

The Thermo Scientific PHARMA HME is ideal for small-scale continuous processing in research, development or production in the pharmaceutical industry. The stainless steel extruders are built to GMP standards with a focus on a clean, streamlined design.

Thermo Scientific PHARMA HME

Pharmaceutical twin-screw extruders
for hot melt extrusion



Benefits:

- Reduced clean room area
- Consistent, controllable processing
- Suitable for PAT
- Reduced product changeover time
- On-demand production
- Minimized scale-up risk
- Reliable cleaning

Features:

- Small footprint
- Continuous operation
- High free volume
- Small process inventory
- Segmented screws and barrel
- Removable screws and liners

Materials:

- Medical polymers
- Drug delivery systems
- Soft gels

Applications:

- Melt granulation
- Biomedical compounds
- Water sensitive products
- Medical adhesives

Comprehensive Range of Capabilities

Available in 16 mm and 24 mm sizes, the Thermo Scientific PHARMA HME series is complemented by a full range of ancillary equipment for product mixing, and post-extrusion processing.

Designed for Pharmaceutical Needs

The horizontally split barrels (up to 40:1 L/D) have a crevice-free, GMP design. Quick release clamps give easy access to screws and process contact surfaces for cleaning or configuration changes. Both barrel liners and the screws themselves can be easily removed for cleaning or product changeover. The barrel is modular, with interchangeable segments for feeding solids and liquids, or for venting. The variable speed AC motors are

brushless and therefore low maintenance. The touch-screen display is easy to use and easy to clean. The PLC incorporates data acquisition with an option to download to a remote computer for archiving and analysis. The controls include recipe storage of preset extruder parameters for repeatable process conditions.

Ancillary equipment

We offer a range of ancillary equipment to integrate with our twin-screw extruders, including pre-mixers, feeders, chill rolls, air-cooled conveyors, pelletizers, and cast sheet or blown film lines. GMP standard pharmaceutical versions of the ancillaries are available with stainless steel construction and dust-tight touch-screen operator interface where applicable.

Preblending

Preblending small batches is easy with Thermo Scientific bench top change bowl mixers available in 3 and 5 litre sizes.

Face-cut pelletizing

For water sensitive products or highly filled compounds, an air-cooled face-cut pelletizer, the Thermo Scientific Pharma FCP, is available complete with blower and collecting cyclone.

Strand pelletizing

Extruded products can be cut using a traditional strand pelletizer with water or air-cooling. The Thermo Scientific Pharma VARICUT pelletizer allows pellet length to be controlled between 1 and 3 mm. Alternative pellet length are available on request.

Strand cooling

Using a GMP air cooled conveyor belt, extruded products are supported and cooled before pelletizing.

Metering Feeders

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

Chill Roll Flaker units

A free standing chill roll is available with easily removed belt and flaker. Extruded melt is rapidly cooled and flaked.

Customer specific ancillaries

We have the ability and experience to design other non-standard ancillaries for special applications.



Specifications		PHARMALAB 16		PHARMALAB 24	
Barrel Length	L/D	25:1	40:1	30:1	40:1
Barrel Bore Diameter	mm	16	16	24	24
Screw Diameter (D)	mm	15.6	15.6	23.6	23.6
Channel Depth	mm	3.3	3.3	5.15	5.15
Root Diameter (d)	mm	9.0	9.0	13.3	13.3
Diameter Ratio (D/d)		1.73	1.73	1.77	1.77
Centre-line Spacing	mm	12.5	12.5	18.75	18.75
Centre-line to Radius Ratio		1.56	1.56	1.56	1.56
Maximum Motor Power	kW	2.5	2.5	11.0	11.0
Maximum Screw Speed	rpm	1000	1000	1000	1000
Extruder Dimensions					
L x W x H	m	1.5 x 0.7 x 1.5	1.5 x 0.7 x 1.5	2.0 x 0.7 x 1.5	2.0 x 0.7 x 1.5
Scale-up Data					
Internal Free Volume	cm ³	68	109	274	365
Peripheral Surface Area	cm ²	316	505	854	1138
Services					
Electrical Power	Volt/ph/Amp	400V/3ph+N/20A	400V/3ph+N/20A	400V/3ph+N/40A	400V/3ph+N/40A
Cooling Water 20°C	Litres/min	5	5	20	20
Performance					
Throughput (formulation dependent)	kg/h	1 - 5	1 - 5	5 - 20	5 - 20

Customer Support

The Thermo Scientific All-You-Need service system is customer-centered and covers every type of service. We also offer customized service solutions that meet specific regulations such as IQ/OQ support. Our service and applications experts are always on call, worldwide, to assist you in protecting your investment. Visit www.thermo.com/mc_service for more detailed information. And then phone your Thermo Fisher Scientific sales representative to arrange for free service assessment.



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