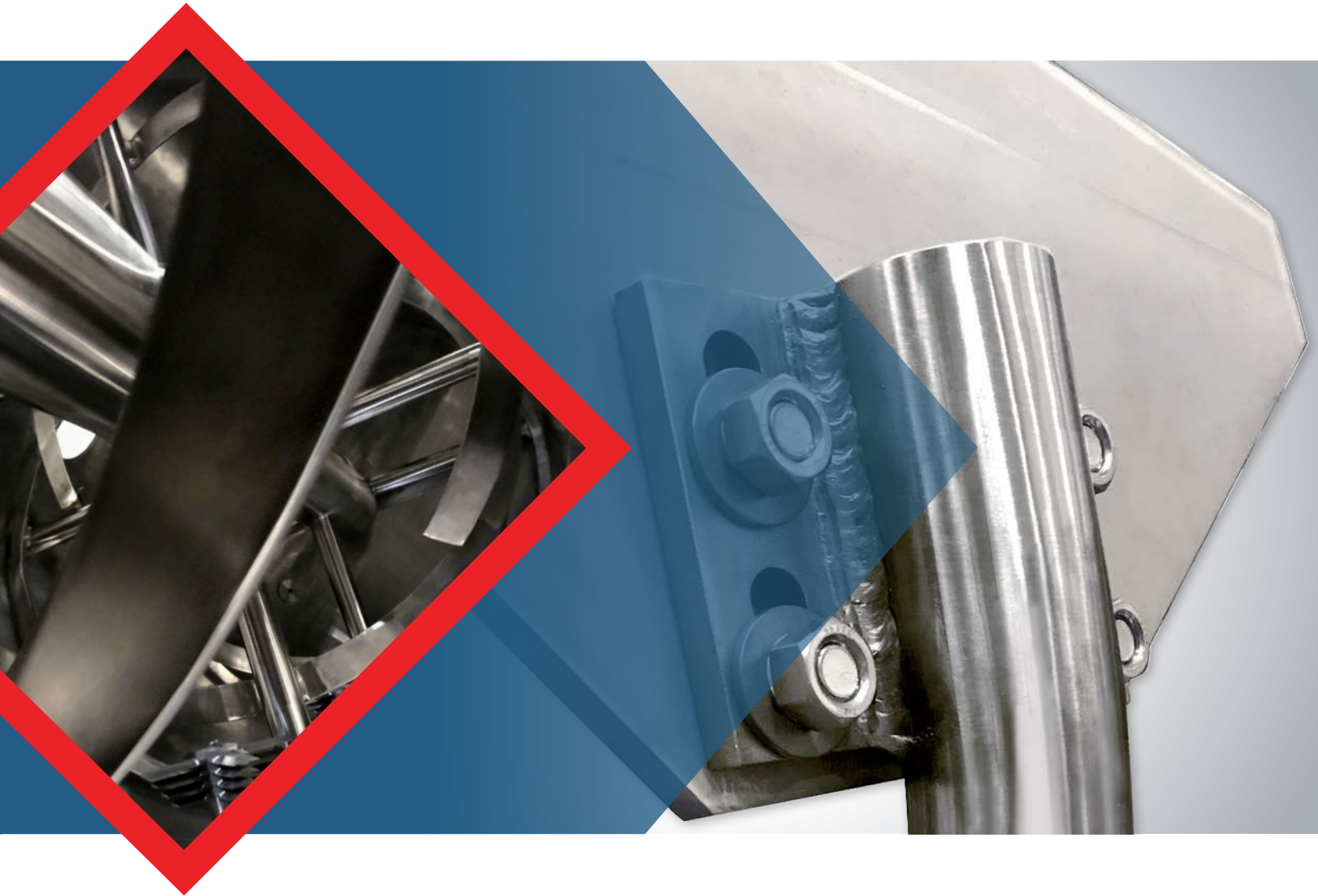


# Industrial Mixers & Blenders

Our reputation for building quality, robust, and proven processing equipment manifests itself in our comprehensive line of mixers and blenders. S. Howes proven designs and build quality into every mixer. Mixers are available in a variety of features and configurations including ribbon, paddle, and custom agitators, continuous and batch operation, single and double shaft mixing action, heavy-duty capacities, sanitary designs, and jacketed units for thermal processing.

Standard mixers are available with capacities ranging from 1/3 to 750 cubic feet. Mixers can be fabricated in a range of construction materials including mild steel, stainless steel, and other exotic alloys, and are completely customized to meet final production requirements.



## Complete Range of Process Equipment

- Thermal Processors
- Mixers & Blenders
- Screeners & Sifters
- Screw Conveyors
- Size Reduction
- Filtration Systems



## Mixall

S, Howes Mixall mixers are economically designed to process a wide range of products with a low initial “per ton” cost. Its leakproof and dustproof design completely discharges product and the mixer’s heavy-duty design and construction provides years of long-lasting durability with low maintenance.

Standard models are available from 4 to 375 cu.ft. (3/4 full) and custom models are available to handle up to 750+ cu.ft of product. A tubular shaft is used on applications between 24,000 and 560,000 inch-pounds of torque. A solid shaft with flange-type bearings may be used when the torque of the cylinder is under 5,000 inch-pounds.



## Sanimix

Our proven design provides a superior uniform mix with robust construction. Standard models are available from 4 to 375 cu.ft. (3/4 full). All models feature flanged journals to allow for easy agitator removal and radiused heads. Our sales and engineering personnel can work with you on a standard model or develop a custom design, depending on your unique needs.



## ES Mixer

Our economically priced design provides a uniform mix with high polish finishes and welded radius heads (no sharp corners). Standard models are available from 4 to 375 cu.ft. (3/4 full). ES models feature flanged journals to allow for easy cleanout. Our team can work with you to develop a design, depending on your unique needs.



## Powermix

S. Howes Powermix line of mixers are designed for strenuous industrial usage. Extra heavy gauge steel is used for the tank and end-plates, and powerful, heavy-duty drives and are used to ensure years of reliable operations.

Over 25 standard models are available from 4 to 375 cu.ft.(3/4 full). Custom models available up to 750+ cu.ft.



## Lab Mixer

S. Howes lab mixers are custom-engineered to provide accurate scale-up conditions before specifying or configuring production machines. S. Howes' sales and engineering personnel can recommend a standard design for your application or work with you to develop a custom design, depending on your unique needs.

Available from 1/3 to 4 cu. ft. working capacity, lab mixers can be furnished in carbon steel, stainless steel, or special alloys. Heating or cooling jackets are also available.

Lab mixers are available in Mixall, ES and Sanimix styles.



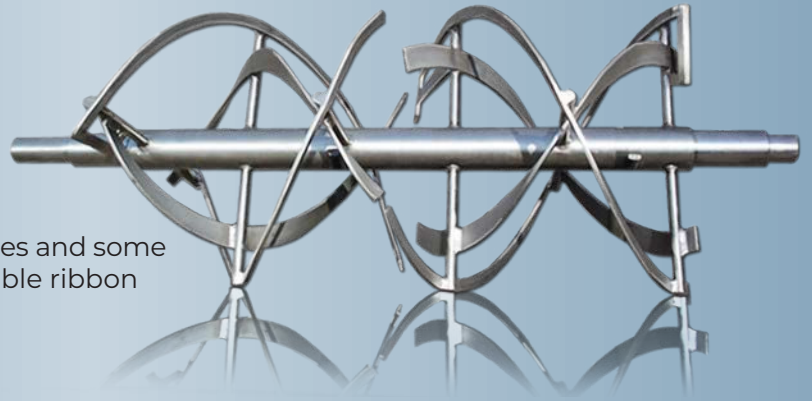
## Ribbon Mixer Features

- Double ribbon agitator
- Original reverse-spiral design
- High-Capacity mixing at low power cost
- Uniform and consistent mixing power
- Custom finishes and designs

Excellent mixing consistency for powders, granules and some slurries. The S. Howes original reverse spiral, double ribbon agitator delivers uniform, high-capacity mixing.

**Mixing Time:** 2-5 minutes

**Degree of particle shear:** Moderate



## Paddle Mixer Features

- Bent paddle design
- Gently lifts and pushes material to create cascading action
- High-Capacity blending at low power cost
- Custom finishes and designs

Suitable for mixing high viscous pastes or free flowing slurries, plastic pellets, cement, pigments and mud. The paddles lift and traject material in a folding/ kneading like motion

**Mixing Time:** 3-5 minutes

**Degree of particle shear:** Low



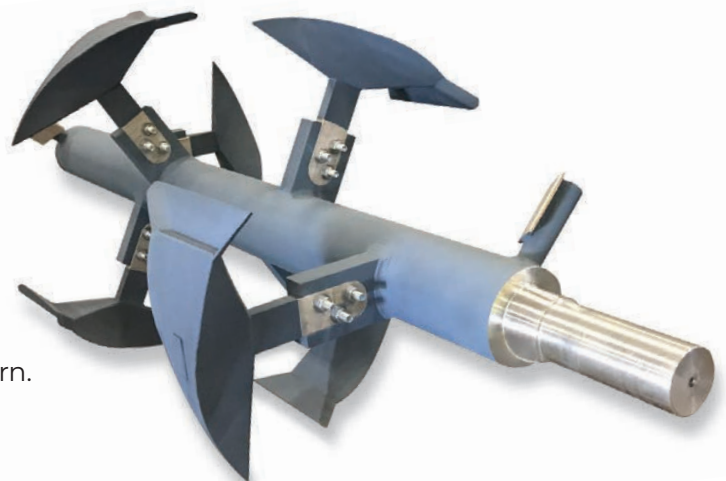
## Plough Mixer Features

- High shear, ideal for breaking up lumps
- Custom finishes and designs
- Homogeneous mixing
- Wide range of applications
- Short mixing time
- Extra shear available with intensifiers

Suitable for mixing pastes or wet slurries, dry powder, wet granulation, blending of minerals. The plough lifts material upward, the material settles in a random pattern.

**Mixing Time:** 1-5 minutes

**Degree of particle shear:** High



## Mixer Options

- Adjustable paddle agitators
- Spray bars with nozzles
- Access covers, inspection doors & manways
- Limit & level switches
- Temperature sensors
- High-velocity intensifiers / choppers
- Quick-discharge doors
- Slide gates & custom discharges
- Custom packing glands, gaskets & seals
- Protective grating
- Custom controls
- Direct, chain or belt drive



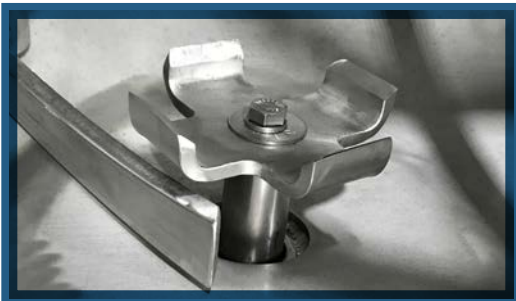
Flanged Journals



Spray Bar



Shaft Seal



### High Velocity Intensifiers

Improves mixing by reducing blending time of minor ingredients and breaks up lumps



### Belt Drive

Belt driven mixers are proven reliable and easily serviced for less downtime on your mixing system.



### Access Doors

Designed for easy access to simplify cleaning and minimize production downtime.



### Optional Slide Gate

Used to control the flow of materials out of the Mixer.

## Enhancing Thermal Processing

Thermal processing is accomplished through a bolt-on or integral external fluid jacket on the mixing vessel. Material is heated or cooled by direct contact with the surface area on the tank walls as the paddles and/or ribbons continuously agitate the material. The jackets can utilize a traditional design where a continuous chamber is added or be built with multiple independent jacket panels to provide more precise temperature control.

Our engineers can design a thermal heating or cooling mixer for your specific processing requirements.

### Features

- Independent jacket configuration allows a parallel feed of fluid to each jacket panel where product is always exposed to a fresh temperature cycle
- Thermal treatment occurs simultaneously as the product is being mixed in the vessel to eliminate secondary process steps
- Accurate control of batch thermal treatment time
- Good control of end material temperature



### Sample Applications

- Drying
- Polymerization
- Heat Curing
- Cooling
- Microbial Kill

### Jacket Features

- ASME "U" Stamp Certificate of Authorization
- Steam, water or hot oil for thermal treatment
- Refrigerants for cooling
- Insulation and cladding available



### Atmospheric Mixers (Dryers) Features

- Low capital cost as the drying is accomplished in the same time and vessel being used for transferring and/or mixing
- Control of batch drying time
- Good control of end material temperature
- Suitable for drying of either water or organic solvents
- No or low dust generation, reduces chances for dust explosions that can occur in convective type dryers
- Residence time can be adjusted to allow for the removal of "bound" moisture



### Vacuum Features

- Lower operating temperatures is ideal for heat sensitive materials such as pharmaceuticals or materials that melt at higher temperatures under atmospheric pressure
- Improved drying times



## Complete Integrated Systems

S. Howes can provide additional processing equipment such as dryers, coolers, and air pollution control systems to handle various stages of material processing. These machines can be integrated upstream or downstream into existing or new process lines.

## Engineering & Manufacturing

- 3D equipment modeling
- State-of-the-art manufacturing facilities on three continents with robotic cutting and welding
- Manufacturing expertise working with mild steel, various grades of stainless steel, duplex steels and other exotic alloys for specialty applications
- Welders certified to ASME & AWS standards
- ISO 9001:2015 certified



## Innovation Center & Testing Lab

Be confident that your powder and bulk solids processing is efficient with CPEG's 15,000 ft<sup>2</sup> state-of-the-art test lab. With our lab, you have access to the most extensive testing capabilities in the industry. Multiple pieces of equipment can be combined for multistep and multistage testing to simulate field operation, validate new equipment designs and provide complete process solutions. Combined with our full analysis of material characteristics and measurements of material behavior in specific processing applications, you are assured an efficient, reliable and safe solution.

Field testing with rental equipment is available when lab testing would not effectively simulate process operating environments.



S.HOWES LLC  
25 Howard Street  
Silver Creek, NY 14136, United States  
Tel: +1-716-934-2611  
showes.com | sales@showes.com

Carrier Process Equipment Group, Inc.  
3400 Fern Valley Rd  
Louisville, KY 40213, United States  
Tel: +1-502-969-3171 | Fax: +1-502-969-3172  
cpeg.com | info@cpeg.com

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