

# Size Reduction Equipment

S. Howes offers several types of process equipment for material sizing including granulators, lump breakers, knife cutters, and power graters. Whether you need fast and efficient cutting, precise sizing or highly reliable sizing with minimal fines, our expert engineers can design and manufacture material sizing systems that meet your final size requirements.

Our size reduction equipment is available for material sizing and testing in our state-of-the-art Innovation Center and Testing Laboratory.



## Complete Range of Process Equipment

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



## Lump Breakers

S, Howes Lump breakers are designed to reduce softer and abrasive products such as filter cakes, foodstuffs, chemicals, fertilizers, and fly ash into sizes that can be further processed downstream. They can be placed in-line to reduce materials into manageable sizes for conveyors or other process equipment or as a stand-alone unit with customized support structures and appropriate safety measures included. All models are available in mild steel, stainless steel, or other alloys with various power transmission options to suit most industrial applications.

Five standard lump breaker machine models are available depending on process requirements and capacity. Additional options include twin or single-shaft designs, portable bases, and inlet feed hoppers that can be adapted to suit individual process needs.

## Features & Benefits

- Robust design for long-lasting durability and reliability
- Flanged inlets and outlets for maximum structural integrity
- Counter rotational drive with steel gears to transmit power between shafts
- Twin shaft design with stationary and rotary pins
- Round pins can be used to reduce product damage
- Abrasion-resistant pin options

## Options & Accessories

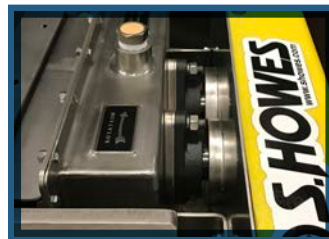
- Tungsten carbide coating on pin leading edges
- Stainless steel, carbon steel, or other alloys
- Optional dynamic balancing of the shafts
- Power transmission to suit process needs
- Explosion-proof motors
- Perforated screens



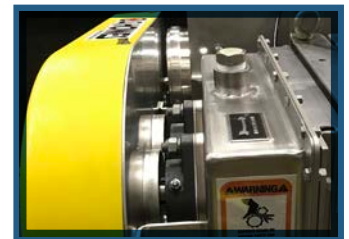
Belt drive



Stationary & Rotary Pins



Steel Gears



Drive Assembly

## Sample Applications

Our lump breakers are robust and transmit power between shafts to breakup difficult-to-process materials.

- Cement
- Chemicals
- Fertilizers
- Filter Cake
- Fly Ash
- Food Products
- Frozen Foods
- Powders with Lumps
- Salt
- And much more



## Knife Cutter

The S. Howes industrial knife cutter provides fast, uniform cutting of a variety of product with a series of rotary and fixed bed knives. A sizing screen prevents oversized product from leaving the cutting area until the desired size has been obtained.

Rotors spin at a nominal speed of 500 rpm to cut various complex materials, producing a tip speed of approximately 280 fpm. The throughput of the machine is related to the screen size installed. If a high throughput process is required while attaining significant size reduction, two or more machines can be combined in series to provide staged size reduction without significantly reducing throughput.

Several models can accommodate material capacities from 2,400 to 7,000 lbs per hour and can be custom-engineered for the most demanding cutting requirements.

## Features & Benefits

- Compact design requires little floor space
- Sizing screens are available in virtually any hole size or shape, and custom patterns are also available
- Low energy usage design for economical operation
- Constructed in mild steel, (not food grade)
- Quick screen removal design for rapid product changeovers
- Replacement knives are stocked at S. Howes for quick delivery
- Belt-driven cutting blade design to handle particularly difficult materials
- Low RPM provides trouble-free operation for cutting a wide variety of materials



## Options & Accessories

Stainless steel • Custom sizing screens • Custom designed hoppers



Material Feed Inlet



Rotary Knife



Drive System

## Sample Applications

Knife Cutters provide fast and precise material sizing via rotary and fixed knives.

- Animal Feed
- Bark
- Cereal
- Corn
- Oat Groups
- Nuts
- Pepper
- Spices
- Vegetables
- Wood Chips

## 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.

## Granulator

Known in the industry as the most reputable size reduction cutting machine, our industrial granulator is a single, compact machine constructed of steel that introduces efficiency to cutting and sizing. The original "Eureka" Granulator was designed and manufactured by S. Howes for the agricultural industry during the 1970s and has since been modified to handle numerous non-agricultural products. Today's S. Howes granulator is affordable, effective, and built to last.

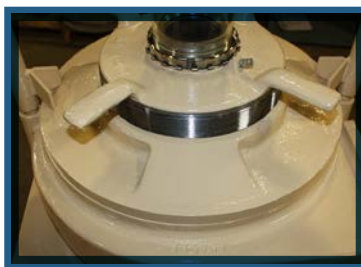
The Granulator works by cutting material between the offset rings that rotate at approximately the same speed. Centrifugal action forces the material outward between the cutter rings, which shear it to size and eject it immediately. This unique action creates fewer fines and a clean, sharp product.

## Features & Benefits

- High capacity design handles up to 13,000 lbs of dry corn per hour for large throughput
- Robust construction features heavy-duty iron castings and a tubular steel frame for long lifetime
- Compact design requires less than 5.5 square feet of floor space and weighs 967 lbs
- Replaceable wear plate, collar and seal in the upper mechanism
- Feed spout with adjustable slide gate regulates product flow
- No resharpening and easy replacement of rings for simple and minimal maintenance
- Only two moving parts allowing for safe and economical operating conditions
- Alloy cast cutter rings with various size serrations provide a range of product sizes and can be changed in less than 20 minutes for minimal downtime



Material Feed Inlet



Custom Sizing



Cutting Ring

## Sample Applications

Our Granulator is world-renowned for sizing material in the agricultural industry and other industries around the world.

- Barley
- Beans
- Charcoal
- Corn
- Milo
- Mustard
- Peanuts
- Pigment
- Resin
- Salt
- Wheat



## Power Grater

Our Power Grater size reducer features a unique multifunctional design that provides grating, delumping, particle sizing and de-agglomeration of various products. With its low horsepower requirements, low paddle speed, and heavy-duty construction, the S. Howes power grater is an economical choice for reliable size reduction with less fines.

Power Graters can be designed in stainless steel, carbon steel, or other alloys, and screens can be customized to your requirements. The screen cage can be removed with minimal tools for fast screen change and cleaning in sanitary applications. Optional, hinged cleanout doors and view windows allow access to the rotor assembly and all interior casing areas.

The S. Howes' Power Grater consists of a dust-tight housing that contains a paddle assembly and an aperture screen. The screen features holes edged by raised cutting edges that grate or shred the product as it is pushed over the screen. The paddles rotate, and the product is rubbed against the grater screen for clean, efficient reduction.

## Features & Benefits

- Multifunctional design provides versatility for particle sizing, delumping and deagglomeration processes
- Low paddle rotation speed design for less fines (approximately 88 RPM for single speed models)
- Heavy-duty, rugged construction with few moving parts and dependable long-life components provide extremely low maintenance and high reliability
- Removable screen cage with minimal tools for fast screen change and cleaning
- Hinged doors provide quick access to the rotor assembly and interior casing areas

## Options & Accessories

- Stainless steel, carbon steel, or special alloy construction
- Single or variable speed drives including mechanical, electrical (AC or DC controllers), and hydraulic
- TEFC, explosion proof or hostile environment motors
- Screen sizes per customer requirements



Particle Sizing & Grating



Aperture Screen Cage



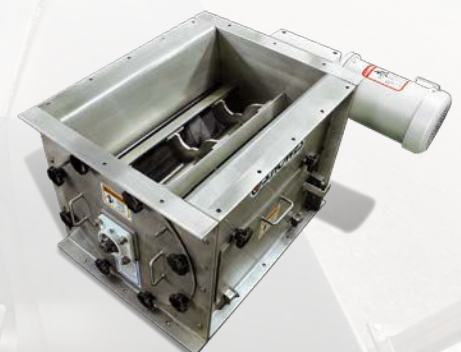
Aperture Screen Access



Paddle Assembly

## Sample Applications

- Animal Feed
- Biscuits
- Bread
- Cereal
- Cheese
- Chocolate
- Filter Cake
- Peat Soil
- Peanuts
- Salt
- Bead Blast Media
- Chemicals
- Plastic
- Resin
- Tungsten Powder



## 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.

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