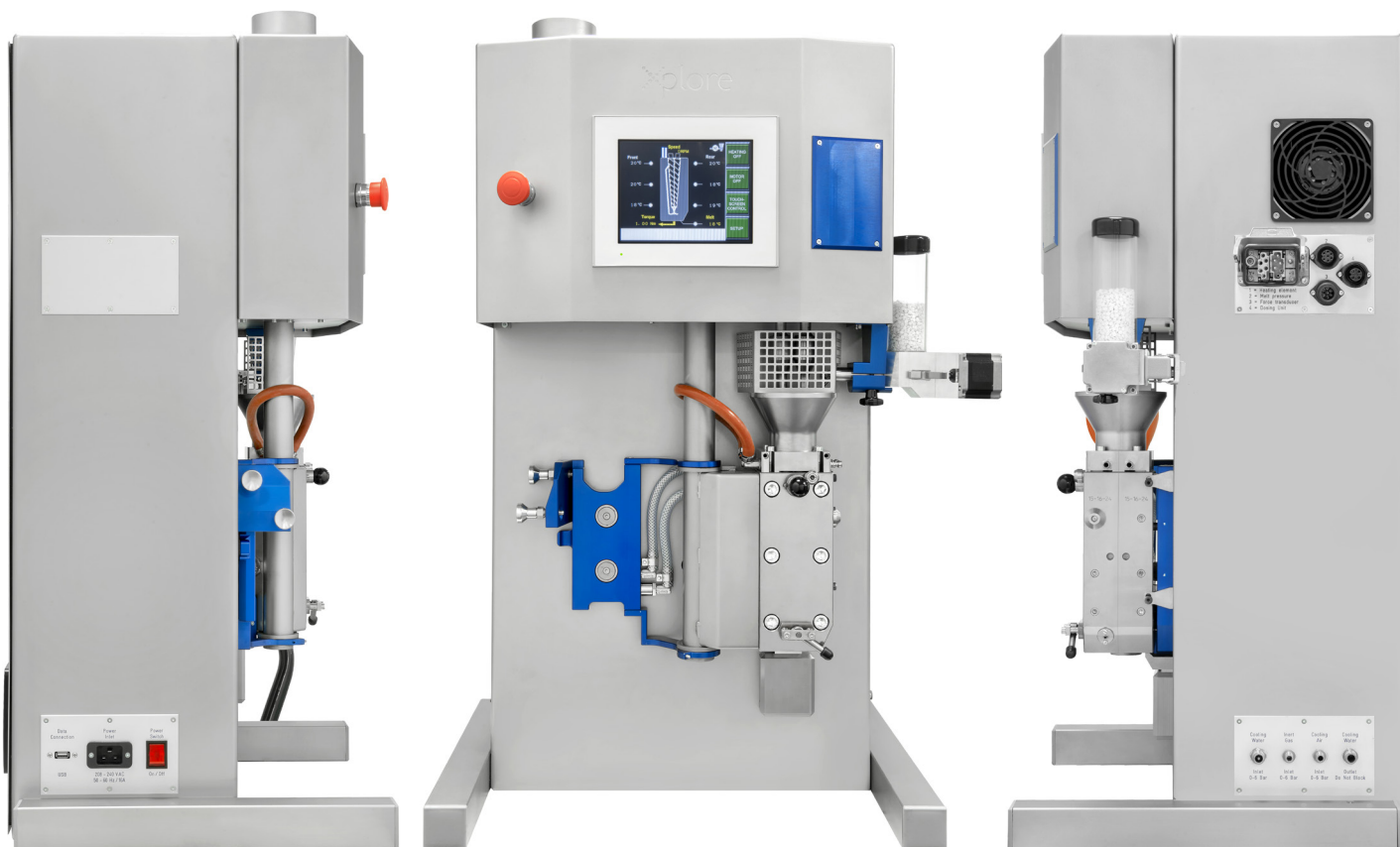
The Xplore MC 15 HT will thus further simplify and accelerate your R&D. Much desired options are Xplore's proprietary rheological software, which enables upscaling to large parallel twin-screw extruders, and its Vari-Batch™ technology to quickly rebuild the 15 ml into a 3 or 7 ml barrel size for mixing your most precious compounds.

The standard fully intermeshing screws guarantee better mixing and high yields. Xplore MC 15 HT: your trump to beat the competition. This is not a want to have, but a must-have for every R&D and quality control lab working with plastics, resins, compounds, elastomers or film, filament and reactive extrusion.

Xplore is the front runner in miniaturization of polymer processing tools and enables you to conduct polymer formulation development, fast screening, feasibility studies and solving technical marketing issues in a timely and cost-effective way.

Inspired by the need of our existing customers, our engineers designed the best possible to provide an alternative for a difficult to clean and labour-intensive laboratory kneader or time-consuming "Banbury" type internal mixer and subsequent two roll mill process for rubber mixing.





Technical Specifications:

- Abrasion-resistant barrel, hardness 64 HRC, coating hardness 2000 Vickers
- Barrel and screws chemically resistant between pH 0 - 14
- Batch volume: 15 ml (with Vari-Batch™: also 3 and 7 ml)
- Vertical barrel, fluid-tight so that liquids can be dosed
- Heated by eight thermo cartridges and controlled by seven thermocouples (temperature gradient possible)
- Temperature control: in the melt and 2x3 barrel heating zones
- Maximum operating temperature of 450 °C
- Heating time (from 80 to 240 °C) in less than 10 min
- Detachable conical forced feeding screws, fully intermeshing, hardness 54 HRC, coating hardness 1000 Vickers
- Screw speed: continuously variable 1 - 500 RPM
- Maximum melt torque: 40 Nm over the whole rpm range (the equivalent of more than 20 kN vertical force)
- Optional vertical force readout: Max. Fv 20 kN
- Acquisition of rheological data: screw torque in the melt, shear viscosity, shear rate and shear stress
- Maximum pressure 250 bar
- Cooling time from 240 to 80 °C: with cooling water in less than 10 min, with air in less than 35 min
- Main drive: 1350 Watt
- Power supply: 0-500 rpm 400 Vac / 50 – 60 Hz, 3 phase 16 A (R,S,T, Neutral, Ground)
0-500 rpm 210 Vac / 50 – 60 Hz, 3 phase 16 A (R,S,T, Ground)
- Operating control via integrated touch screen or computer control via a USB port
- Easy to clean with a dedicated cleaning cycle
- Overall dimensions (h x b x d): 95 x 50 x 27 cm
- Weight 145 kg



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