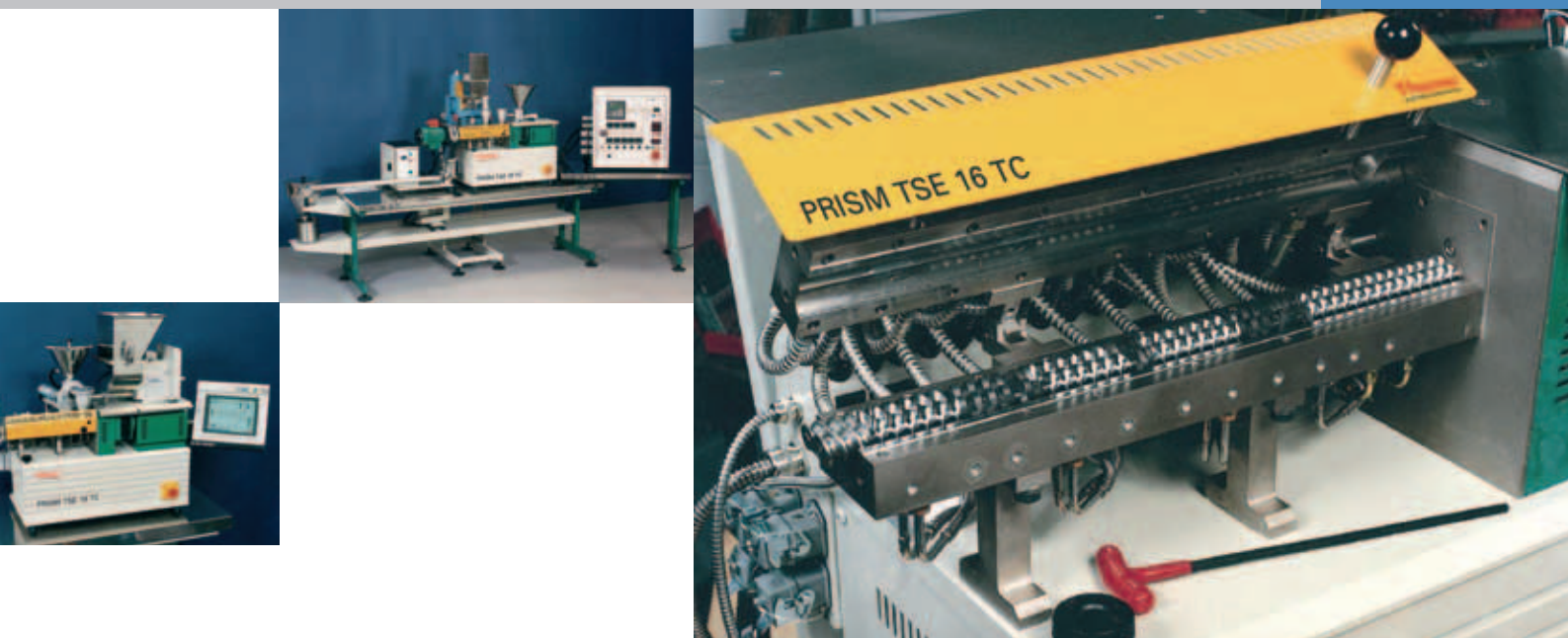


Small-scale continuous processing for research, development and production in the polymer industry. The PRISM TSE 16 TC twin-screw compounders are pre-wired with a manual control panel. Efficient cleaning is easy due to the clam-shell barrel which also enables simple screw removal.

## PRISM TSE 16 TC

Bench-top twin-screw extruders and ancillaries



### Applications:

- Polymer Compounds
- Masterbatches
- Nanocomposites
- Biodegradable polymers
- Adhesives

### Materials:

- Polymers
- Chemicals
- Food
- Ceramics

### TSE 16 TC Twin-Screw Extruders

The PRISM TSE 16 TC extruders are designed for bench-top operation. The horizontally split barrels are quick to open, giving easy access to screws and process contact surfaces for cleaning or configuration changes.

The barrel has additional ports for feeding solids and liquids, or for venting.

A simple manual control panel houses controls and instruments to operate the extruder and feeders. A PLC-controlled version with touch screen operator interface is available for special testing requirements.

Low maintenance, brush-less, variable speed AC motors drive the screws at up to 500 rpm.

Available in different barrel lengths from 15:1 to 40:1, the PRISM TSE 16 TC can be used for research, development or small-scale production.

Thermo Electron Corporation is a leading supplier of equipment and instruments to the Polymer industry, worldwide.

Thermo Electron (Stone) UK has a fully equipped Technology Centre for customer trials on PRISM equipment, and with worldwide representation, Thermo Electron Corporation supports customers globally.

## Specifications and Accessories

### PRISM TSE 16 TC

#### Ancillary equipment

Thermo Electron Corporation offers a full range of ancillary equipment to integrate with the PRISM TSE 16 TC 16 twin-screw extruder, including pre-mixers, chill rolls, strand pelletising lines, an air-cooled face-cut system, and cast sheet or blown film lines. Thermo has the ability and experience to design other non-standard ancillaries for special applications.

#### Change-bowl mixers

A range of change-bowl high-speed mixers from 3 to 15 litres is available to pre-blend materials.

#### Metering Feeders

Volumetric feeders can be integrated into the control system, and gravimetric feeders can be fitted.

#### Strand Pelletising Options

Product extruded from the PRISM twin-screw compounder 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 mm 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.

#### Specifications

##### PRISM TSE 16 TC

|                                      | L/D                | 15:1            | 25:1            | 40:1            |
|--------------------------------------|--------------------|-----------------|-----------------|-----------------|
| Barrel length                        | L/D                | 15:1            | 25:1            | 40:1            |
| Barrel bore diameter                 | mm                 | 16              | 16              | 16              |
| Screw diameter                       | mm                 | 15.6            | 15.6            | 15.6            |
| Channel depth                        | mm                 | 3.3             | 3.3             | 3.3             |
| Centre-line spacing                  | mm                 | 12.5            | 12.5            | 15.5            |
| Centre-line to radius ratio          |                    | 1.56            | 1.56            | 1.56            |
| Maximum screw speed                  | rpm                | 500             | 500             | 500             |
| Power at maximum screw speed         | kW                 | 1.25            | 1.25            | 1.25            |
| Torque per shaft                     | Nm                 | 12              | 12              | 12              |
| Torque/ (C-line <sup>3</sup> )       | Nm/cm <sup>3</sup> | 6.1             | 6.1             | 6.1             |
| Barrel zones                         |                    | 3               | 4               | 6               |
| Heater rating                        | W                  | 7 x 300         | 15 x 300        | 22 x 300        |
| Die heater rating                    | W                  | 1 x 750         | 1 x 750         | 1 x 750         |
| <b>Extruder dimensions</b> L x W x H | m                  | 0.7 x 0.4 x 0.9 | 0.9 x 0.4 x 0.9 | 1.2 x 0.4 x 0.9 |

##### Scale-up data

|                                   |                   |          |           |           |
|-----------------------------------|-------------------|----------|-----------|-----------|
| Internal free volume              | cm <sup>3</sup>   | 41       | 68        | 109       |
| Peripheral surface area           | cm <sup>2</sup>   | 316      | 316       | 505       |
| Surface area per unit free volume | m <sup>2</sup> /l | 0.47     | 0.47      | 0.47      |
| Typical output                    | kg/h              | 0.5 to 5 | 0.5 to 10 | 0.5 to 10 |

##### Services

|                     |             |              |              |              |
|---------------------|-------------|--------------|--------------|--------------|
| Electrical power    | Volt/ph/Amp | 220V/1ph/20A | 220V/1ph/32A | 220V/3ph/32A |
| Cooling water 20 °C | Litres/min  | 5            | 5            | 5            |

#### Thermo Electron Corporation

#### Material Characterization Business

##### International/Germany

Thermo Electron (Karlsruhe) GmbH  
Dieselstr. 4  
76227 Karlsruhe  
Tel. +49 (0) 721 4 09 44 44  
info.mc.de@thermo.com

##### Benelux

Thermo Electron B.V.  
Takkebijsters 1  
4817 BL Breda  
Tel. +31 (0) 76 5 87 98 88  
info.mc.nl@thermo.com

##### China

Thermo Electron  
23/F Peregrine Plaza  
1325 Huai Hai Rd, Shanghai 200031  
Tel. +86 (21) 54 65 75 88  
info.china@thermo.com

##### France

Thermo Electron S.A.  
16 Avenue du Québec - Silic 765  
91963 Courtaboeuf Cedex  
Tel. +33 (0) 1 60 92 48 00  
info.mc.fr@thermo.com

##### United Kingdom

Thermo Electron  
Emerald Way, Stone  
Staffordshire ST15 0SR  
Tel. +44 (0) 1785 81 36 48  
info.mc.uk@thermo.com

##### USA

Thermo Electron  
25 Nimble Hill Rd.  
Newington, NH 03801  
Tel. 603 436 9444  
info.mc.us@thermo.com