# EXPERTS IN PREPARING WOOD BIOMASS FOR BIOFUEL PRODUCTION

Schutte Hammermill, Quality Since 1928

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#### Click here to request a quotation

61 Depot Street, Buffalo, New York 14206 www.hammermills.com • info@hammermills.com 1-800-447-4634 • 716-855-1555 More than 90 years of expertise. Designed, custom engineered and manufactured for customers around the globe. We've been the trusted leader for size reduction machinery for wood processing since 1928.

And today, we're putting that experience to work in new and innovative ways, becoming a rising leader in the growing industry of biofuel production.

No other manufacturer has sold more fine grinding hammer mills. At work, with more than 6,500 installations worldwide. It's durability through quality and more productivity through efficiency. The perfect blend of time-proven technology with cutting-edge innovation for today's rapidly-changing applications.



#### **Custom Configured**

All of our equipment for biofuel production is custom configured to suit you, your material and your production goals. You can rely on our grinders for the most consistent and uniform end-product. From single units to complete turnkey systems – along with complimentary material testing and a complete line of replacement parts.

- Mills for Primary and/or Finished Grinding
- Models for Efficient Processing of Green or Dry Wood
  - Medium to Fine Grinding Hammer Mills
  - Full Circle Screen Hammer Mills
  - Pallet & Pallet Scrap Grinders
  - Heavy-Duty Bark Grinders
  - Trim Scrap Grinders



#### We do it all. Ready, set, grind...

#### **Applications:**

- Green Wood Chips
- Dry Wood Chips
- Hogged Wood Scrap
- Planer Shavings
- Torrefi ed Wood
- Particle Board
- Bark
- Sawdust
- Pallets & Pallet Scrap
- Rippings, Edgings

#### & Trim Block

• Furniture Scrap

#### End Products Ideal For:

- Boiler Fuel
- Pelletizing
- Briquettes
- Biodiesel Production
- Pyrolysis



#### Mid-Range Grinder with Integral Fan

Ideal for mid-range production operations, the 13 Series Finish Grinding Wood hammer mill is able to process virtually any biomass feedstock to the exact finished size required. Special mill components reduce material more efficiently, allowing a larger screen to produce the same particle size as competitor models using a much smaller size screen opening. This ability to use a larger screen translates to lower horsepower required per ton produced.

Available in six standard sizes (13" to 48" wide), with the 13" to 36" models featuring a built in fan for conveying the finished product to storage. The compact design, featuring an integral fan unit, saves floor space and expense, eliminating the need for a separately driven fan, ducting, motors and controls.

#### Applications

- Planer shavings
- Dry wood chips
- Green wood chips

- Pre-hogged wood scrap
- Sawdust
- Bark

# End Products/Uses

- Briquette production
- Pellet production

Boiler fuelBiodiesel

Animal Bedding

Torrefied biomass

- 24" rotor diameters operated at 3,600 RPM to produce high hammer tip speed.
- Available screen discharge areas from 475 to 1,824 square inches.
- Available with a variety of perforated screen sizes from .020" to 3".
- Variety of fan sizes to maximize mill's throughput.
- · Heavy plate construction with internal ribbed liner plates.
- Four-way reversible hammers available in several styles.

### Ruggedly built to outperform and

The 15 Series Industrial Grinder is ideal for high production operations, and is able to process a wide variety of materials to the exact desired finished particle size. The 44" rotor diameter of the 15 Series provides the tip speed required for maximum throughput using a 1,200 or 1,800 RPM motor. Special mill components reduce material more efficiently, allowing its screen to produce the same particle size as competitors' models using a smaller size screen opening. This ability to use a larger screen translates to lower horsepower required per ton produced, which equates to enhanced durability and energy savings. With five standard sizes (24" to 72" wide) to choose from, the 15 Series is available in either gravity or pneumatic discharge.

#### Applications

- Biomass
- Asphalt shingles
- Cardboard
- Carpet
- Corn

- Fishmeal
- Meat and bone meal
- Paper
- Planer shavings
- Dry woods chips

- Green wood chips
- Pre-hogged wood scrap
- Sawdust
  - Bark
  - Torrefied biomass

# End Products/Uses

- Animal feed
- Biodiesel production
- Briquettes
- Briquette production
- De-agglomeration

- Pellets
- Pellet production
- Sizing for packaging
- Briguette production
- Pellet production

- Boiler fuel
- Biodiesel production
- Animal bedding
- Landscape mulch
- Playground cover

- 44" rotor diameters produce high hammer tip speed at 1,800 RPM.
- Screen discharge areas from 1,680 and 5,040 square inches.
- Perforated screens and/or heavy-duty grates.
- Heavy plate construction and internal ribbed liner plates available from abrasion resistant steel.
- Several styles of four-way reversible hammers.
- 1,200 RPM motor available if required by application.



#### 300 Degree Screen Coverage

The model 18-7-301 Circ-U-Flow is a high speed full circle screen hammer mill, ideal for pilot scale or full industrial processing of a wide variety of products. The nearly full circle screen coverage of the rotor translates to a large open area and thus the highest possible production rates on materials that do not require initial grinding against a breaker plate. Optional fully integrated pneumatic evacuation system substantially increases throughput and keeps your work environment clean and dust free. The Model 18-7-301 is ideal for processing herbs, spices, roots, wood shavings, and a wide variety of agricultural products to the exact desired finished particle size.

#### Applications

- Alfalfa
- Barley
- Corn
- Planer shavings

- Rye
- Sawdust
- Sorghum
- Soybeans

- Straw
- Wheat
- Spices

#### End Products/Uses

- Agricultural products
- Animal feed
- Boiler fuel

- Cellulosic Ethanol
- Herbs and Spices
- Pellets and Briquettes
- Sizing for packaging

- Pilot scale, 7" (180 mm) width
- 10-30 hp motor
- High speed (3600 RPM), 18" (460 mm) diameter rotor allows for high tip speed
- Hinged door with built-in screen support for easy access, cleaning and maintenance
- Custom built feed chute, discharge chute, and support stand designed to meet your specific feeding and collecting needs
- Optional easy to clean magnet

#### A True Lab Scale Hammer Mill

The rugged, yet compact, gravity discharge Laboratory Scale Hammer Mill from Schutte Hammermill features the same durable construction and long-wearing components of production scale models. Lightweight, low noise and suitable for small production, batch or pilot projects. The 6" and 8" wide laboratory scale mills are capable of processing a variety of materials to a granular or powder consistency with scalable results.

At Schutte Hammermill, we have been designing and manufacturing custom engineered size reduction equipment for more than eighty years, serving a wide variety of industries with installations worldwide. With more than 200 models in our catalog, we take great pride in our ability to match our customer with the correct mill, custom configured to suit their material and production goals.

### Key Features

- Option of replaceable internal wear plates for processing abrasive materials
- Choice of carbon or stainless steel construction
- · Wide selection of four-way reversible hammers
- Numerous, easily changeable screens for the exact desired finished particle size

# Additional Options Include

- Single phase motors
- Variable Frequency Drive
- · Custom designed support stands, infeed and discharge chutes

# Typical Installations Include

- Pilot plants
- University labs
- Government testing facilities

#### Ruggedly built to outperform and outlast its competitors

Low speed (1,800 RPM) meets high production in the nearly full circle screen coverage of the 44" diameter rotor of our 44 series mill. The 44 Series Circ-U-Flow hammer mill is designed for very high production grinding of a wide variety of products. The nearly full circle screen translates to a larger screen open area, allowing the highest possible production rates on materials that do not require initial grinding against a breaker plate. Suitable for either gravity or pneumatic evacuation.

#### Applications

- Alfalfa
- Barley
- Corn
- Herbs and Spices
- Planer shavings

### End Products/Uses

- Agricultural products

- Rye
- Sawdust
- Sorghum Soybeans

#### Wheat

- Hogged wood scrap
- Dry wood chips
- Green wood chips
- Landscape mulch
- Playground cover

- Animal feed
- Biodiesel
- Boiler fuel

- Cellulosic ethanol
- Pellets and Briquettes
- Sizing for packaging
- Animal bedding

# Key Features:

- Six mill widths (13", 17", 24", 30", 48" and 60"); Also available in custom sizes.
- Low speed (1,800 RPM) rotor assembly with four-way reversible hammers.
- Screen discharge areas from 1,375 to 6,600 square inches.
- Optional ribbed plate attrition zone. ٠
- Dual directional rotors.
- Optional rotary feeders, de-stoners and magnets. •
- Variety of screen sizes from 3" to .020".
- Easy access to mill's interior through dual access doors.
- Optional side liner plates for moderately abrasive materials.
- Propriety screen cradle for easy removal and insertion.

Straw

# Ruggedly built to outperform and

The high-speed 24 Series Circ-U-Flow hammer mill is designed for mid-range production grinding of a variety of products. The nearly full circle screen translates to a large screen open area and thus the highest possible production rates on materials that do not require initial grinding against a breaker plate. Suitable for gravity or pneumatic evacuation.

# Applications

- Alfalfa
- Barley
- Corn
- Oats
- Planer shavings
- Rye

- Sawdust
- Sorghum
- Soybeans
- SpicesStraw
- Wheat

- Hogged wood scrap
- Planer shavings
- Dry wood chips
- Green chips
- Sawdust

### End Products/Uses

- Agricultural products
- Animal feed
- Biodiesel
- Boiler fuel
- Cellulosic ethanol

- Pellets and Briquettes
- Sizing for packaging
- Boiler fuel conditioning
- Wood pellets
- Wood briquettes

- Biodiesel
- Animal bedding
- Sawdust conditioning
- Landscape mulch
- Cellulosic ethanol

- Available in five standard mill widths (10", 15", 20", 24" and 30") with custom sizes available.
- Screen discharge areas from 600 to 1,440 square inches.
- High speed (3,600 RPM), rotor assembly four-way reversible hammers.
- Variety of screen sizes.
- Dual directional rotors.
- Easy access to mill's interior through dual access doors.
- Optional rotary feeders, magnets and de-stoners.
- Proprietary screen cradle for easy removal and insertion



#### **Compact and Efficient**

The compact and efficient FG Series Dual Stage Ultra Fine Grinding Wood Hammer Mill is designed to produce the finest finish grind from a variety of in-feed materials.

The FG Series features two 13 Series Finish Grinding Wood Hammer Mills stacked one above the other. Ideal for processing hogged wood scrap, planer shavings, sawdust and dry wood chips, the FG Series can produce a finished product of fine sawdust to ultra fine wood four in material that has a moisture content of less than 15%.

The FG Series mills feature integral fan units mounted off of the main shaft of the lower mill which allows for optimal throughput, and conveys the finished product to storage. These fans produce a throughput rate of 300-400% over that of gravity discharge hammer mills.

#### Applications

- Hogged Wood Scrap
- SawdustLight Bark
- Planer Shavings Dry Wood Chips
  - avings

- Space saving stacked design
- Dual rotor assemblies designed specifically for each application
- Internal replaceable ribbed liner plates in both mill hales
- Many hammer styles and screen sizes to choose from

#### **Compact and Efficient**

The compact and efficient FG Series Dual Stage Ultra Fine Grinding Wood Hammer Mill is designed to produce the finest finish grind from a variety of in-feed materials.

The FGZ Series is designed to handle bulky in-feed material while still producing a fine sawdust end product. The mill features an HZF Series Horizontal Trim Scrap Grinder stacked above a 13 Series Finish grinding Wood Hammer Mill. This design allows for coarse wood scrap, rippings, edgings or trim block to be ground to a fine finished particle size in just one pass.

The FGZ series mills feature integral fan units mounted off of the main shaft of the lower mill which allows for optimal throughput, and conveys the finished product to storage. These fans produce a throughput rate of 300-400% over that of gravity discharge hammer mills.

### Applications

- Course wood scrap
- Rippings

- Edgings
- Trim block

- Key Features:
- Space saving stacked design
- Dual rotor assemblies designed specifically for each application
- Internal replaceable ribbed liner plates in both mill hales
- Many hammer styles and screen sizes to choose from



• Lumber

Demolition debris

#### Ruggedly built to outperform and outlast its competitors

The MP Series Single Shaft Shredder is designed for less power usage, minimal dust and reduced manpower requirements. Simply dump your material into the hopper and let the shredder do the work. The low noise, low RPM MP Series is the toughest, most durable machine you can buy for your size reduction needs. Each component was engineered with your needs in mind – from the extra heavy frame, bearings and shaft, to the electrical controls, and more.

#### Applications

- Baled agricultural products
- C&D waste
- E-scrap
- End Products/Uses
- Biofuel feed stock
- Recycling
- Secure data destruction
- Volume reduction

Wood Pallets

Paper & cardboard

Municipal solid waste

- Boiler fuel
- Landscape mulch

- Demolition debris
- Furniture
- Wood scrap
- Volume reduction
- Playground cover

- Choice of 12", 15" and 20" rotor diameter, each standard with four-way reversible tool steel cutting teeth.
- Heavy-duty grates or perforated screens available in many sizes.
- Serrated anvil made from abrasion-resistant steel or heat treated steel.
- Heavy-duty, American made, off-the-shelf, non-customized components (bearings, gearboxes, fluid coupling, controls).
- Programmable electronic system logic with digital read-out.
- Adjustable hydraulic pressures, cycle timing and manual retraction.
- All feed hoppers are custom built to suit application.
- Several optional types of discharge conveying equipment available either pneumatic or mechanical.
- Optional downstream magnets to remove ferrous metal.
- Easily connects to finish grinding hammer mill.



#### Ruggedly built to outperform and outlast its competitors

The Industrial Bark Grinder is a heavily constructed, high production wood grinding hammer mill designed specifically for processing all types of bark and other wood scrap, including stringy, sandy, wet and fibrous varieties. Available in six standard sizes from 20" to 60" widths, Industrial Bark Grinders can process over 50 TPH.

# Applications

- Bark from all types of de-barkers
- Green wood waste

- Large wood chips
- Plywood and MDF scrap
- Pole peelings
- Sawmill scrap

# End Products/Uses

- Boiler fuel
- Landscape mulch
- Playground cover

- Ideal primary grinder for:
  - Pellet production
  - Briquette production
  - Biodiesel production
  - Sawdust
  - Wood flour

- Extra heavy-duty rotor assembly.
- Internal replaceable ribbed liner plates to disintegrate bark fibers.
- Abrasion-resistant components to withstand the inevitable grit associated with bark.
- Four-way reversible hammers designed specifically for bark available in 7/8", 3/8" and other custom sizes and styles.
- Heavy-duty grates or perforated screens available in a variety of sizes.
- Optional fan with internal replaceable fan liner available on smaller models.



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