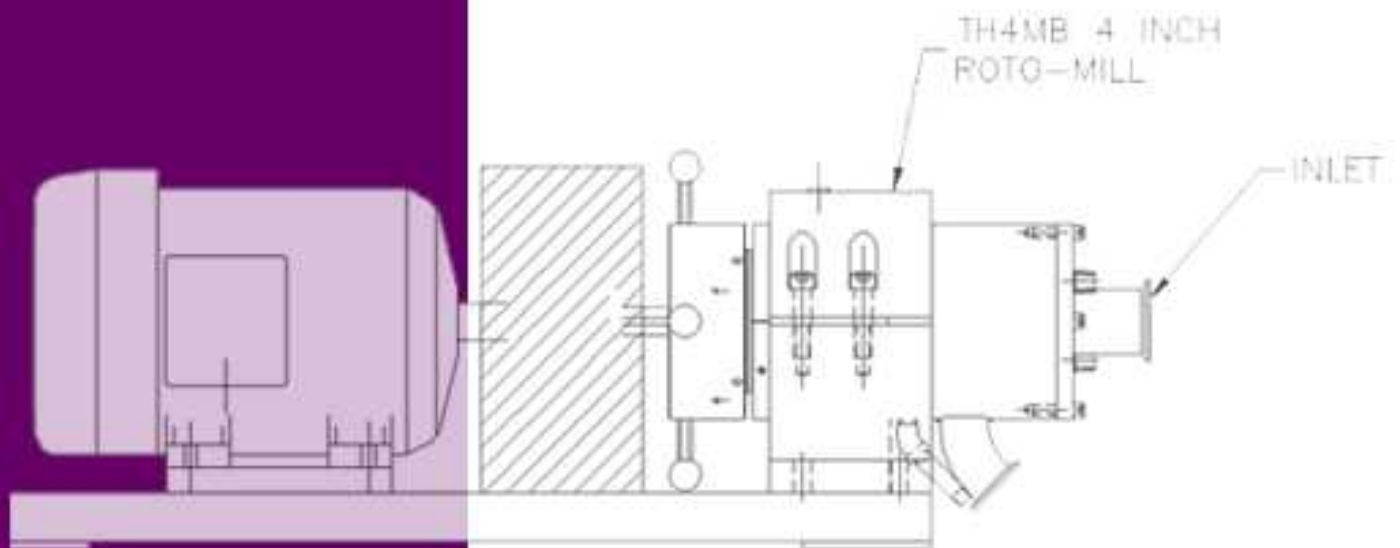


Mixing and Process Equipment

2007 Colloid Mill Catalog

(203) 375-0063

<http://www.sonicmixing.com/>



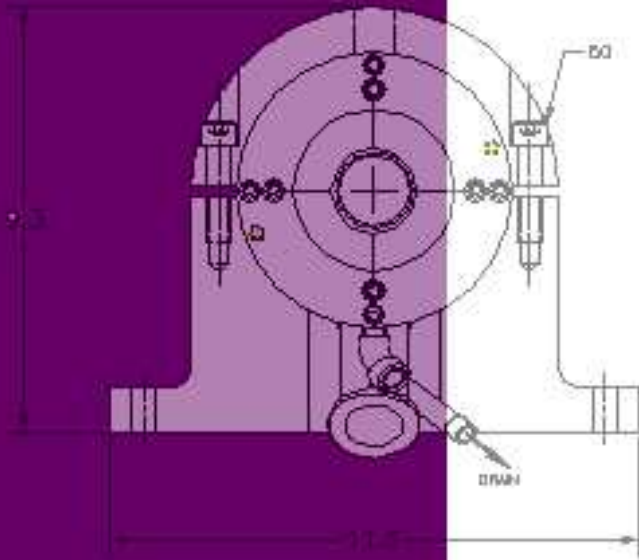
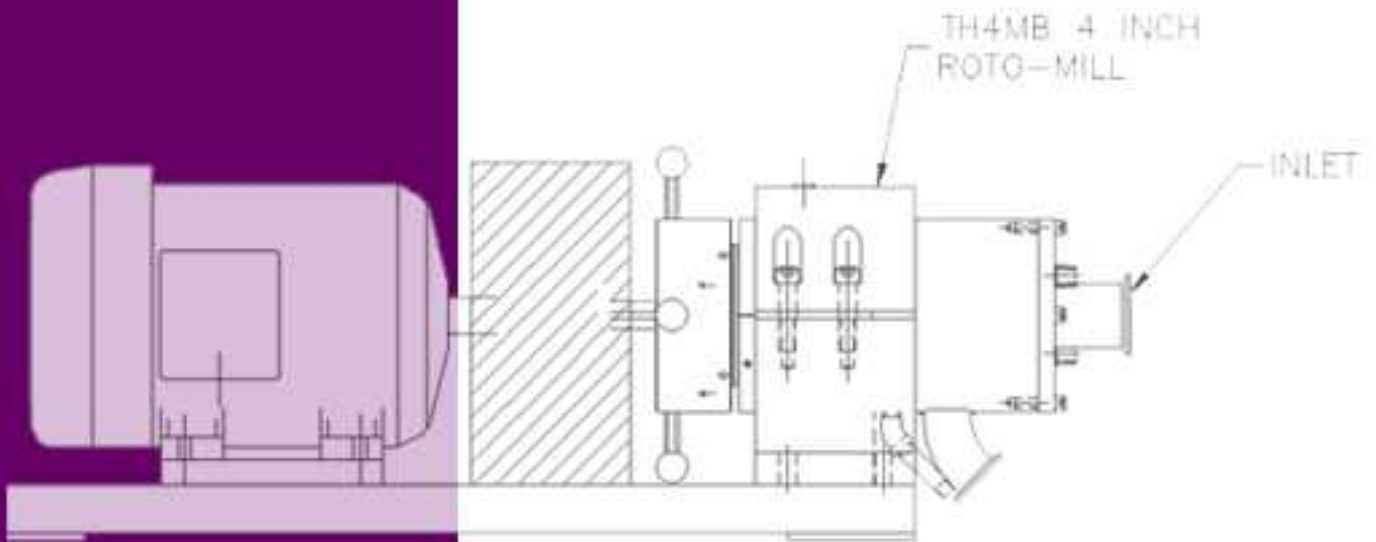


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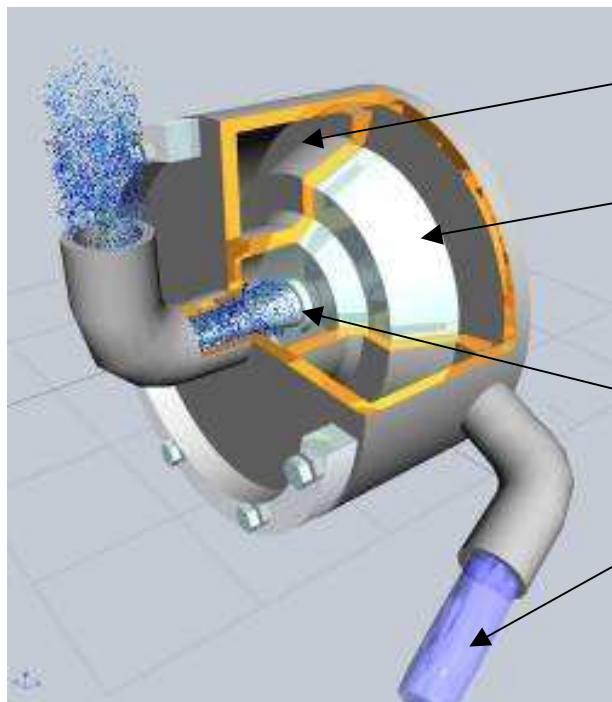
- About Sonic's Colloid Mills
- The Lab and Bench Scale Colloid Mill
- The Production Colloid Mill
- The New 2004 RotoMill
- Mill Applications List
- Rotor/Stator Selection Guide





Sonic Colloid Mills

The Sonic Colloid Mills are designed to provide optimum particle shearing and grinding. Undispersed material is forced into a cavity formed between a spinning rotor and fixed stator; centrifugal force propels the material to the outside of the rotor, causing intense hydraulic shearing and grinding of the undispersed phase. Sonic's rotors are designed with 3 high shear areas to maximize particle disruption.



Insertable Stator w/ large cooling chamber

Rotor; 1500 to 7200 rpm
Engineered w/ 3 angled faces for maximum shear where material is subjected to intense centrifugal force, then cavitation, then extreme grinding

Auger to draw in and pre-treat process material

Finished product ranging from 0.50 and upward

Sizes 2.5 to 12 inch

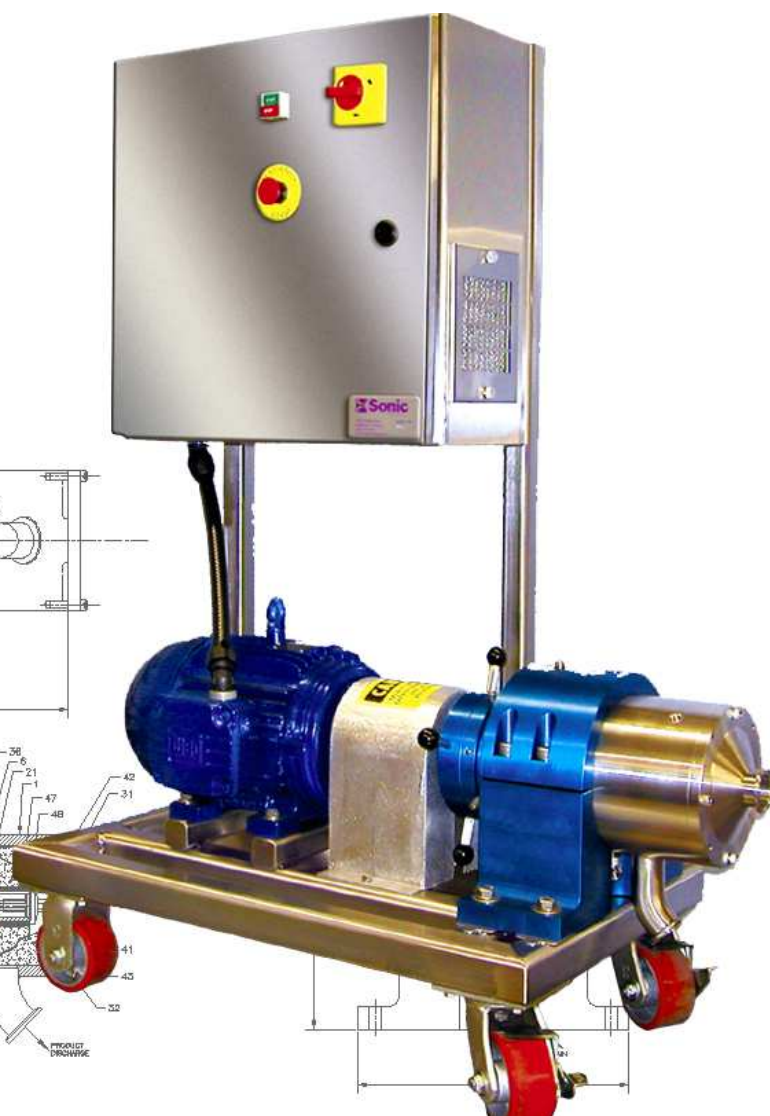
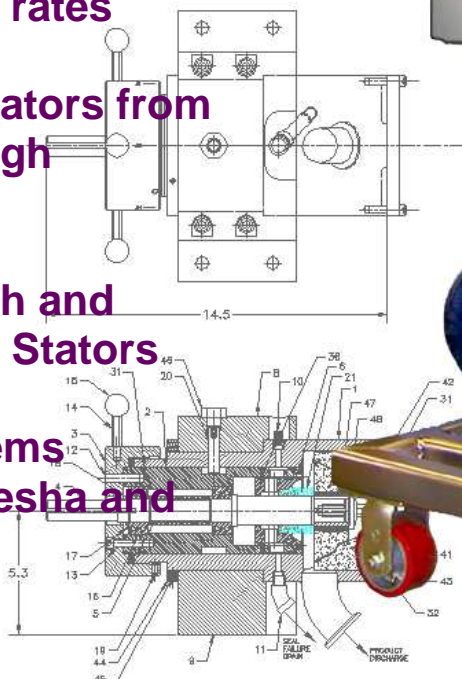
1.5 to 30 horsepower

2 to 1600 gal/hr flow rates

Stone Rotors and Stators from 36 to 120 grit for tough applications

316 stainless Smooth and Serrated Rotors and Stators

Feed Pumping systems supplied with Waukesha and other style pumps



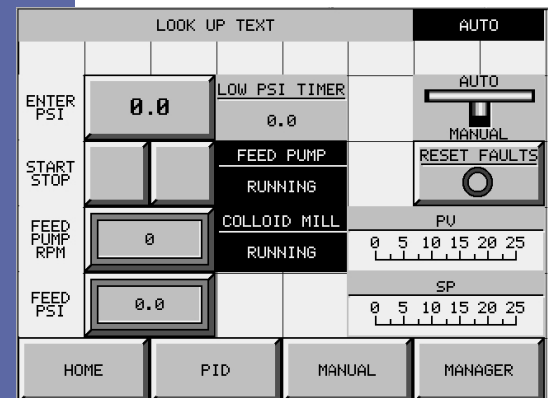


Lab and Bench Top Colloid Mills

As you can see from the chart below, Sonic Colloid Mills are available in various sizes ranging from 2.5 inch rotor size to 12 inch. The smaller 2.5 inch units are suitable for lab uses such as new product trials, reformulation trials and process development. These units fit on a bench top or on a utility cart provided by Sonic.

| Nominal Rotor Diameter | 2.5" | 4" | 8" | 12" |
|--|----------|----------|----------|-----------|
| Motor Horsepower | 1.5 HP | 5 HP | 15 HP | 30 HP |
| Approximate Weight | 150 lbs. | 300 lbs. | 800 lbs. | 1800 lbs. |
| Gravity Flow GPH - Light Viscosity | 3-15 | 15-50 | 50-250 | 300-1000 |
| Gravity Flow GPH - Heavy Viscosity | 2-10 | 10-30 | 40-125 | 200-700 |
| Pressurized Flow GPH - Medium Viscosity @ 50 PSI | N/A | 150-600 | 400-1000 | 800-1600 |

Full PLC Automation



The Complete Package!

Premix Station w/ Feed Pump, Vessel and Lab Agitator

Optional Jacketed Vessel w/ hot water unit for heating to 180 F

Pressure transmitter to regulate feed pressure

**2.5 inch Bench top Colloid Mill
Full PLC Automation w/ Control Screens, Alarms, Parameter Displays, etc.**

Lab Utility Cart





Production Colloid Mills

The Sonic Production Colloid Mills provide excellent process efficiencies by using 3 phases of shear and grinding per pass, allowing the mill to accomplish great results in a single pass. Sonic works with the customer to provide a mill and/or system with feed pump, tanks, valves and controls that suits your needs.



Complete 316 stainless steel design including motor shaft

Rotor designs with 316 stainless smooth and serrated faces

36-120 grit stone rotor designs for tough applications

Flush mechanical seals available for clean applications where product makes no contact

Sanitary process connections available



Sonic's InitMix Systems

Complete system package to meet your process needs right out of the box. System includes:

Premix Vessel w/ heating/cooling
Production Colloid Mill
Complete PLC Automation

Used in Food Industry for:

- Mayonnaise
- Sauces
- Salad Dressings
- Chocolate Toppings



RotoMill Design

Back in 2004 we made design enhancements to our RotoMill Colloid Mill, which was the most exciting thing happening in colloid mill technology. It's streamline design boasts several features that make it stand out. It has enhanced stability and performance coupled with improved maintenance characteristics.

A Better Colloid Mill for the Industry!



- **Grease and Lubricants**
- **Asphalt Emulsions**
- **Wax Emulsions**
- **Clay Compounds**
- **Latex Emulsions**
- **Pigments and Dyes**

Robust bearing chamber houses 3 heavy-duty bearings at both ends of the rotating shaft; this provides more stability and longer life

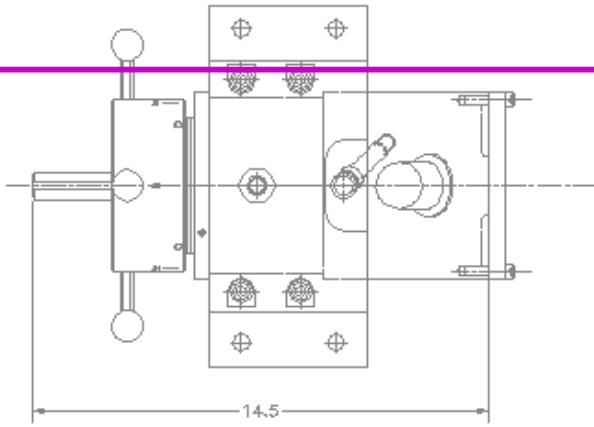
Bearing chamber is removable allowing easier access and maintenance

Available with double mechanical seals and flush mechanical seals for clean operations

3 stage milling rotor/stator design subjects material to 3 levels of centrifugal force and cavitation in a single pass

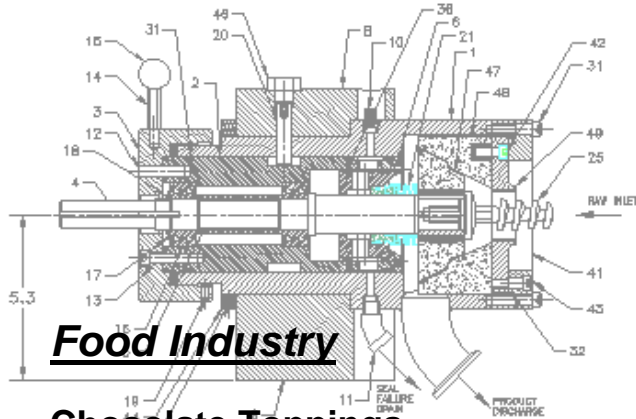
Insertable stator piece creates larger cooling chamber and reduced spare costs

Sonic Colloid Mill Applications



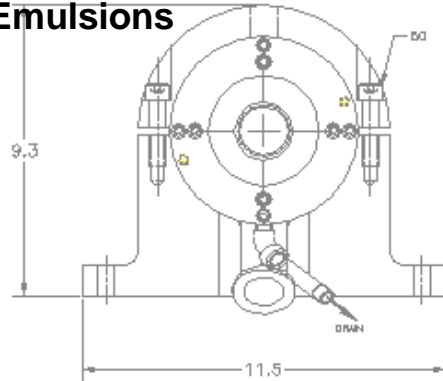
Chemical Industry

- Asphalt Emulsions
- Bitumen Dispersions
- Clay and Graphite Dispersions
- Greases
- Latex Emulsions
- Lubricants
- Pigment and Dye Dispersions
- Wax Emulsions



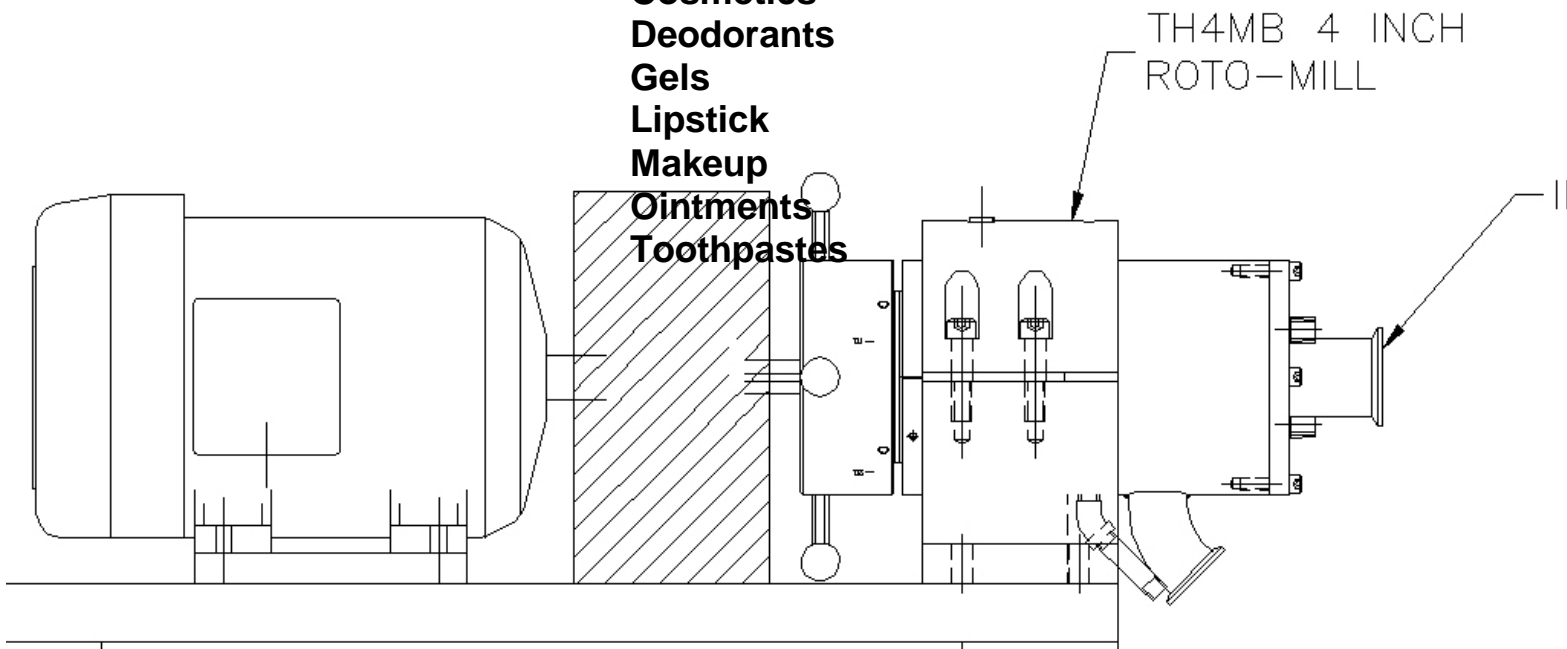
Food Industry

- Chocolate Toppings
- Mayonnaise
- Mustards
- Peanut Butter
- Salad Dressings
- Sauces & Gravies
- Puddings
- Cocktail Mixes



Personal Care Industry

- Creams and Lotions
- Cosmetics
- Deodorants
- Gels
- Lipstick
- Makeup
- Ointments
- Toothpastes



SELECTING ROTORS & STATORS FOR YOUR



Stone

Abrasive stone rotors and staters are recommended for maximum grinding when shedding or product absorption is not critical or deleterious to the product. They produce the finest particle size and somewhat cooler product, and they are the least expensive to replace. The standard material is aluminum oxide. Silicone carbide is available as an option for solids that are more abrasive or have a harder Mohs rating than aluminum oxide. Aluminum oxide has a Mohs rating of generally 8 or 8.5, silicone carbide is a 9, as compared to diamond, which is a 10. Different grits are available, ranging from rough (60-80 grit) to fine (120 grit). Widely used in paint and ink manufacturing, these rotors and staters are most effective when milling hard abrasive slurries. Because they are inexpensive to replace, it is also feasible to use stone in a variety of one-time applications where small particle size is required, such as in the production of pharmaceuticals.

Ni-Resist

These nickel-iron alloy rotors and staters are effective, longwearing and easy to clean. This material is particularly suited to applications where frequent cleaning is required for change of color or product or for one-machine plants. Ni-Resist rotors and staters can run for indefinite periods at close settings without any operator attention. They are also less susceptible to damage than those made of stone. Ni-Resist is widely used in the production of all kinds of commercial dispersions not requiring the fine particle size achieved with stone and where corrosion is not a problem.

Stainless Steel

Manufacturers of most food, pharmaceutical, and cosmetic products require stainless steel to meet sanitary requirements. In general, stainless steel does not mill as effectively as stone or Ni-Resist, nor is it as economical to use. When starting up, care must be taken to adjust for the expansion, which occurs when the mill warms up to normal operating temperature. Performance can be enhanced by the selection of the proper style of rotor and stator. Smooth and serrated styles are available. Stainless steel is also recommended when working with chemicals with high or low pH because it is corrosion resistant.

For more detailed information or equipment recommendations, please call Sonic at (203) 375-0063