

From sample batches of 50 g up to outputs of 10 kg/h., the bench mounted 16 mm PRISM EUROLAB XL twin-screw extruder is the heart of a complete compounding and sample preparation system. The segmented screw configuration with modular and extendable barrel design give flexibility for the full range of polymer processes. PLC control with real-time trending display and recipe storage gives reliable and repeatable results.

PRISM EUROLAB 16 XL

Extendable, modular twin-screw extruders



Applications:

- Compounding
- Masterbatch
- Nanocomposites
- Filter test
- Blown film
- Sheet

Materials:

- Polymers
- Adhesives
- Ceramics
- Pharmaceuticals
- Food
- Cosmetics

Bench-top Modular Twin-screw extruder

The PRISM EUROLAB 16 XL twin-screw extruder is used for research, development, quality control, and small scale production. A horizontally split barrel, of 25:1 L/D, can be changed to 40:1 with a bolt-on, "plug and play" extension. The barrel has a lift-off top half for easy access to the screws, and the screws themselves have a simple removal device for cleaning and configuration changes.

The segmented top barrel half is constructed in modules and is easy to reconfigure. Barrel segments are available for feeding solids and liquids or for venting. The touch screen display can be configured to match the barrel and screw arrangements fitted. Secondary feeders and vacuum pumps can form part of the system.

A rugged colour touch screen interface incorporates real-time trending as standard. An option is available to log data on a remote

computer for archiving and analysis. The controls include recipe storage to pre-set extruder parameters for repeatable process conditions. PID heater logic gives precise temperature control and saves energy.

The Digital Servo drive accurately controls speed and torque of the sealed, low maintenance, brushless, 1.25 kW motor at 500-rpm screw speed. A high-power 2.5 kW motor is available as an option with 1000-rpm screw speed.

Academic customers are using PRISM EUROLAB 16 XL twin-screw extruders in research and teaching laboratories, where many different small samples can be prepared in a short time with minimum product waste.

With a fully equipped Technology Centre for customer trials, and worldwide representation, Thermo Electron Corporation supports customers globally.

PRISM EUROLAB 16 XL

PRISM EUROLAB XL Barrel Extension

Changing barrel length between 25:1 and 40:1 L/D is a simple procedure, using the bolt-on XL barrel extension, and exchanging pairs of configured shafts. Once attached, the extension is recognised by the Eurolab and heating controls appear on the touch screen.

Ancillary equipment

Thermo offers a full range of ancillary equipment to integrate with the PRISM EUROLAB twin screw extruder, including pre-mixers, screen changers, chill rolls, strand pelletising lines, an air-cooled face-cut system, and cast sheet or blown film lines.

Strand Pelletising Options

Product from the PRISM EUROLAB can be converted using a traditional strand pelletiser with water or air-cooling. The PRISM Varicut 16 pelletiser allows pellet length to be controlled between 1 and 3 mm.

Face-cut Pelletising

For water sensitive products or highly filled compounds, an air-cooled face-cut pelletiser the PRISM FCP 16 is available complete with blower and collecting cyclone.

Screen Changers

A simple manual screen changer can be fitted behind the strand die to allow pressure filter tests to be made directly on products compounded in the twin-screw.



Specifications

Barrel Length	L/D	25:1	25:1	40:1	40:1
Barrel Bore Diameter	mm	16	16	16	16
Screw Diameter	mm	15.6	15.6	15.6	16.6
Channel Depth	mm	3.3	3.3	3.3	3.3
Centre-line Spacing	mm	12.5	12.5	12.5	12.5
Centre-line to Radius ratio		1.56	1.56	1.56	1.56
Maximum Screw speed	rpm	500	1000	500	1000
Motor Power at Maximum Speed	kW	1.25	2.5	1.25	2.5
Torque per shaft	Nm	12	12	12	12
Torque/(C-line ³)	Nm/cm ³	6.1	6.1	6.1	6.1
Barrel zones		6	6	10	10
Heater rating	W	5x350	5x350	9x350	9x350
Die heater rating	W	250	250	250	250
Extruder Dimensions					
LxWxH	cm	150x70x150	150x70x150	150x70x150	150x70x150
Scale-up data					
Internal Free Volume	cm ³	68	68	109	109
Peripheral Surface Area	cm ²	316	316	505	505
Surface Area per Unit Free Volume	m ² /l	0.47	0.47	0.47	0.47
Typical output	kg/h	0.5 to 5	0.5 to 10	0.5 to 5	0.5 to 10
Services					
Electrical power	Volt/ph/Amp	220V/1ph/25A	400V/3ph+N/25A	220V/1ph/25A	400V/3ph+N/25A
Cooling Water 20 deg C	Litres/min	5	5	5	5

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Material Characterization

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