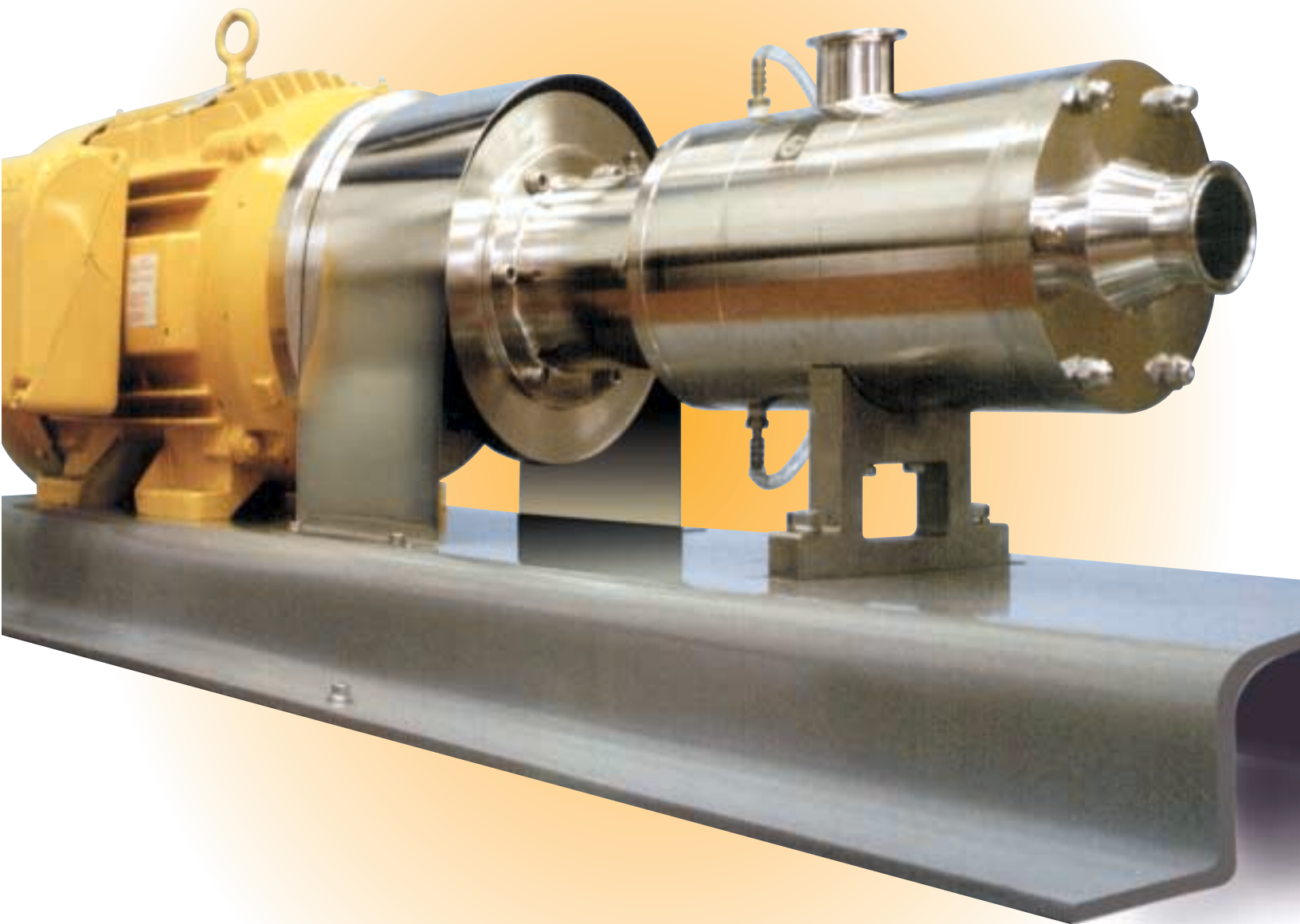


The Boston Shearpump[®]

High Intensity Wet Milling, Homogenizing and Refining



Advanced Mixing Technologies

The Boston Shearpump®

Conventional shearpumps are centrifugal pumps that provide some combination of flow, shear and mixing. They are generally limited to flow capacities under 50 GPM, and have only moderate shear capability. Conventional in-line high shear mixers also provide flow, shear and mixing, with substantially higher intensity and capacity. The Boston Shearpump takes flow, shear and mixing to a completely new level, providing very high throughputs at high to extreme shear rates. The result is a series of in-line emulsifiers and wet mills that mix, disperse, emulsify, pulverize, macerate, crush, reduce solids and particles, and homogenize.

How They Work

All Boston Shearpump products are designed with shear heads comprised of a multi-slot rotor turning at high speeds at close proximity to a multi-port stator. Each shear head has a double ring design providing two stages of mixing at both the rotor and the stator. The medium or mixture to be processed will pass through the first set of rotor slots or teeth, through the first ring of slots on the stator, and further through the second ring of slots in both the rotor and stator. This results in 3 distinct, high intensity work zones at each rotor/stator location. Three shear heads (rotor/stators) will therefore provide 6 mixing stages with 9 high intensity work zones.

What Boston Shearpumps Do Best

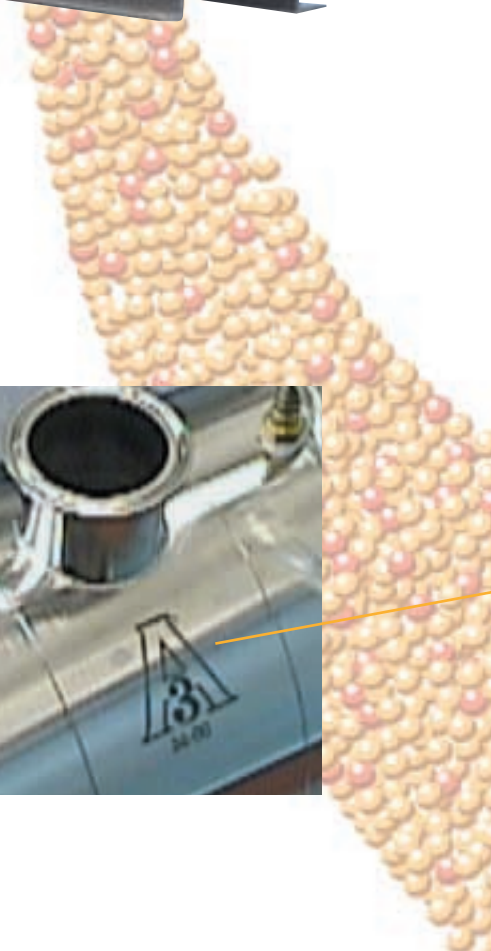
The basic concept of a 2-stage rotor turning inside a 2-stage stator lends itself to a number of tasks, which can be summed up in three main operations:

- **Dispersions and Emulsions**
As the rotor slots pass the stator slots, countless windows are opened and closed every second. The product stream is instantly fractionated. Boston Shearpumps are the fastest and most thorough of all in-line mixers and blenders.
- **Wet Milling**
The shear generated inside the work zone gaps reduce the size of particles or droplets, creating fine suspensions and stable emulsions. Boston Shearpumps do this more efficiently and cost effectively than colloid mills and high-pressure homogenizers for many applications.
- **Maceration and Size Reduction**
When using chopper and ripper grade rotors, solids and large particles are smashed against the blunt insides of the stator slots and shredded by the sharp edges of the rotor.

Extreme Durability

All of this wrenching and crushing invariably causes bumps and jolts and fluctuations of pressure – and usually at very high rates of speed.

Boston Shearpumps are not mere devices to generate flow and shear, but material processing devices intended for much more strenuous workloads.



Inside the Boston Shearpump

While a shearpump or in-line mixer will first and foremost be judged by how well it does its job, it is just as important to the user that the machine is strong enough to work day after day, year after year, with as little need for service as possible. The Boston Shearpump is designed for 24 / 7 operation, through your most critical processing schedules when downtime is not an option.

Combining the well-proven rotor-stator principle with the latest innovations in seal design and bearing support technology, Boston Shearpump's engineers created a series of in-line mixers of deceptively simple but exceptionally durable design. Their goal was a superior piece of equipment which would outperform all others in its class and that would be so rugged that downtime would be reduced to an absolute minimum.

Distinct from all other in-line mixers on these 7 design features:

The Bearings

We use only Super Precision Ball Bearings (ABEC 7) with abundant strength for high-speed work. Unique preloading of each bearing protects against spikes. Running temperature is 100°F or less in operation. Protected by labyrinth seals. Complete bearing assembly installs as a cartridge for easy replacement.

The Motor

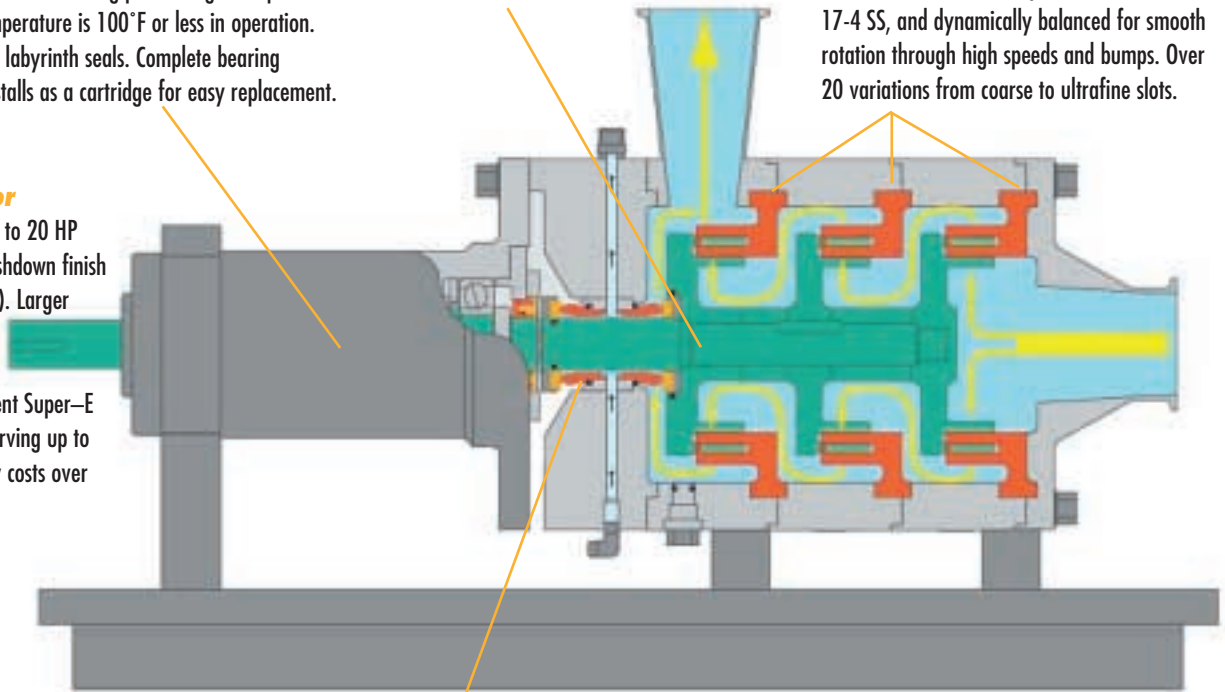
All Motors up to 20 HP feature a washdown finish (white epoxy). Larger motors to 100 HP are Energy Efficient Super-E design, conserving up to 5% of energy costs over a year.

The Shaft

Oversized, hardened 17-4 Stainless. Stout enough to carry three heads, and perfectly balanced for zero run-out.

The Rotor and Stator

Closed slot design prevents twisting and bending for maximum durability, longevity and safety. Machined from massive cylinders of 316L or 17-4 SS, and dynamically balanced for smooth rotation through high speeds and bumps. Over 20 variations from coarse to ultrafine slots.



The Cleanability

All units bear the 3A symbol. All surfaces and welds are machined and polished to a 32 Ra or better. Inside corners and slots have a radius and there are no crevices, deadlegs or open threads.

The Seal

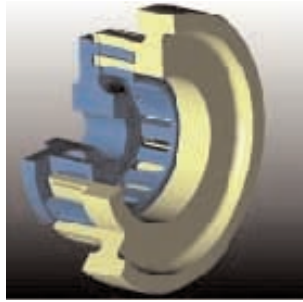
A single mechanical seal rated for 700 PSI with a unique low-pressure cooling loop. Complies with U.S. and European hygienic standards. Double mechanical seal optional.

The Manufacturing Process

Rotor and stator ports have wire-cut radii with computer controlled precision. Double thickness housings for the bearing frame and mixer body are built for a lifetime of use. "Cartridge" design on the bearing frame allows quick replacement for servicing. Even our base is twice the strength, weight and rigidity than necessary.



Effective and Versatile Rotor/Stator Technology That Gets Results



The rotor (in blue) spins within the fixed stator (in gold) with less than a .010" gap between faces.

Processing of slurries with heavy solids, pulp, skin, seeds, fat, or bone fragments, with the ability to easily transition to refined, ultra-smooth stable emulsions, takes a wide spectrum of mixing technology. The Boston Shearpump and Shearmill are available with eight distinct rotor and stator designs, which can be configured in various combinations to provide maximum effectiveness. Whatever design is chosen, you are assured that your process will be 100% dispersed, emulsified, crushed, refined or homogenized. Our triple head configuration allows a progression from coarse to ultrafine rotor/stators, with multiple options for cutting, crushing, grinding and chopping, in between, if desirable.



Coarse through Ultrafine Rotor/Stators

Hard Working Shear Heads. Take a close look at a typical rotor or stator and you will see how the inner ring of each has a different number of slots from the outer ring. Not only are they working hard at the tight gap between the rotor and stator, but within each rotor or stator between the shear rings. From the 30 slots in our coarse heads to the 120 slots in our ultrafine, our shear heads fine-tune your product to improve consistency, yields, and quality.



Max Shear from the Shearmill Rotor/Stators

Our Ultrafine rotors and stators provide the highest shear rates at the highest tip speeds, providing ultra smooth dispersions and emulsions. Where product refinement is at it's most critical, and particle or droplet sizes in the 1 micron range are absolutely essential, the Shearmill rotors and stators get the job done.



Special Purpose Rotors/Stators

Whether your making salsa or mashed potatoes, film emulsions to paper coatings, we have a unique series of special purpose shear heads, providing low shear where necessary, or extra chopping or grinding when that is called for. We offer 17-4Ph Stainless Steel shear heads for high abrasion applications. Electropolish and 400 grit finishes provide maximum sanitation. Our "whisper" slot design reduces sound levels, while our "round port" design provides higher throughputs for coarser solids.



Performance and Versatility

The Boston Shearpump is available in 3 distinct series (illustrated in the tables below) which show the wide range in capacity, power consumption, and tip speed allowing the best results for your particular process:

Compact Shearpump™ Series

Model	Tip Speed	Throughput	Motor / Speed	Fittings	Footprint
BSP 24C	41 FPS (12.5 MPS)	10-30 GPM	7.5-15 HP/3600 RPM	2" In/2" Out	24"x14"x14"H
BSP 60C	94 FPS (28.6 MPS)	40-165 GPM	25 HP/3600 RPM	3" In/2" Out	32"x18"x14"H

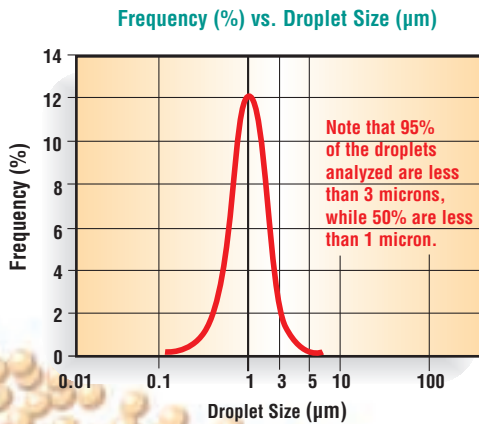
Boston Shearpump® Series

Model	Tip Speed	Throughput	Motor / Speed	Fittings	Footprint
BSP Turbo 25	115 FPS (35 MPS)	5-15 GPM	15 HP@10000 RPM	1.5" In/1" Out	32"x18"x14"H
BSP Turbo 37	115 FPS (35 MPS)	15-50 GPM	25 HP@7100 RPM	2" In/2" Out	36"x26"x24"H
BSP Turbo 60	94 FPS (28.6 MPS)	40-165 GPM	50 HP@3600 RPM	3" In/2" Out	66"x20"x30"H

Boston Shearmill™ Series

Model	Tip Speed	Throughput	Motor / Speed	Fittings	Footprint
BSP 37M	130 FPS (39.6 MPS)	15-25 GPM	40 HP@8000 RPM	2" In/2" Out	36"x26"x24"H
BSP 60M	125 FPS (38.1 MPS)	40-100 GPM	75 HP@4800 RPM	3" In/2" Out	66"x20"x30"H
BSP 80M	125 FPS (38.1 MPS)	50-300 GPM	150 HP@4500 RPM	4" In/3" Out	72"x24"x22"H

Performance Curve



Performance Table

BSP 24C	HIGH VISCOSITY		LOW VISCOSITY							
	HIGH VISCOSITY		LOW VISCOSITY							
BSP 25	HIGH VISCOSITY		LOW VISCOSITY							
	HIGH VISCOSITY		LOW VISCOSITY							
BSP 37	HIGH VISCOSITY		LOW VISCOSITY							
	HIGH VISCOSITY		LOW VISCOSITY							
	5	10	15	20	25	30	35	40	45	50

BSP 60	HIGH VISCOSITY		LOW VISCOSITY							
	HIGH VISCOSITY		LOW VISCOSITY							
BSP 80	HIGH VISCOSITY		LOW VISCOSITY							
	HIGH VISCOSITY		LOW VISCOSITY							
	50	100	150	200	250					

*Throughput is shown in gallons per minute (GPM)



The Boston Shearpump®

To discover how the Boston Shearpump® can improve your existing mixing and milling challenges, consult the www.shearpump.com or www.admix.com websites. Application bulletins as featured below, along with sizing and processing tips, are available in PDF format for immediate access.



The Boston Shearpump® is a Registered Trademark of Admix Inc., and is part of the Admix family of Sanitary Mixing, Blending and Processing Equipment. Our companion products are as follows:

ROTOSTAT®
EMULSIFIERS

ROTOMIXX®
SANITARY BATCH MIXERS

Rotosolver®
DISPERSERS

DYNASHEAR®
IN-LINE HIGH SHEAR MIXERS

VacuShear®
SANITARY VACUUM LIQUI-PROCESSOR

Admixer®
SANITARY STATIC BLENDERS

BenchMix™
PROGRAMMABLE HIGH SHEAR LAB MIXERS

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