

LABORATORY MIXING EXTRUDER LME



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. Features include:

- R & D tool
- Uses as little as a few grams of material
- Three part system: Extruder, Optional Take Up, and Chopper Accessories
- Five different headers and orifices available (ribbon, spinnerette, 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



LME Laboratory Mixing Extruder

DESCRIPTION

The LME possesses a moveable header and dial gauge 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.

PROCEDURE

A sample material is placed in a cooled hopper where it falls onto the hot 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 is melted through heat conduction created by the mechanical work of the turning rotor. When sufficiently melted, the material 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.

TECHNICAL FEATURES

- Maximum temperature 400°C
- Variable speed control, 5-260 rpm
- Standard rod header
- Replaceable .3175 cm (1/8 in) orifice
- Water-cooled feed hopper

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

OPTIONAL FEATURES

LME TAKE UP SYSTEM

Drawing the material from the LME into fibers, the LME take up system pulls fibers into smaller diameters wrapping them around a spindle. This process creates a pelletizable strand. Its speed can be varied to match the rate of extrusion to produce desired fiber diameter. Two lower rollers pull the extrudate from the LME to form a strand which can be cut into pellets with the LME Chopper.

LME CHOPPER

The Chopper pelletizes the extrudate from the LME. Extrudate feeds into the feed inlet. The size of the pellets is determined by the feed speed to the cutter.



SPECIFICATIONS

DIMENSIONS

49 cm W x 61 cm D x 23 cm H
 (19 in x 24 in x 9 in)

STANDARD HEADER INCLUDED

0.312 cm (1/8 in) diam. orifice
 (replaceable); rod extrusion

WEIGHT

54.5 kg (120 lbs)

COOLING WATER FEED HOPPER

3.785 L/hr tap water (1 gal/

ELECTRICAL

230V, 50 Hz

120V, 50 Hz

120V, 60 Hz