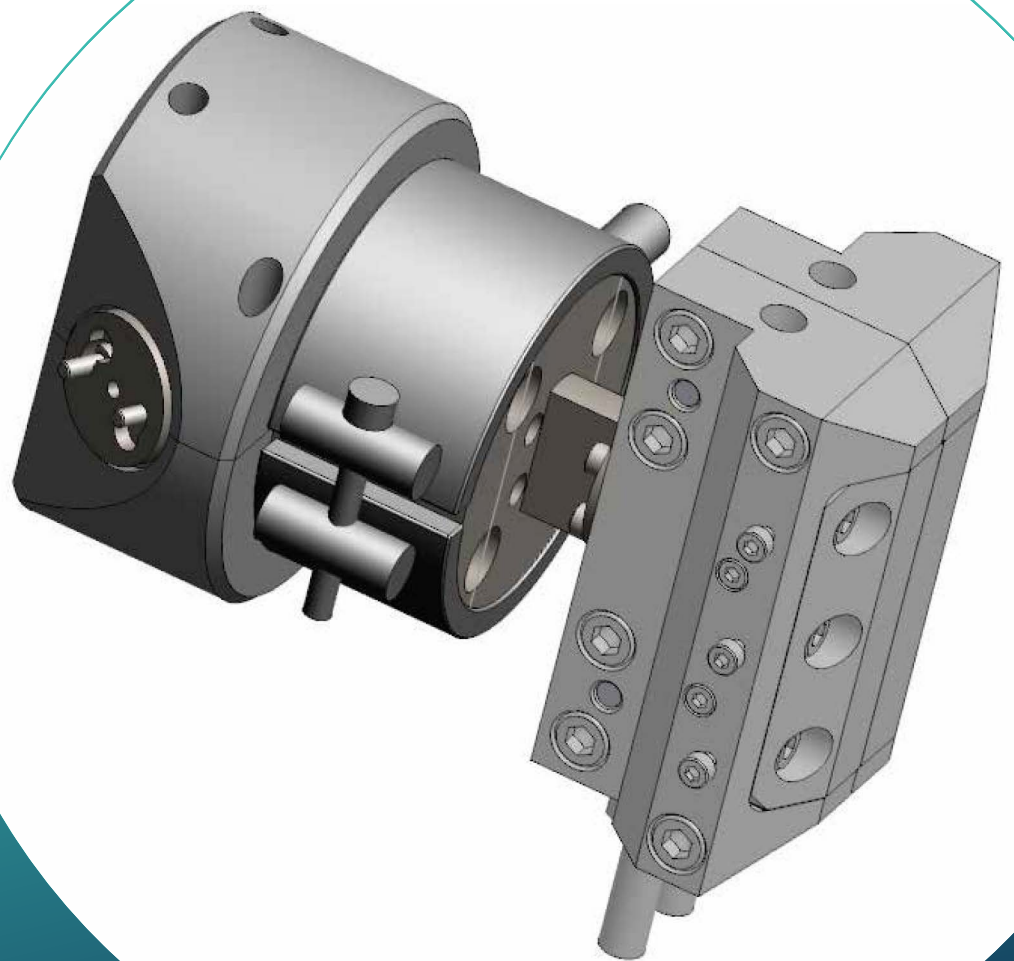




Xplore TDL Tape Die Line

Ultra-oriented thin foils from small amount of materials



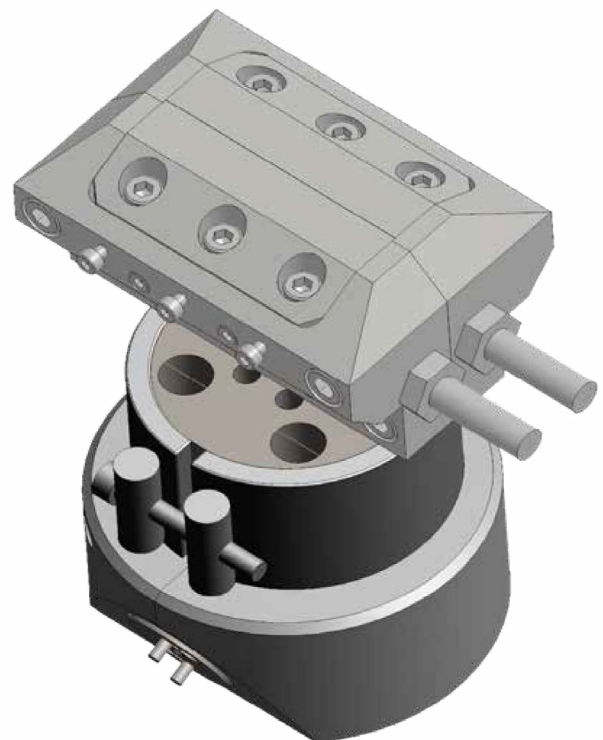
Accessories for polymer development:

reliable, reproducible and fast R&D results

In collaboration with Prof. dr. em. Han Meijer, Xplore Instruments BV recently developed a tape die line (TDL) add-on which enables you to produce ultra-oriented foils with exceptional properties from just a small amount of material. This tape die is a unique asset for the development of new ultra-oriented foil or tape formulations. It will create new product opportunities by delivering quick reliable test results of foils and tapes with excellent mechanical properties. When connected to our Xplore MC 15 compounder it is a full-fledged ultra-oriented tape or foil casting solution for your R&D challenges. Are you in for a game changer regarding mechanical properties of tapes or foils?

Then our TD add-on for our MC 15 offers you the solution: reliable, reproducible, speedy results with less material waste, less equipment and infrastructural costs. The core of this laboratory oriented tape/foil die is formed with our MC 15 compounder and an insulated temperature controlled, easy to clean, tool steel housing tape/foil die. The die can adjust its slit height between 0,05 and 0,4 mm, which enable you to be flexible in your processing workflows. A sophisticated coat hanger design inside the tape/foil die in combination with the 125 holes (0,5 mm) of the channel plate (optional 512 holes of 0,12 mm) together with the inner fibre fusion section creates an optimal flow of the visco-elastic material processed. Which results in an ultra-oriented tape/foil with excellent unique mechanical properties. The MC 15 compounder will, also be equipped with a pre-feeding unit, stainless steel feeding hopper and elongated forced feeding screws. This guarantees an equilibrium in the main barrel, in combination

with the existing force measurement (F_v) this enables a constant throughput of molten material, hence near-perfect tape or foil dimensions. The die temperature, cast and draw speed can be monitored on the provided control box which is part of the whole set up.



Benefits:

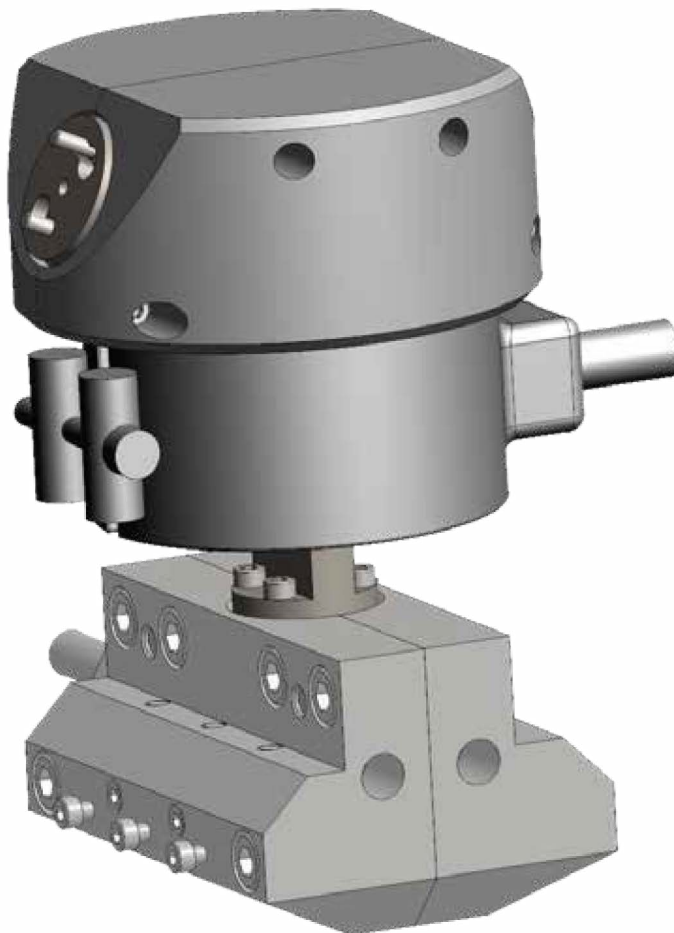
- Large operating window
- Wide range of draw rates possible
- Possibility to produce tapes with excellent mechanical properties
- Saves costs and time
- Support and guide film prevent tapes or foils from necking
- Can be retrofitted onto any Xplore MC 15 compounder
- Versatile; optional dedicated cone structure channel plate for high viscous polymers

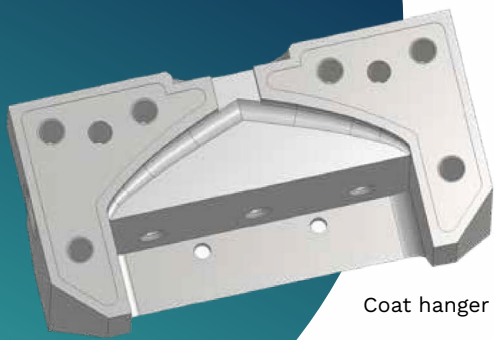
The dedicated tape/foil support and guiding units are divided into two sections, first: the unwinding unit, in which a PP thin film is mounted to support and guide the nascent ultra-oriented tape over a “cold nose”.

This “Cold Nose” (a water cooled aluminium plate) will cool down the oriented thin foil onto the PP support and guide film and prevents it from necking. Second: the take-up unit will

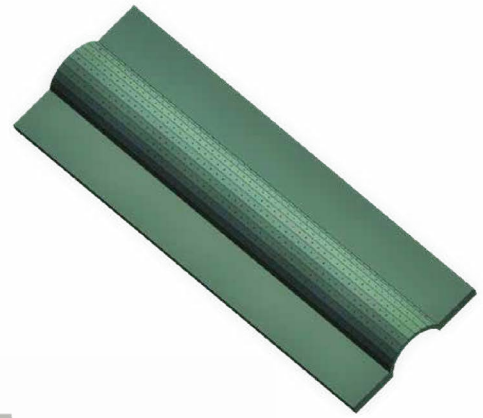
properly wind the nascent oriented tape/foil with PP support and guide film onto a bobbin for a possible subsequent analysing step. The TD can produce ultra-oriented tapes and foils from a minimum of 300 grams of material.

The TD can be easily fitted on our latest MC 15 micro compounders but is of course also backwards compatible with earlier models of MC 15 compounders, designed by Xplore.

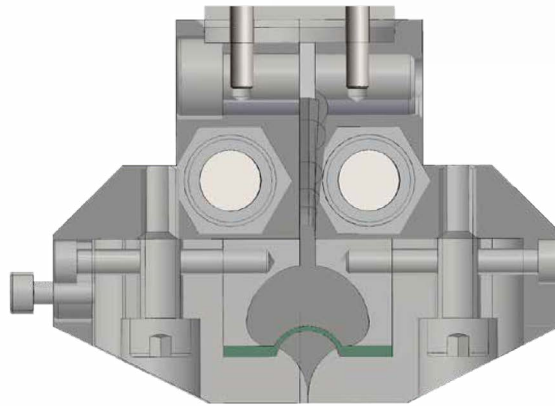




Coat hanger



Channel plate



Tape die cross section

0,05 - 0,4 mm adjustable gap

Technical Specifications:

- Unique tape/foil die with a width of 65 mm
- Die is heated by a heating band and measured by a thermocouple
- Adjustable slit between 0,05 and 0,4 mm
- Maximum heating temperature: 400 °C (optionally 450 °C)
- Heating time (from 20 to 240 °C): 10 min
- Supply voltage: 208 - 240 V AC, 50/60 Hz
- Overall dimensions (h x b x d): 14 x 14 X 9 cm
- Approximate TD weight: 2 kg
- Optional additional channel plates (high viscous materials or smaller diameter holes)
- Optional tape support and guiding unit consists of unwinding and take up unit for produced tapes
- Optional "cold nose" to prevent necking of the oriented tape
- Optional dedicated table setup

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