



GEMCO[®]
An ISO 9001 Company

PRODUCT BULLETIN

MAGNETIC COUPLING

INTRODUCING THE REVOLUTIONARY PATENT PENDING, MAGNETICALLY COUPLED, SEALLESS AGITATOR SYSTEM



The Magnetic Coupling Agitator System is a revolutionary, patent pending magnetically coupled, sealless agitator system designed to eliminate the traditional packing around an agitator shaft.

Essentially, one donut-shaped magnet spins inside the trunnion on the shaft from the motor and pulleys. A second, larger donut-shaped magnet is placed inside the blender and mounts around the first one. The blender wall is stationary and continuous between the two magnets. As the inner magnet turns, its magnetic field turns the outer magnet which connects to and turns the agitator blades at the same tip speeds as conventional blenders—1,650 fpm low speed, 3,300 fpm high speed and 5,000 fpm ultra high speed.

A Magnetic Coupling Agitator System virtually eliminates the possibility of batch to batch cross contamination as there are no hang up points for material as well as reduces maintenance costs and downtime due to routine packing changes. Having a seal welded barrier also allows the Magnetic Coupling Agitator System in sterile applications and steam sterilization/pressure/vacuum applications.

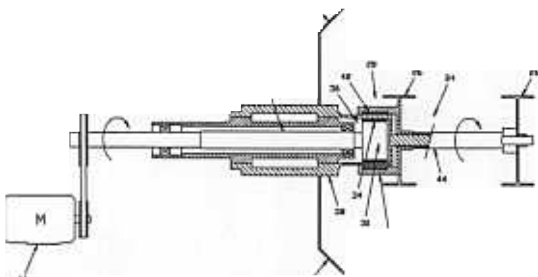


Call: 800 OK GEMCO (800-654-3626) 732-752-7900

Fax: 732-752-5857 Email: sales@okgemco.com Website: www.okgemco.com

FEATURES

- Eliminate Seal Maintenance
- Virtually Eliminate Cross Contamination
- Eliminate Vented Covers With Their Blinded Vents, Fugitive Dust To The Room And Associated Maintenance And Cleaning
- Capable Of Sterile Processing Including Steam Cleaning
- Totally Sealed, Totally Enclosed Processing Vessel With Agitation
- Easy Assembly/Disassembly For Cleaning
- No Product Hold-Up
- Safety Interlocks For Coolant Flow And Coolant Temperature
- Designed To Always Exceed Motor Torque Capability To Ensure Rotation
- Extended Agitator Shaft Bearing Life With No Possibility Of Product Contamination
- Can Go In An Asme Rated Pressure Vessel For Operation At Elevated Pressures For High Temperature Steam Sterilization
- Product Contact Materials Of Construction Are 316 Stainless Steel, Hastelloy, Teflon And Other FDA Approved Plastic and Elastomers
- Easy Hand-Crank Magnet Puller Included For Disassembly
- VFD Included For Agitator Motor To Limit Torque To Ensure Constant Coupling
- Air Or Water Cooled Heat Exchangers Available
- Clean Interior With No Product Hang Up Inside For Blending Without The Agitator As The Process Requires
- Same Tip Speeds As Conventional Blenders—1,650 FPM Low Speed, 3,300 Fpm High Speed And 5,000 FPM Ultra High Speed



FREQUENTLY ASKED QUESTIONS

Can the magnets “jump” or “slip” so that the internal agitator is not going as fast as the drive indicates?

No. The drive is designed to limit the torque of the motor so that it can, at no time, exceed the coupling force of the magnets. Each system includes a VFD for the agitator motor that is programmed to limit the torque output to stay within safe torque levels for the magnet set involved.

How hot will the vessel wall get from the inductive heating? The system is designed that the surface of the vessel interior between the magnets (where all the inductive heating occurs) will get no hotter than 30° F above the cooling water provided for the heat exchanger. If 70° F tap water is provided to the heat exchanger, then the maximum surface temperature in the vessel wall between the magnets will be 100° F. If 60° water is provided, the maximum temperature is 90° F; etc.

What happens if my cooling system fails? The agitator motor control circuit is connected in series with two sensors. The first is a flow switch. After a start-up delay of about 10 seconds, the flow switch must see coolant flow or the agitator motor will shut down. The second sensor is a temperature limit switch. A temperature limit switch is installed in the coolant line leaving the agitator. That switch is adjusted to the requirements of the process. If it is set a 110°F and that limit is exceeded, the agitator motor is again shut down. Alarms are optional. Lights are provided on the control panel to show which sensor tripped.

How does this sealless agitator eliminate the requirement for a vented cover and limit potential worker exposure to the product? With traditional agitators the addition of work energy heats the product and the air inside the blender causing an increase in pressure. If there is no relief for that pressure build-up, it will force powder past the seals and packing into the bearings potentially causing significant damage and maintenance problems. With no seals to be overcome by the pressure, seal the unit and let the blender pressure rise. (Gemco can provide an ASME coded vessel for severe applications.) When the batch is done, vent the pressure directly to the plant dust collector via a small optional ball valve on the cover before discharging the product. Eliminating the vented cover eliminates fugitive powders that get through the filter causing worker exposure issues and eliminates the maintenance issues of changing and disposing of the filters themselves.

What if I typically add liquids through my agitator bar? The seal less design eliminates a liquid passage through the agitator but Gemco offers the Airless Spray option to provide a stationary spray nozzle above the powder with significant other advantages as well to provide for liquid addition. Ask for more details.

Can I run straight tumble blends without the agitator installed? Yes. The agitator is easily removed and just leaves the smooth center projection which does not interfere with blending efficiency.

Gemco - The General Machine Company of New Jersey

301 Smalley Avenue, Middlesex, NJ 08846 800-OK Gemco (800-654-3626) 732-752-7900 Fax: 732-752-5857

Email sales@okgemco.com Website www.okgemco.com

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