

Options

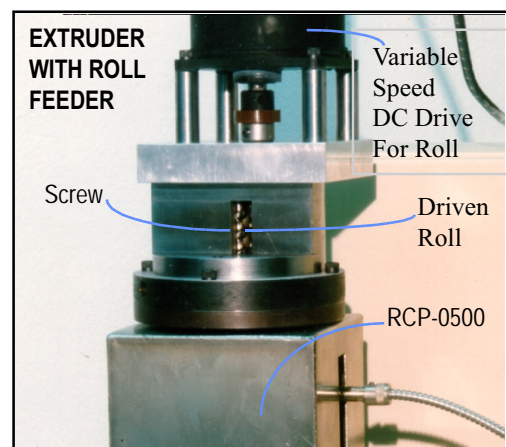
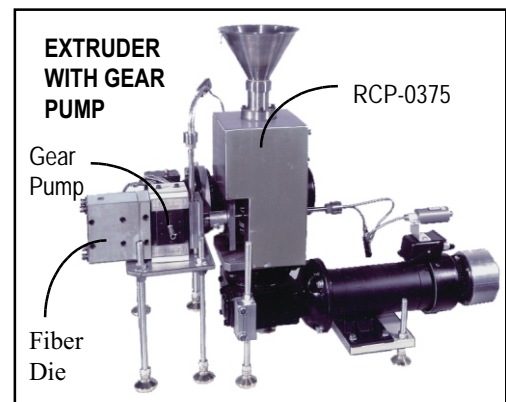
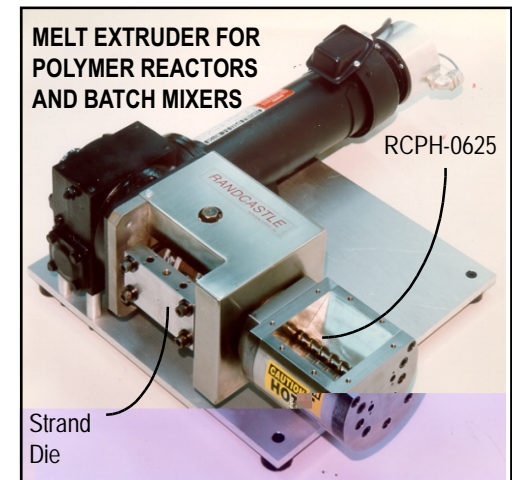
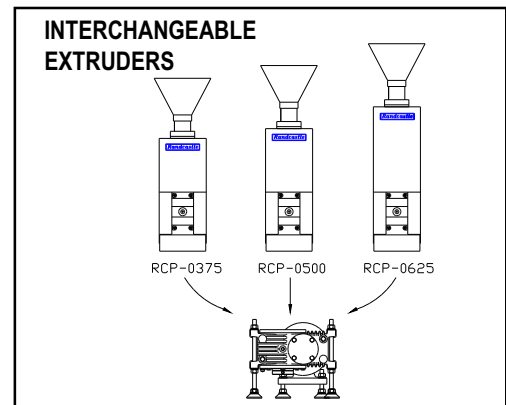
The following is a list of our most popular options. If you don't find what you need, please call us.

HARDWARE

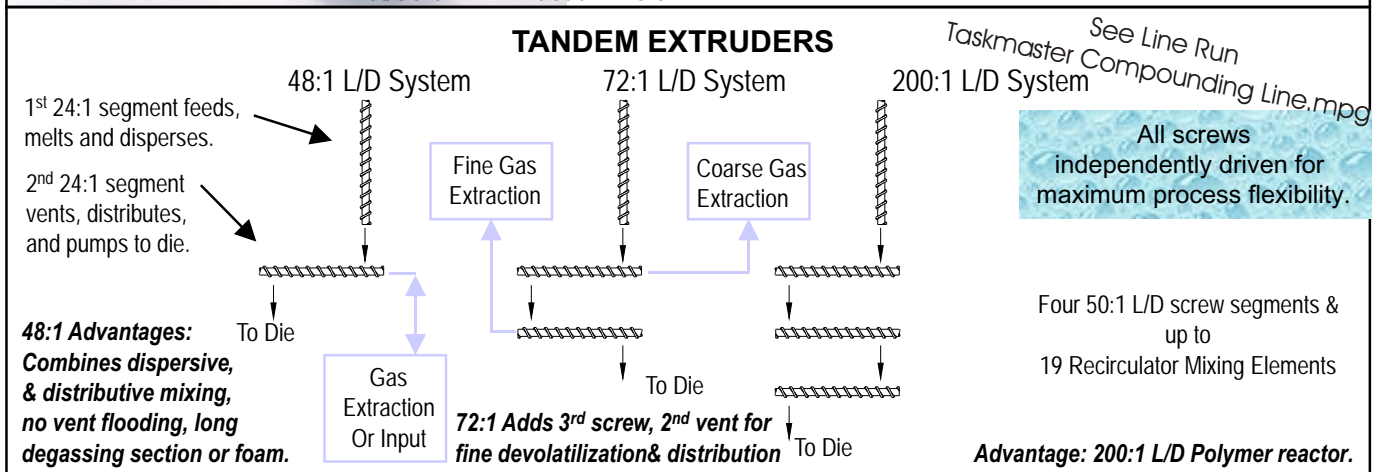
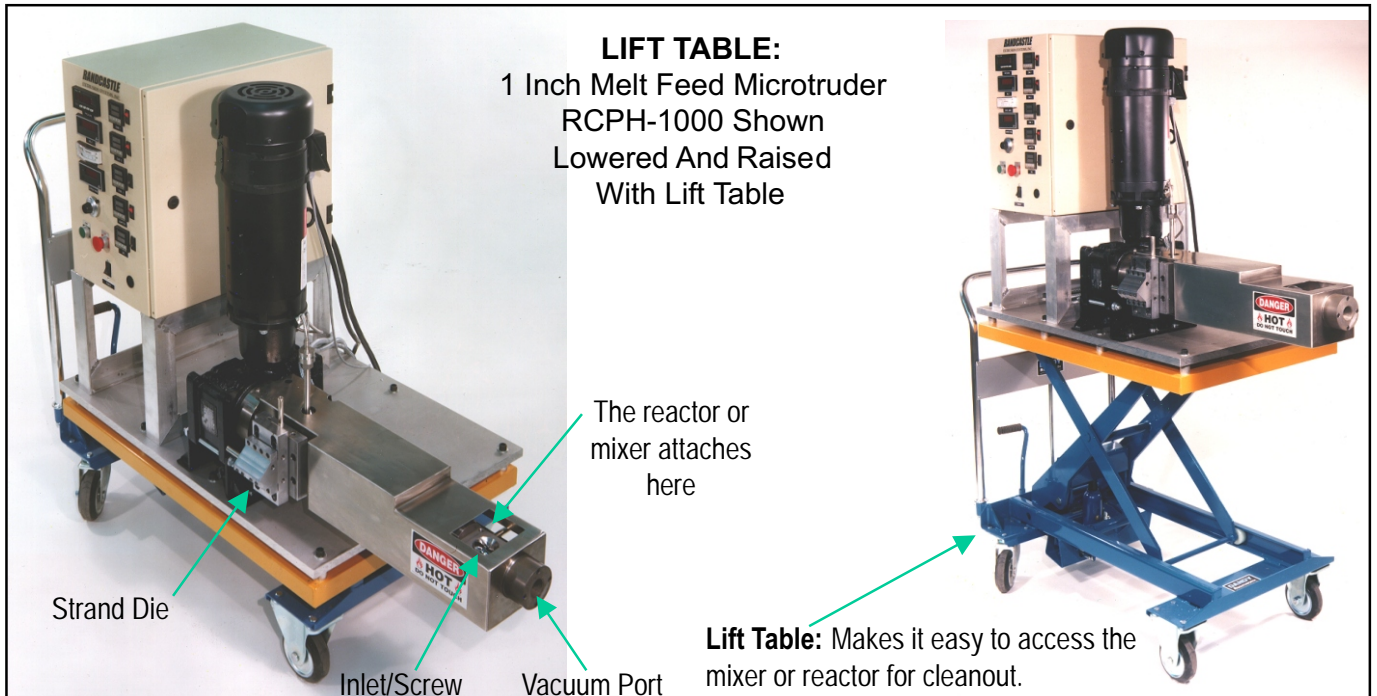
- **VENTS AND INLET PORTS:** Add 3 vents in a 36:1 L/D for the ultimate in gas extraction. Inlet ports are available for side stuffer feed, overhead gravity feed, liquid and melt feed.
- **SCREWS:** Patent pending Recirculator mixers compounds like a twin; attach stirrers to the top of the screw to eliminate feeding problems like "tunneling" and bridging.
- **INTERCHANGEABLE EXTRUDERS:** Our modular design allows the interchange of different size barrels and screws! Extend your processing range while you save money using the same control panel and transmission.
- **MELT EXTRUDER:** Commonly attached to polymer reactors and batch mixers, large opening accepts gravity feed and builds pressure/degassing to pelletize, make films, sheet, and more.
- **GEAR PUMPS:** Considered the ultimate in volumetric pressure stability, gear pumps allow for the high tolerance products..
- **TANDEM EXTRUDERS:** Link multiple extruders in the smallest space! Compound in one and degas in another. Extend your L/D to over 200:1 with 4 extruders.
- **HIGH TEMPERATURE HEATERS:** Mineral filled heaters are recommended where operating temperatures exceed 550F.
- **MOTORS:** Our discharge driven design allows for much higher HP, output and speed.
- **FEED SECTIONS:** Change feed sections in seconds for improved pressure stability or high output. Roller feed sections are available for soft "taffy like" strip feed stocks and silicone.
- **PLATINGS:** Protect against wear, corrosion or improve performance with chrome, nickel, release, and more.

ELECTRICAL

- **INSTRUMENTATION PACKAGE:** Outputs allow you to monitor and record the performance of your extruder including viscosity, pressure, temperature, rpm, amps, screw torque, feed rate and vacuum.
- **PRESSURE:** Pressure instrumentation gives you protection and understanding of your process.
- **AIR COOLING:** Maximize your process temperature control.
- **MELT TEMPERATURE:** A thermocouple in direct contact with the melted material gives the polymer temperature.
- **VISCOSITY:** Sample a small part of the stream with the Viscom rheometer and output the results to data collection.
- **TORQUE:** Screw torque sensor in gearbox gives the most sensitive instrumentation.
- **OEM:** Subassemblies without electrics are available.



Options



IN LINE RHEOMETER

Screw rheometer converts drag flow directly to viscosity (shown mounted to RCP-0625 cast film line).



1 INCH 50:1 COMPOUNDER

This one inch discharge driven Microtruder had four Recirculator compounding elements for maximum dispersion and distribution.



GEAR PUMP

Free standing gear pump with sheet die is ready for installation.



Super 1 Inch

This production RCP-1000 processes an incredibly high viscosity material. It's so high, that it brakes conventional screws whenever the hopper was loaded (in other words running flood fed). The customer was able to run starve fed but found this inconvenient because any feed upset caused extruder shutdown.

But, the discharge driven Microtruder has such strong screw that it runs flood fed and makes for simple, easy operation.



5 HP Drive and 30:1 gear reducer are required to drive this material! Conventionally driven screws can't handle the torque.

Filter Test Assembly

Two screw system:

- Recirculator screw to prevent agglomeration.
- Standard screw mirrors less sophisticated clients.



- Recorder for pressure rise and gear pump rpm.
- Precision gear pump drive.

•Gear pump

•Pressure transducer measures pressure rise

•Quick opening Clamp contains the filter.



Randcastle Tandem Lines

BENEFITS: Never was so much extrusion technology in so small a space! You can even rearrange the extruders for coextrusion! Start with a patented Microtruder and customize to the limits of your imagination. Add:

Mixing: Add dispersive and distributive mixing. Not only does the longer L/D mean better distributive mixing, but you can install multiple Recirculator's for dispersive mixing screws too. Want high shear rate to exfoliate nano clay particles? No problem with a 72:1.

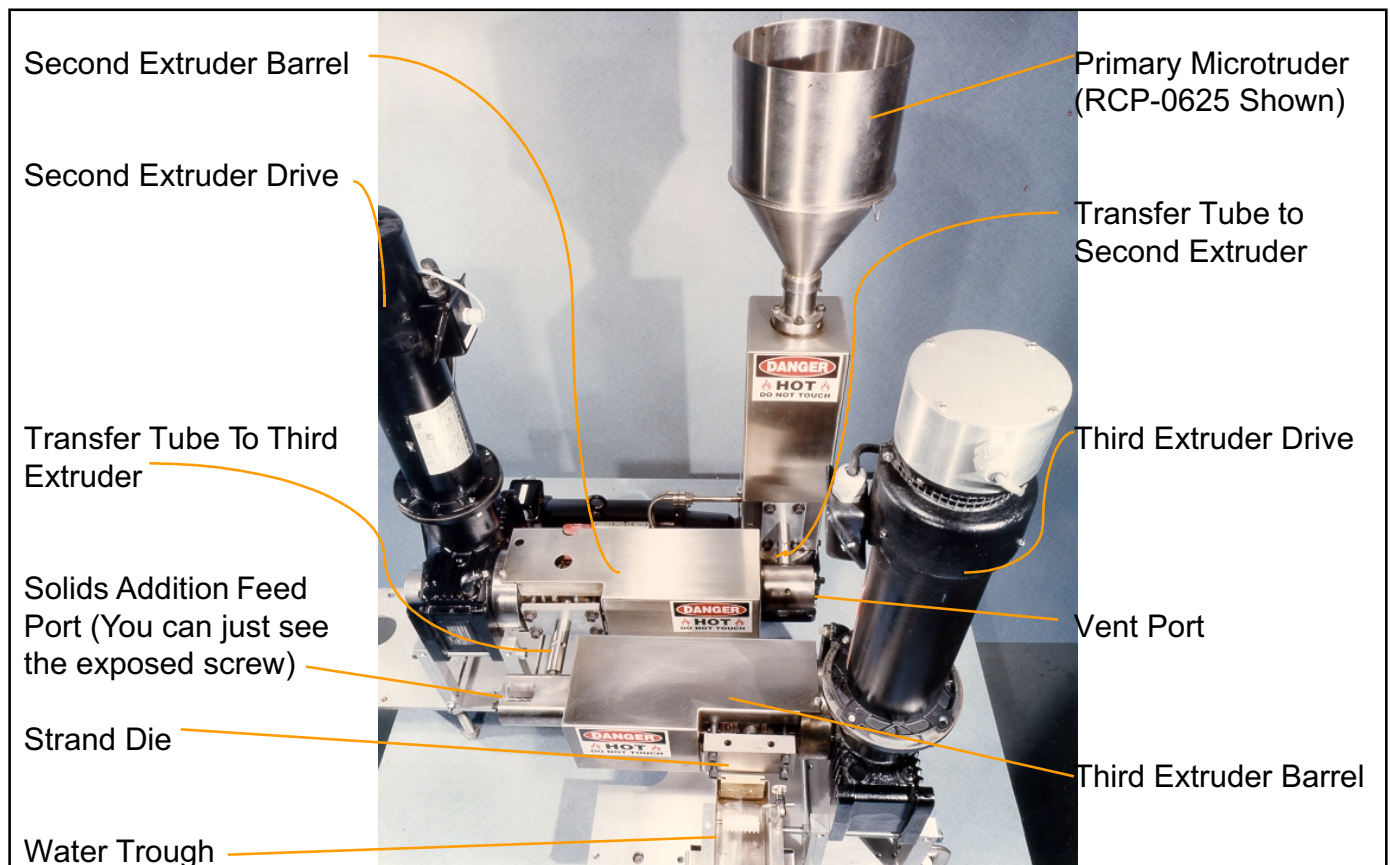
Venting:

- Excellent surface renewal to maximize degassing.
- Vent flooding is easily avoided by varying screw speeds.

Secondary Feeding:

- Increase your concentration of solids additives, fillers, extenders, etc..
- Treat glass and carbon fibers gently so they don't break but still wet out.
- Inject liquids and gases for foams, colorants, stripping agents, and more.

Interchangeable Barrels and Screws: Mount different sized extruders to the same transmission. Add a larger diameter secondary screw for longer local residence, foam cooling, or higher shear rates. Install a smaller screw and promote locally shorter residence times for thermally sensitive applications.

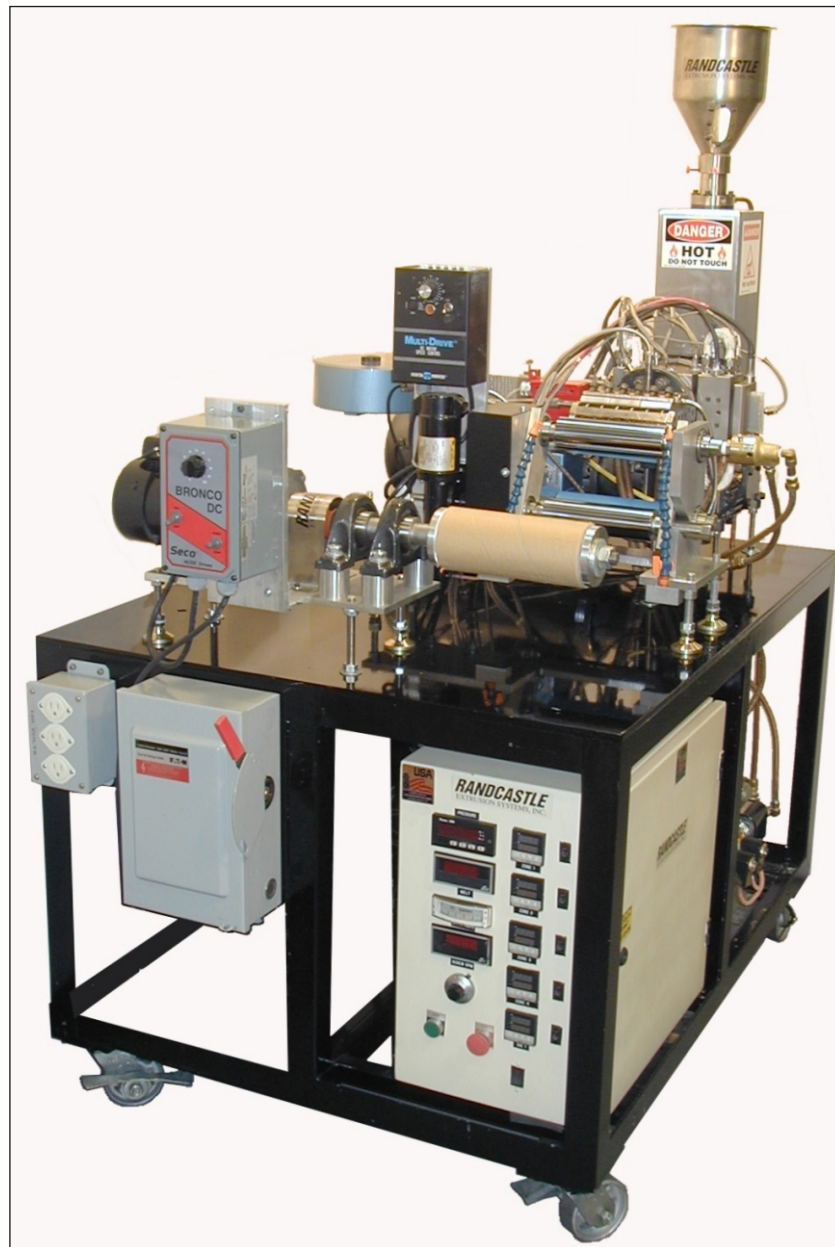


Tandem 72:1 with (1) vent port and (1) solids addition port.

See Line Run In Taskmaster Compounding Line.mpg

RANDCASTLE

***With High-Technology Corp.
Continuous Screen Changer***

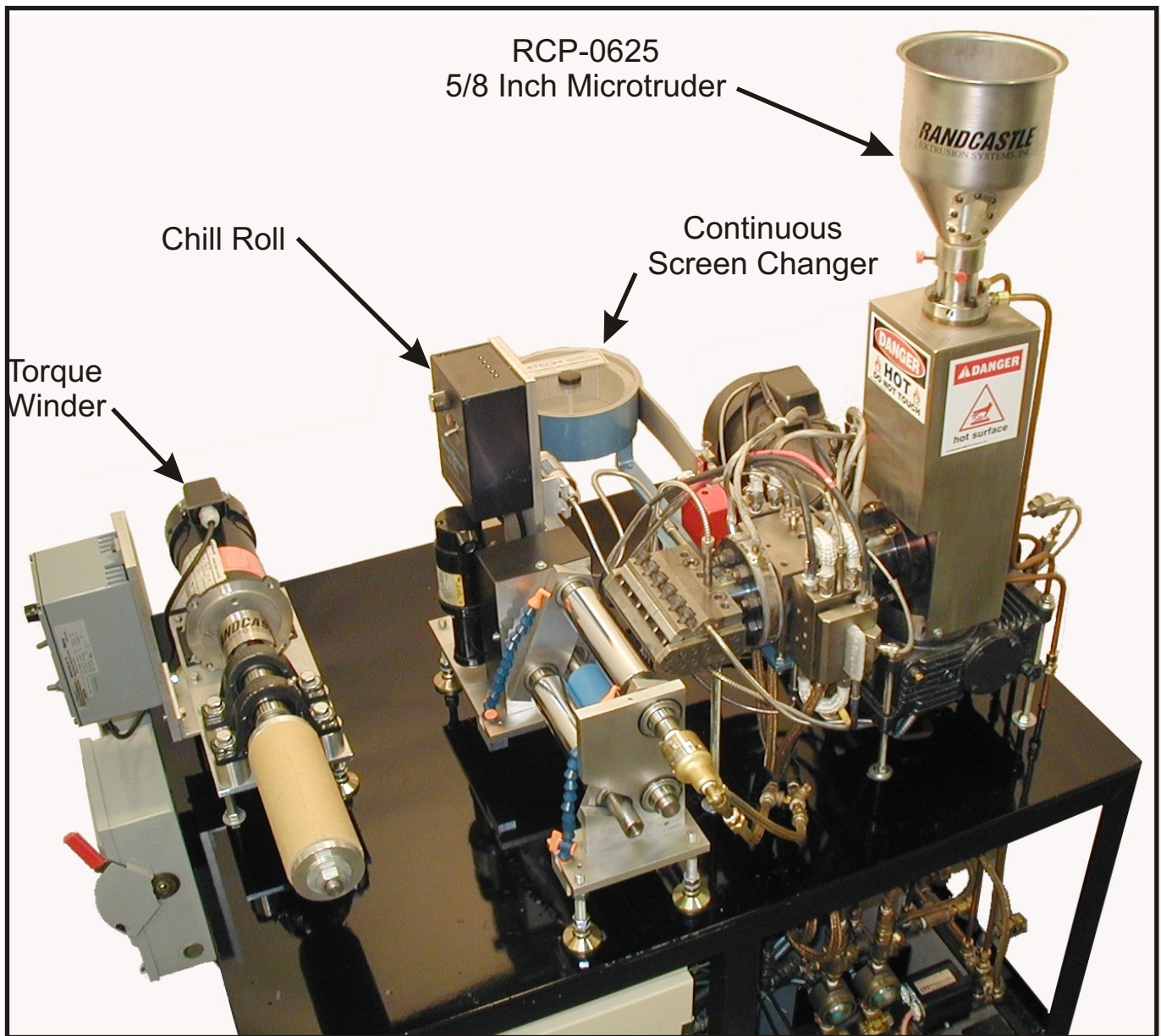


Filter your polymer continuously with this RCP-0625 Microtruder with High-Technology Screen Changer. In this 6 inch cast film line, the extruder controls are mounted beneath the line to save space. The screen changer uses extruder pressure to move the screens across the stationary breaker plate for continuous filtering with very stable pressures and without process interruption.

RANDCASTLE

With High Technology Corp.

Continuous Screen Changer



Bench Top Cast Film Line

RANDCASTLE

With High Technology Corp.

Continuous Screen Changer

HITECH Model EO4R(shown)

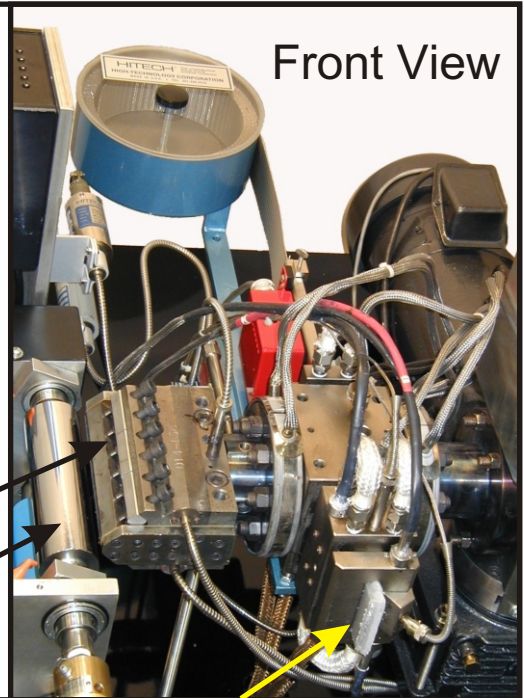
- No Moving Parts
- No Drive Motors
- Pressure Controlled Operation
- Stable Pressure
- High Reliability

For more information:

Aline Alroy: 201-488-0010
High-Technology Corporation
144 South Street
Hackensack, NJ 07601
or
www.screenchanger.com

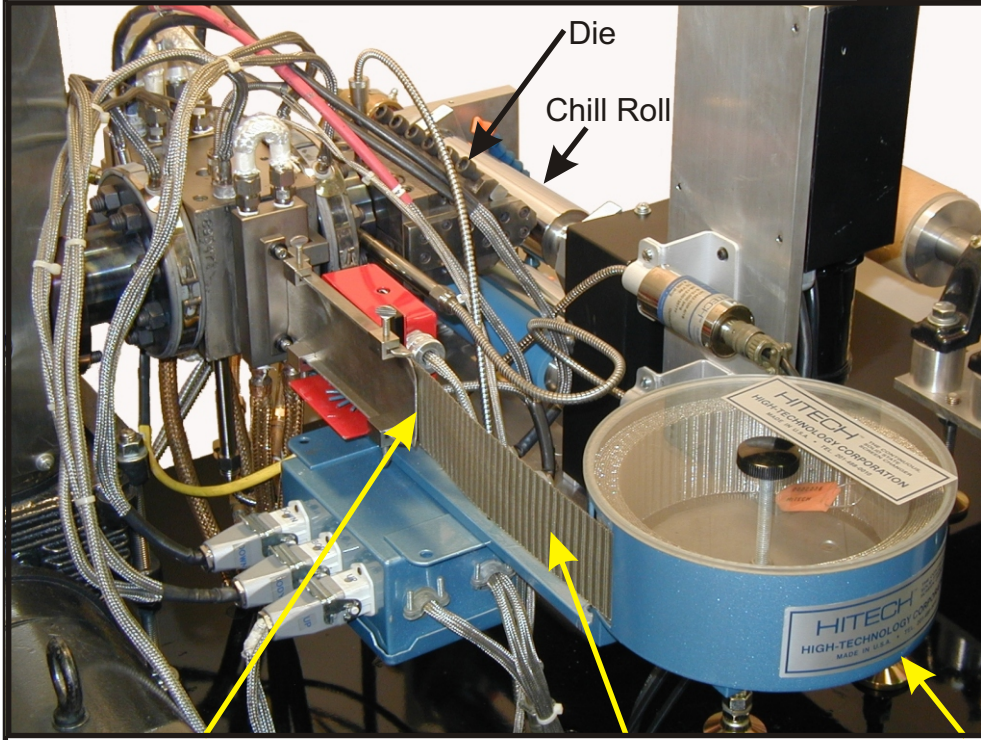
Die
Chill Roll

Front View



Spent Screen
With Contaminants

Die
Chill Roll



Screen Inlet

Filter Screen

Filter
Screen
Housing

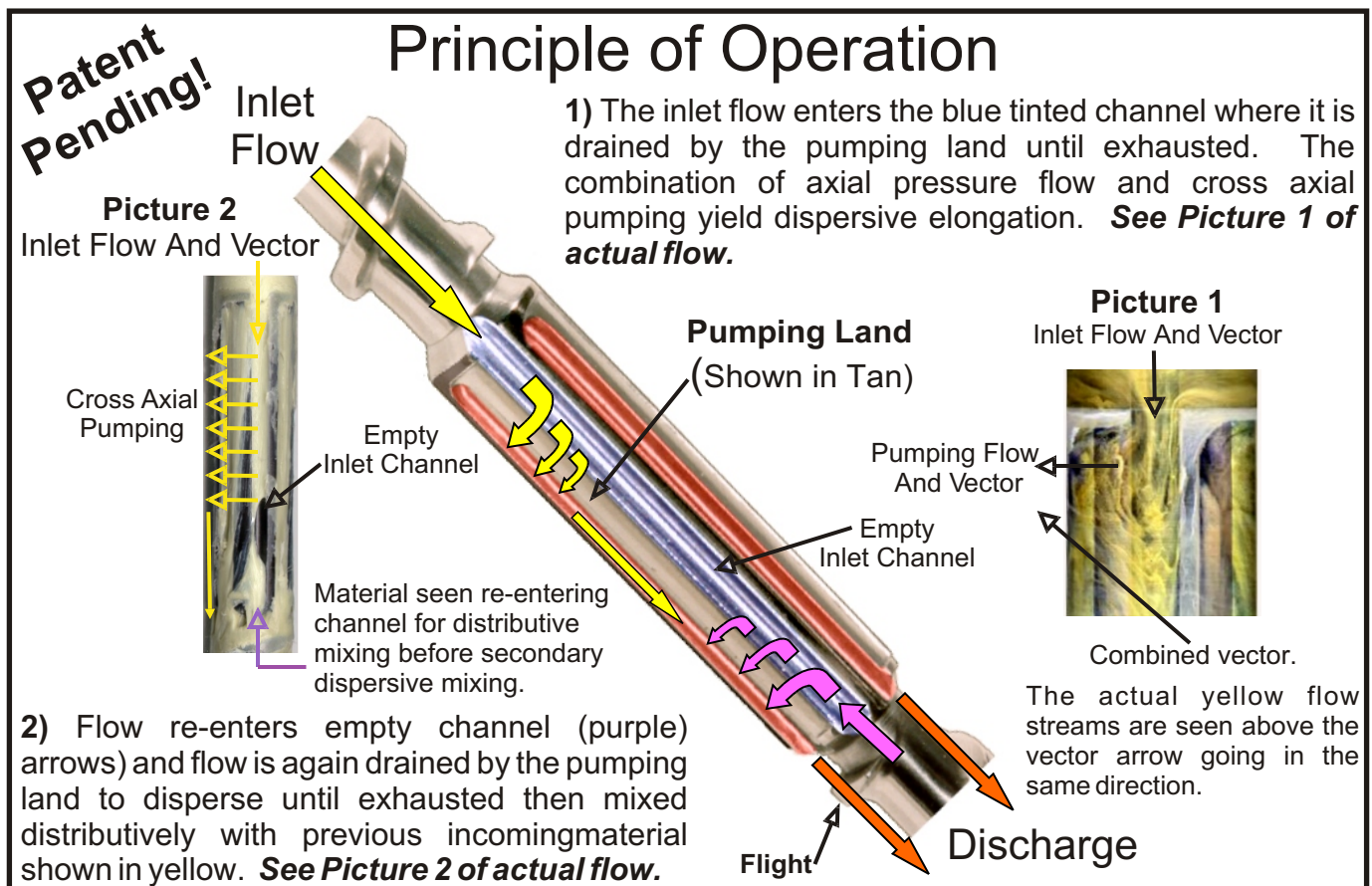
Rear View

RANDCASTLE'S

Recirculating Mixer

The Recirculator is a breakthrough in mixing technology mastering tasks previously accomplished only by twin screw extruders! Twin screws generate their dispersive mixing by creating elongational flows at a high controlling modulus. The Recirculator creates the same force repeatedly within a single mixing element. The repeated action creates distributive mixing. Then, like a twin screw's repeated kneading sections, we use multiple Recirculators along the screw!

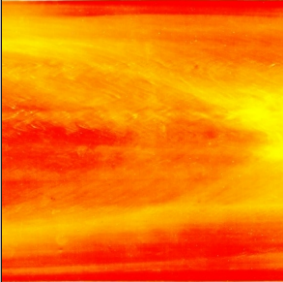


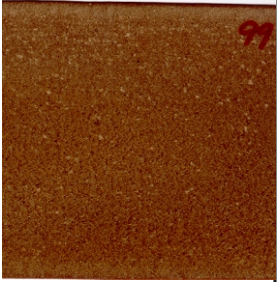
To understand the Recirculator's flow, think about the flow vectors. Pressure flow pushes material into the blue tinted inlet channel so **the flow vector is along the screw axis**. The pressure flow is less than the capacity of pumping land. A pumping land is just a radial clearance that pumps across the screw axis. The flow vector of the material in the pumping land is **across the screw axis**. So, as the pump "grabs" the viscous flow **and** the pressure flow pushes it forward, the flow elongates. See **Picture 1** of the actual yellow color concentrate elongating along the combined vector in clear polypropylene.



The flow from the pumping land is pushed into another channel (red tinted channel with the yellow arrow overlay) until the channel ends (just before the flight). This forms a ring where the material is distributed **around** the screw axis. Since the flow rate is less than the pumping land capacity, the middle of the blue channel is empty. So, material can move either into the empty blue tinted channel (shown by the purple arrows) or onto the leading edge of the flight. It does both. The portion that moves upstream into the blue tinted channel experiences another dispersive elongational flow. Then it mixes distributively with the material flowing downstream. That is, the flow represented by the purple arrow meets the flow represented by the yellow arrow over the red tinted channel. After the flow reaches steady state, a uniform mixture is discharged (orange arrows). See **Results** next page.

Recirculator Results


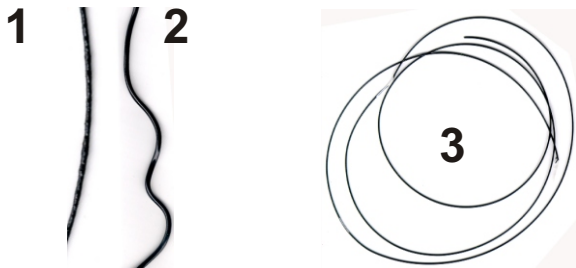


The multiple dispersive and distributive flows within Recirculator elements mean great mixing. Where possible, we've shown the results of other mixers compared to the Recirculator. In some cases, such as the wood filled compounds, there is nothing to compare to. To the best of our knowledge, no single screw extruder has ever compounded wood filled material directly into sheet or tensile bars.

Color		Particulate Filled	
			
UC Mixer	Recirculator	Recirculator	Recirculator
<i>The Union Carbide or Maddocks mixer) results in a poorly colored film.</i>	<i>The Randcastle Recirculator yields a rich, fully developed color.</i>	25% Flour	40% Flour
$\frac{1}{2}$ % Yellow & $\frac{1}{2}$ % Red Pellets in PVC		<i>No additives to enhance flow or mixing</i>	<i>No additives to enhance flow or mixing</i>
		Wood flour and LDPE Pellets	

Dispersion Above Critical Stress

UC Mixer	Double Wave Screw	Recirculator
		

These cast films are 10% elastomer pellets with LDPE pellets. Though the colors look different, they were made from the same mixtures and the color appears very similar to the human eye but are difficult to photograph.

Rigid PVC	Re-agglomeration
	
Recirculator: Virgin RPVC powder into rod	
	
Recirculator: RPVC powder and 40% wood flour into tensile bar stock 0.125 thick	
	
Recirculator: RPVC powder and 40% wood flour into tensile bar stock 0.062 thick	
	Nylon and filler are twin screw compounded and produce smooth pellets. But, when this is processed with a single screw extruder with two Egan style mixers and months of lab effort, the filler still reaggomerates producing a very rough strand (1). The same pellets enters a Recirculator that produces a smooth strand (2) and then makes the required product-- a 0.004 inch coating over a 0.026 inch plastic strand (3).