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Dynisco Plastics

Laboratory Mixing Extruder

LME

Features

- R & D tool
- Uses as little as a few grams of material
- Three-part system: Extruder, Optional Take Up, and Chopper Accessories
- Standard configuration provides rod header with replaceable 1/8" (.3175cm) orifice
- Four optional headers available (ribbon, spinerette, tube and wire coating rod)
- Two separate temperature controls: rotor heater and header heater
- Short residence time – minimal thermal degradation during mixing process
- Complete processing instrument mixing, compounding and extrusion
- Unique, screwless design
- Maximum temperature 400°C
- Variable speed control, 5 to 260rpm
- Water-cooled feed hopper

Description

The Dynisco Polymer Test LME Laboratory Mixing Extruder is a unique laboratory tool developed to evaluate the processability of a variety of plastics and rubbers prior to production. From very fine powders to coarse materials, the LME will meet many extruding needs.

The LME possesses a moveable header and dial gage that allows for constant mixer adjustability. While in operation, the rotational shearing (mixing) is controlled by adjusting the distance between the end of the rotor and the inside header.

This unique feature, not found in other extruders, allows for various extrudate mix levels in a single sample run.

The rotational shearing of the LME system provides extensive and intensive mixing and can be used in the production of polymer blends or alloys. These blends have been found homogeneous enough to be spun into fibers over the entire range of composition. Since mixing may be independently adjusted, agglomerates of additives, such as fillers or pigments, may be accurately controlled.

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Procedure

A sample material is placed in a cooled hopper where it falls onto the heated surface of a cylindrical rotor. As the rotor turns, the material drags against the inclined surface of the stationary scroll. This motion begins transport toward the outlet die. As the material collects in the radial gap it is compressed by the converging space between the scroll surface and end of the header case.

The material then moves to the axial gap where it is rotationally sheared between the end of the rotor and inside of the case. This motion induces a centripetal pumping effect, enabling the material to flow to the outlet die and exit through the orifice.

Optional Features

LME TAKE UP SYSTEM

The Take Up System is a multi-purpose variable drive machine. It can draw and wind very small diameter extrudate fibers from the LME onto a spindle or draw larger rods through a pair of nip rollers. The nip rollers can also be used with the optional ribbon header. In all cases, the speed of the system can be adjusted to match the rate of extrusion and provide the desired fiber/rod diameter or tape/ribbon width. The nip rollers are also used to guide the extrudate rod to the Chopper (pelletizer) system.

USES AND APPLICATIONS

- Plastics and rubbers
- Pelletizing
- Shape extrusions
- Polymer blends
- Film extrusions
- Fiber spinning
- Wire coating
- Melt spinning

COMPOUNDING OF:

- Stabilizers
- Fillers
- Plasticizers
- Flame retardants
- Pigments
- Antioxidants
- Pharmaceuticals
- Additives

LME CHOPPER

The Chopper pelletizes the extrudate from the Take Up System. Extrudate feeds into the chopper inlet from the nip roller of the Take Up System. The size of the pellets is determined by the feed speed to the chopper.

Specifications

Dimensions	19"W x 24"D x 9"H (49cm x 61cm x 23cm)
Standard Header Included	1/8" (0.312cm) diam. orifice (replaceable); rod extrusion
Weight	120 lbs. (54.5kg)
Cooling Water Feed Hopper	1 gal/hr tap water (3.785L/hr)
Electrical	230V, 50Hz/120V, 50Hz/120V, 60Hz

All dimensions are in inches (millimeters).

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Refer to www.dynisco.com for access to Operator Manual and other support documentation.
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