



The platform for  
formulation development

## Xplore MC 40 lab compounder 40 ml batch size; 500 r.p.m, max. 40 Nm



Xplore Instruments will exhibit a larger MC 40 (40 ml batch size) lab compounder at the coming Fakuma trade show. The new MC 40 has maximum 40 Nm of torque with a maximum screw speed of 500 r.p.m. Hence, making the MC 40 suitable for processing larger batches of high viscous materials or highly concentrated materials. Also rubbers and elastomers are now processable. The larger batch size will enable you to process larger amounts of materials in a shorter period of time. The longer screws will result in a longer residence time in continuous extrusion mode. The continuous feeder option supports dimensional stability during cast film and fiber spinning applications.

### **Why choose an Xplore conical twin screw extruder and not a parallel twin screw lab extruder?**

The Xplore micro compounder gives you simply much more value for money: better mixing, easy to vary residence time, longer life time (> 10 y) by the extremely robust design (motor drive, housing, barrel and screws), higher long term reproducibility, variable compound volumes, higher output by fully intermeshing screws, faster and more reproducible in-line injection moulding, film, or (multi) filament extrusion than any competing lab extruder; with continuous monitoring of screw torque, easy and fast cleaning with water cooling jackets and cleaning compound, no need for screw design and easy to scale up to larger parallel twin screw extruders (not possible? Fake news from competition!). Due to its longer processing screws, the MC 40 is even more suitable to be used in continuous mode (filaments, films), also vertical extrusion possible, fluids can be dosed without leakage. The Xplore micro compounder platform for formulation development will thus further simplify and accelerate your R&D! More than 30 years of Dutch craftsmanship, dedication to perfection.



Continuous feeder

### **Xplore the MC 40 micro compounder: focus on reliability and speed**

The larger brother of the MC 15 HT, the MC 40 was inspired by Xplore's customer's wishes who wanted to be able to process larger batches of material and our drive to continuous improvement. Much wanted improvements were: higher torques and more stable extrusion at low rpm (to improve homogeneity in filament and film dimensions), a smaller footprint, a higher rpm range and higher screw torques to better process high viscosity compounds or mix highly concentrated materials. Our new MC 40 is indeed stronger, faster, smaller and easier to operate, with improved dimensional stability of filaments and films. Built the Xplore way for extreme durability and reliability, the MC 40 features unprecedented mixing, extrusion and upscaling capabilities: the maximum screw torque (40 Nm), continuously monitored, is now standard and it's available within 1- 500 rpm. The larger average screw diameter results in higher shear rates, better distribution and finer dispersion of particles in higher viscous or concentrated compounds, filaments and films of improved dimensional stability. Fiber extrusion is also possible in a vertical downward direction. Its stiff housing has a similar footprint to the recently developed MC 15 HT and has the same height as well. Hence, the MC 40 is also easy to move and easy to install into a fume cupboard.



Its, state-of-the-art robust, precise (24 bit control) reliable servo motor drive connected directly to the screws, enables exact monitoring of screw torque. Hence, upscaling to any larger parallel twin screw extruder is still not an issue with our upscaling protocol. Now also equipped with a co- and counter rotation option, Xplore's optional superlative hard and scratch resistant barrels and fully intermeshing screws. These guarantee better mixing, high yields and reproducible results for very long time (> 10 y). In addition to its larger batch size, advanced temperature control and a water cooled top hopper for easy and reliable sample dosing are standard, together with a fast, water cooled cleaning cycle. Its improved design simplifies service and installation of add-ons such as a cast film or a (multi) filament dies. All these specs guarantee faster operation, higher cycle speed of compounding, extrusion, shaping and cleaning, thus more efficient 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 easily rebuild the MC 40 into a 20 or 40 ml batch-size for mixing your most precious compounds. The larger diameter standard fully intermeshing screws guarantee better distribution and dispersion of droplets or particles and high yields which results in a maximum sample amount for a subsequent injection mould step.

This new Xplore MC 40 will thus further simplify and accelerate your R&D: it is strong in shear, can handle higher viscosities and concentrations, gives better distribution and finer dispersion, hence better mixing and higher operational stability. It is fast (rpm), strong and much more stable (screw torque), with small a foot print: it gives you more with less.

Made by hand for those who value perfection: the Xplore lab compounder, a legend experience. The Xplore MC 40 is your trump to beat competition. This is not a want to have, but a must have for every R&D and quality control lab that investigates or develops plastics, resins, compounds, elastomers, and film, filament and reactive extrusion.

Xplore realizes your unmet wishes and needs by continuous improvements.



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#### Technical Specifications\*:

- Standard barrel material: DIN 1.4112, hardness 54 HRC, coating hardness 2000 Vickers
- Optional abrasion resistant PM barrel, hardness 64 HRC, coating hardness 2000 Vickers, PM barrel is chemically resistant between pH 0 - 14
- Screws chemically resistant between pH 0 - 14
- Vertical barrel, fluid-tight, so liquids can be dosed
- Heated by 10 thermo cartridges; 7 thermocouples (temperature gradient possible)
- Temperature control: in the melt and in 2x3 barrel heating zones
- Maximum operating temperature 450 °C
- Heating time (from 80 to 240 °C) in less than 13 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 between 1 - 500 rpm
- Acquisition of rheological data: screw torque in 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 15 min, with air in less than 40 min
- Supply voltage: 400V AC, others on request
- Main drive: DC controlled, 1350 Watt
- Operating control via integrated touch screen or computer control via an USB port
- Easy to clean with dedicated cleaning cycle
- Overall dimensions (h x b x d): 95 x 50 x 27 cm
- Weight 150 kg

\*(subject to changes)



Forced feeding screws

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