

# Cast film pro line

Professional table top cast film line for R&D applications



 plore

The platform for  
formulation development

# Advanced technology for slippery cast films: a 3 calender Cast Film Pro Line

Xplore manufactures, for years, two types of cast film lines, the 35 and 65 mm wide two calender instruments. Via micro stepping\*) we achieve an accurate control of the cast and winder calenders, it enables for fast and reliable screening of new film formulations. However with slippery films, often slip occurs around the cast roll which causes difficulties in processing a reproducible film.

To tackle this slip we designed a new, professional mini cast film line with an additional, dual roll, calender in between the cast roll calender and the winder roll calender. This new 3 calender cast film line guarantees better controlled film samples for testing of optical, mechanical and/or barrier properties.

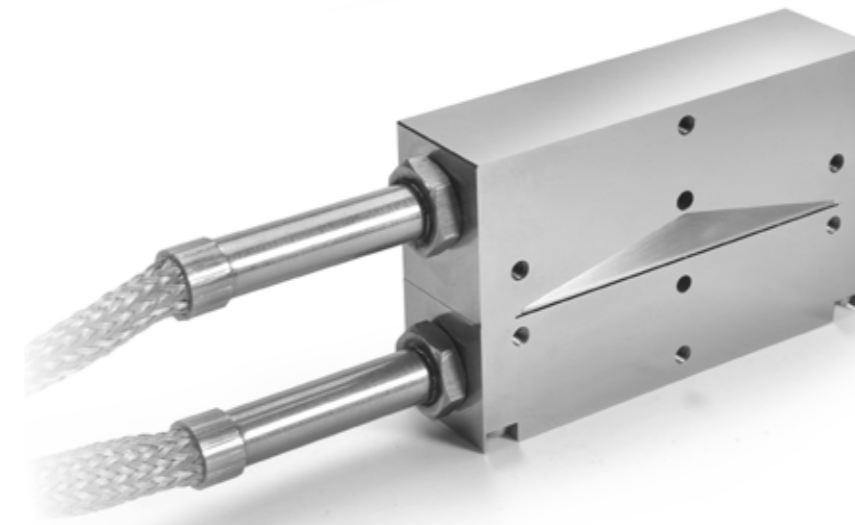
In less than 20 min you can produce a smooth cast film out of our 65 mm wide temperature controlled film die, with a thickness of 5  $\mu\text{m}$  up to strip thickness with a batch size of 15 ml from one of our micro compounders. Or you can make many meters of film or strip in the continuous mode with larger sample quantities.

Our continuous feeding kit, which consists of a mountable, water-cooled top hopper and two continuous feeding screws or forced feeding screws, enables easy auto feeding in continuous extrusion mode with one of our micro compounders.

The film cast speed on the first calender roll can be adjusted between

100 and 5000 mm/min with increments of 1 mm/min. Film necking is minimized by an adjustable air knife and two flexible air pins just after the temperature controlled die. The second calender consists of a pinch roll and a transport roll, which is also speed controlled via micro stepping\*). The pinch roll is adjustable which enables regulation of mechanical pressure on the nascent film.

Optionally, both easy exchangeable transport and pinch rolls can have an elastic surface to avoid slip between the transport roll and the slippery film. The third calender consists of a winder roll to enable smooth and controlled film uptake. In this way you can further test and better optimize new film formulations at minimal costs and with negligible



waste by producing more than 20 different films of different formulations per day!

The new Cast Film Pro Line operates with three motor driven calenders. The first, speed controlled calender defines, together with the compounder melt temperature, rpm and melt viscosity, the film thickness. The new, second calender roll has a master slave loop with the first calender and on top of it, an additional pinch roller. The pinch roll and its counter weight enables grip adjustment on the slippery film.

The third, torque controlled calender winder roll guarantees constant and reproducible winding of the film and can be adjusted with

increments of 1 Nmm of torque. The extra set of rolls for the second (middle) calender can be equipped with an elastic surface to avoid slip of the processed film. The new unique Xplore Cast Film Pro Line takes screening of film formulations to a next level. In combination with our highly polished cast film dies and the optional elastic transport rolls you are able to process and produce excellent cast film samples of smooth and slippery polymers.

Xplore is the front runner in miniaturization of polymer processing tools and enables you to conduct polymer formulation development in a timely and cost effective way.



\*) Xplore Instruments BV, proprietary technology

## Opportunity for current users of the 35 mm or 65mm Xplore cast film line

In case you already possess a 35 or a 65 mm film line of Xplore, the following opportunity may be of interest.

Xplore also provides an upgrade kit which is backwards compatible with the current 35 mm or 65 mm film line.

- 1 Temperature controlled cast film die, slit width 65 mm
- 1 Dedicated air knife W 74 mm and two air pins
- 2 Winder rolls W 98 x D 75 mm
- 1 Guide roll
- 1 Additional 2 roll calender
- 1 Base plate L 800 mm x W 250 mm
- 1 Control box for 3 calenders

For customers who already possess an Xplore 5 ml compounder and want to upgrade to an Xplore Cast Film Pro Line, please feel free to contact us directly for a dedicated quote.



### Technical Specifications

- Cast film line dimensions: L 80 x W 23 x H 27 cm
- Weight: ca. 26 kg
- Temperature controlled film die: width 65 mm, slit height between 0.2 and 0.6 mm
- Air knife W 74 mm
- 3 Calender rolls W 98 x D 75 mm,
  - 2 speed controlled, 100 - 5000 mm/min
  - 1 weight adjustable pinch roll
  - 1 torque controlled, 230 adjustable increments of 1 Nmm

### Controls

- Control box with integrated operating display to control cast speed, transport speed of middle calender and torque for the last winder roll, furthermore an operating display to control the cast film die temperature
- Supply voltage: 230 or 115 Volts

### Optionally

- Custom defined height or width of the slit die
- Custom defined coated rolls of middle calender
- Custom defined surface finish of the slit die
- Continuous feeding kit for use with an Xplore micro compounder which consists of:
  - Water-cooled top hopper
  - Continuous feeding screws or forced feeding screws (enhanced feeding zone)

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