

## Small scale High Speed, Energy Input (HSEI) twin screw extruders for laboratory and pilot scale applications

Whether you need to process a 20 grams or 300 lbs/hr, we have a small scale HSEI twin screw extruder to meet your needs



Nano-16 twin screw extruder, available in co-rotation and counterrotation

All Leistritz HSEI twin screw extruders utilize segmented barrels and screws for process flexibility when developing new products... and the results are scalable to production class machinery. Upstream feed systems for pellets, liquids and powders are matched to the process. Downstream systems are available for pelletization and/or direct extrusion.

The following provides an overview of the available models:

**Nano-16-** In co-rotation and/or counterrotation with up to 500 screws RPM, the Nano-16 has 16 mm diameter screws and 1.2 mm flight depth. A micro-plunger feeder (patent pending) meters powders, granules, micro-pellets, and pastes to a custom feed barrel. The low free volume of the Nano-16 facilitates extrusion processing of 20 to 100 gram samples.

**Micro-18-** In co-rotation and/or counterrotation with up to 500 screws RPM, the Micro-18 has 18 mm diameter screws and 3.5 mm flight depth. The mode convertibility feature between co-rotation and counterrotation makes this model the ideal addition to any laboratory environment.

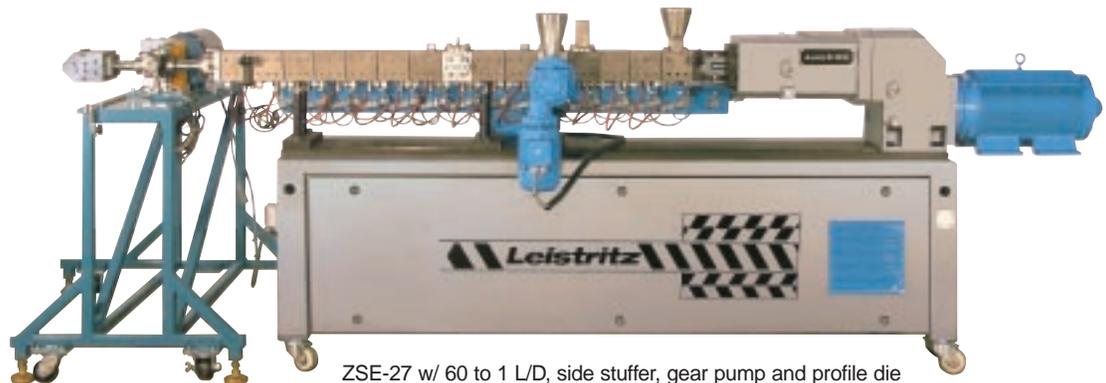


**ZSE-18-** In co-rotation with 1200+ screws RPM, the ZSE-18 has 18 mm diameter screws and 3.5 mm flight depth. Screws are assembled on high torque splined shafts, and the unit is caster mounted.

**Micro-27-** In co-rotation and/or counterrotation with 500 screws RPM, the Micro-27 has 27 mm diameter screws and 4.7 mm flight depth. A mode convertible gearbox has made this model the most popular small scale HSEI twin screw extruder in North America. It replicates traditional co-rotating processes, as well as low speed late fusion counterrotating processes.

**ZSE-27 HP-** In co-rotation with 1200+ screws RPM, the ZSE-27 has 27 mm diameter screws and 4.5 mm flight depth. Screws are assembled on high torque splined shafts, and the unit is caster mounted. The ZSE-27 HP is production rated and can process at 300+ lbs/hr for many formulations.

**ZSE-27 MaXX-** Available in co-rotation with 1200+ screws RPM, the ZSE-27 MaXX has 28.3 mm diameter screws and 5.4 mm flight depth. Screws are assembled on asymmetrical high torque splined shafts. The ZSE-27 MaXX represents the latest in HSEI twin screw extruder technology and can achieve 30% more throughput as compared to the ZSE-27 HP model for volume limited processes.



ZSE-27 w/ 60 to 1 L/D, side stuffer, gear pump and profile die



Co-rotating, intermeshing screw set

American Leistritz Extruder Corporation

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ZSE-27 with underwater pelletizer

**Applications:**

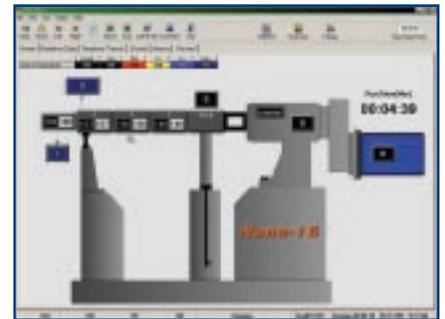
- Compounding
- Devolatilization
- Reactive extrusion
- Pelletization and/or direct extrusion

**All models include:**

- Segmented barrels and screws
- Quick change, flangeless barrels with tie rod assembly
- Electric cartridge heaters for barrels heating
- Internal bores for barrels cooling
- AC motor/drives



ZSE-18 with strand pelletizing system



TSCS PC screen shot from Nano-16



ZSE-27 with downstream sheet/lamination system

**Options include:**

- Various L/D ratios from 20 to 60/1 L/D
- Metallurgies for abrasive and corrosive environments
- Side stuffers for downstream feeding
- Liquid injection ports
- Variety of dies and downstream systems
- Solids and liquid feed systems
- PLC and PC based controls

**Partial list of universities/research institutions with Leistriz twin screw extruders:**

Akron, University of  
California State Chico  
Durham College/UOIT  
Guadalajara Universidad (Mexico)  
Idaho University  
Iowa State University  
Kansas State University  
Lambton College  
Laval, University of

Louisiana State University  
Lowell, UMASS  
Massachusetts Institute of  
Technology  
McMaster University  
Michigan Tech. University  
Manitoba, University of  
Montreal, University of (Ecole  
Polytechnique)

National Research Council of  
Canada  
New Jersey Institute of Technology  
North Carolina State University  
North Dakota State University  
North Texas University  
Ohio State University  
Penn College of Technology  
South Carolina, University of

Tennessee, University of  
Texas, University of  
Toronto University  
U.S. Department of Agriculture  
Virginia Tech  
Washington State University  
Waterloo, University of  
West Virginia University  
Western Washington University

