

REVERSIBLE HOMOGENIZER

**SHEAR-ADJUSTABLE
DUAL MODE MIXER**



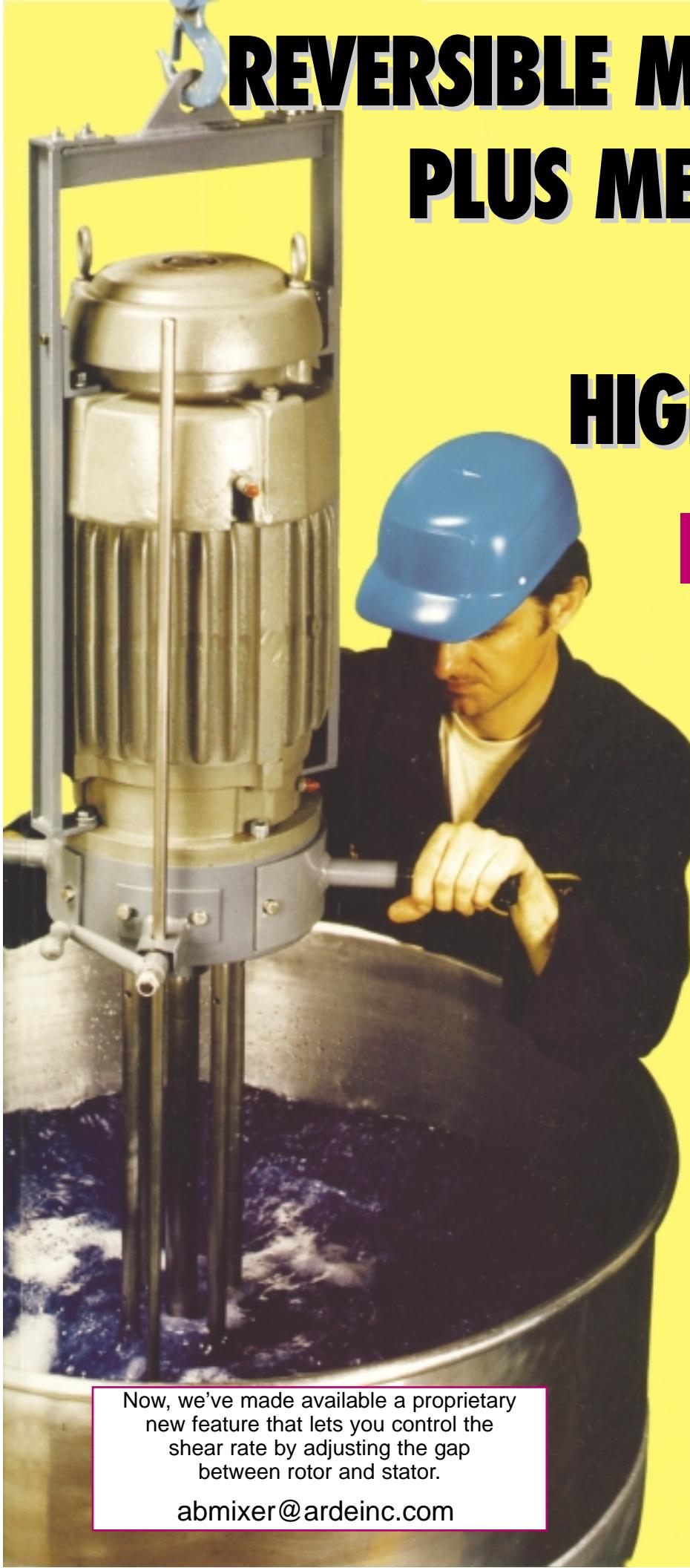
Model CJ-50 is the newest Reversible Homogenizer and is available with an optional, adjustable rotor/stator gap.

**TWO MIXING ACTIONS AND
AN ADJUSTABLE ROTOR/STATOR GAP
PROVIDE MAXIMUM SHEAR AND EFFICIENCY**

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REVERSIBLE MIXING ACTION PLUS MEASURED FLOW THROUGH A HIGH-SHEAR ZONE



Now, we've made available a proprietary new feature that lets you control the shear rate by adjusting the gap between rotor and stator.

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Compare Axial-Flow Mixers with Radial-Flow Mixers.

The Arde Barinco Axial-Flow Reversible Homogenizer provides consistent, measured flow through its high-shear zone. Standard radial flow mixers use total flow calculated with optimistic assumptions.

Not the precision most process engineers require.

For more than 30 years, process engineers in the chemical, food, cosmetics, pharmaceutical, textile and coatings industries have relied on the Reversible Homogenizer from Arde Barinco. Its high-shear axial flow and highly efficient dual mode process **disperses**, **emulsifies**, and '**wets out**' powders and re-suspends settled solids. And it works in a fraction of the time it takes ordinary mixers.

ADJUSTABLE SHEAR

With a simple adjustment, you set the gap between rotor and stator exactly where you want it: tighten it for the highest shearing rates of any batch rotor/stator on the market. This creates a degree of precision that produces colloid mill-type results from a rotor/stator batch mixer.

TRUE REVERSIBILITY

Other mixers may claim to be reversible, but their radial impellers simply push the mixture sideways, regardless of which direction they turn. The Arde Barinco Reversible Homogenizer offers true reversibility.

The Reversible Homogenizer's efficient, axial flow impeller creates two distinct mixing actions, depending on direction. Downward *Vortex* flow pulls in solids that tend to float on top and pushes off solids that settle on the bottom. The upward *Umbrella* flow ensures thorough control of the mixing at the highest shearing and recirculation rates without splashing or incorporating air.

REMARKABLY EFFICIENT

The Reversible Homogenizer's incredible efficiency comes from a hydrodynamically optimized pumping design that provides higher recirculating rates through a far wider range of viscosity profiles. In addition, every model utilizes close-clearance zones to provide a combination of intense mechanical and hydraulic shear forces.

Because the Reversible Homogenizer works faster than conventional mixers, you increase throughput without increasing operating costs. Why run two standard mixers when one Reversible Homogenizer can do the job?

There's a wide range of Reversible Homogenizers available, from the lab-size CJ-4C to the high-volume C-5-3. Each mixes materials in a wide range of viscosities, and each outperforms competitive mixers — even those with higher power requirements.



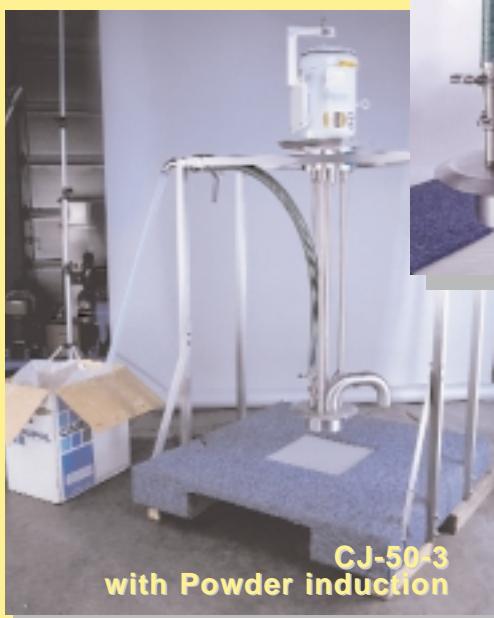
CJ-4D Bench-top mixer with Powerlift for effortless "push-button" raising and lowering capability.



CJ-4D with PowerLift



C-3-2 A 20 hp 60" immersion model provides 905 gpm flow through the High-Shear zone.



CJ-50-3 with Powder induction

CJ-50-3 With Powder-Induction Device shown with induction tube drawing a carbomer powder directly out of a container bag.

Closeup of powder inlet shows parallel liquid supply 180 degree feed tube.

REVERSIBLE HOMOGENIZER

Specifications

Model	HP	Rotor Diameter	RPM	Tip Speed	Flow, Water, Upward mixing mode	Immersion Depth
CJ-4D	0.75	1.88"	10,000	4,920 ft/min	88 gpm	16"
CJ-4BX	0.5	1.88"	8,000	3,935 ft/min	63 gpm	16"
CJ-20-1	2 - 3	4.00"	3,600	3,665 ft/min	200 gpm	24"
CJ-20-2	2 - 3	4.00"	3,600	3,665 ft/min	200 gpm	33"
CJ-20-3	2 - 3	4.00"	3,600	3,665 ft/min	200 gpm	45"
C-1-1	5 - 7.5	3.88"	3,600	3,655 ft/min	235 gpm	33"
C-1-2	5 - 7.5	3.88"	3,600	3,655 ft/min	235 gpm	45"
C-1-3	5 - 7.5	3.88"	3,600	3,655 ft/min	235 gpm	60"
CJ-50-1	5 - 7	6.00 "	3,600	5575 ft/min	575 gpm	33"
CJ-50-2	5 - 7	6.00 "	3,600	5575 ft/min	575 gpm	45"
CJ-50-3	5 - 7	6.00 "	3,600	5575 ft/min	575 gpm	60"
CJ-75-1	7 - 10	6.25 "	3,600	5800 ft/min	735 gpm	33"
CJ-75-2	7 - 10	6.25 "	3,600	5800 ft/min	735 gpm	45"
CJ-75-3	7 - 10	6.25 "	3,600	5800 ft/min	735 gpm	60"
C-2-1	7 - 10	5.00"	3,600	4,710 ft/min	464 gpm	33"
C-2-2	7 - 10	5.00"	3,600	4,710 ft/min	464 gpm	45"
C-2-3	7 - 10	5.00"	3,600	4,710 ft/min	464 gpm	60"
C-3-1	15 - 25	5.75"	3,600	5,400 ft/min	905 gpm	45"
C-3-2	15 - 25	5.75"	3,600	5,400 ft/min	905 gpm	60"
C-3-3	15 - 25	5.75"	3,600	5,400 ft/min	905 gpm	85"
C-5-1	25 - 50	6.50"	3,600	6,120 ft/min	1,730 gpm	45"
C-5-2	25 - 50	6.50"	3,600	6,120 ft/min	1,730 gpm	60"
C-5-3	25 - 50	6.50"	3,600	6,120 ft/min	1,730 gpm	85"

Product Contact Parts: Standard Type 316 stainless steel. Alternative materials, abrasion-resistant models, and all FDA accepted materials also available.

Mixing Head Bearing/Sleeve: Rulon bearing with stainless steel sleeve. Abrasion-resistant sleeve and Stellite bearing or Bronze bearings also available.

Motors, Models CJ-20 and larger: Explosion-proof, Class I, Group D or TEFC: 3-phase, 60 Hertz, 230-460 volts or 575 volts. Variable speed invertors available.

Sealed Top Entry and Bottom Entry

For mixing in sealed tanks, vacuum vessels or pressurized reactors, Arde Barinco can build a reversible Homogenizer for you.

Using your specific processing parameters, we'll design and manufacture a sealed, top-entry or bottom-entry unit that uses the exact same high-shear mixing head as those used in open vessels.

Flange-mounted designs can be equipped with double mechanical seals for elevated pressures and vacuum or economical lip seals for lesser requirements.



Buy With Confidence

As with all our products, Arde Barinco will let you find out if the Reversible Homogenizer is right for you by putting it through its paces at our fully-equipped testing facility. You're under no obligation to buy; just give us your production requirements and we'll be happy to run capabilities tests.

If you do decide to buy an Arde Barinco product, you'll get free technical support for the life of the machine — fast, friendly service drawing on more than four decades of mixing experience.

Reversible Homogenizers Perfect for a Variety of Uses

Chemical

- Dispersing filter press cake
- Pre-grinding agricultural flowables
- Dispersing abrasive catalysts
- Dissolving resins and elastomers
- Producing wax emulsions
- Acid Reaction of LS Surfactants

Coatings

- Dissolving friable resins into solvents for binder
- Pre-dispersing pigments
- Microencapsulating ink for carbonless paper
- Dissolving resins for clear top coat products

Personal Products

- Dispersing Carbopol® for hair gels
- Emulsifying oil/water phases for creams and lotions
- Dispersing titanium dioxide and zinc oxide sunscreens

Food

- Dispersing xanthan gum and other stabilizers in sauces
- Dissolving Aspartame and pectin for bottled beverages
- Emulsifying low-fat salad dressing
- Preparing fine grain flavor emulsions for spray drying

Pharmaceutical

- Microencapsulating therapeutic agents
- Emulsifying topical preparations
- Emulsifying diagnostic agents
- Dispersing zinc oxide

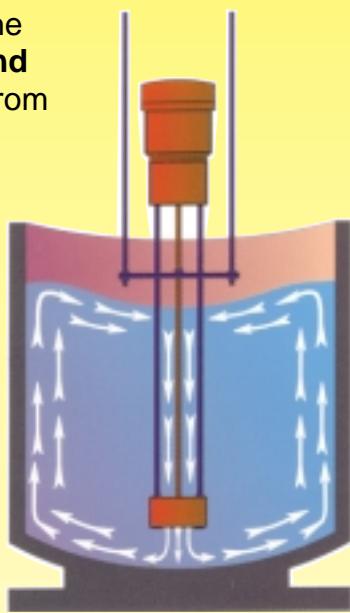
DOES THE WORK OF TWO MIXERS

The Arde Barinco Reversible Homogenizer features two distinctly different mixing actions: the upward "umbrella" flow and the downward "vortex" flow. This two-stage process ensures uniform mixing top to bottom, from centerline to centerline.

Downward "Vortex" Flow

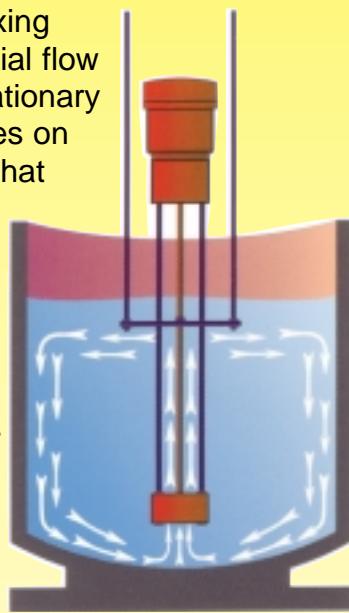
Pulls powders down from the surface of the liquid into the high-shear mixing head **and** also blasts settled solids from the bottom of the mixing vessel.

Difficult, floating or agglomerating powders are quickly drawn in and "wetted out". Heavy solids are positively pushed off the bottom and re-suspended.



Upward "Umbrella" Flow

Produces high velocity flow through the high-shear mixing head where an efficient axial flow impeller meshes with a stationary housing. The flow impinges on an adjustable baffle plate that continuously deflects the upward flow to the sidewall and back through the high-shear zone. By immersing the baffle plate, surface turbulence and air incorporation can be eliminated, even when operating at the high speeds required for fine dispersion and emulsification.



A TYPICAL MIXING PROCESS CONSISTS OF FOUR STEPS:

- Step 1 Run the mixer in the vortex mixing mode as you pour ingredients into the tank. The downward action pre-wets and pre-shears even the most hard-to-wet solids that tend to float and sweeps the bottom clean of dense solids that tend to settle.
- Step 2 Next, adjust the height of the baffle plate and run the mixer in the umbrella mode to perform the bulk of the mixing task.
- Step 3 Switch back to vortex mode to push off any solids that have settled on the bottom.
- Step 4 Use the umbrella mode once again to disperse the solids pushed up in Step 3.

Reset the Shear to Suit the Application.

With a simple adjustment, you set the gap between the Reversible Homogenizer's rotor and stator. The mixer rotor/stator components do not have to be disassembled to complete this adjustment.

- Set the gap as tight as 125 microns for maximum shear.
- Back it off to $\frac{1}{16}$ inch for easier applications.
- Or set it anywhere in between for the perfect balance.



ARDE BARINCO...

Innovation, Precision and Our Commitment to Help You Improve Your Process
With Advanced Mixing Technology

Arde Barinco is a subsidiary of ARDE Inc., one of the nation's leading aerospace manufacturers and a key participant in the nation's space program. Our parent company's background in metallurgy, precision manufacturing and quality assurance forms a unique background for ARDE Barinco and its mixing technology.

Our engineering, manufacturing, quality and product support programs draw on these qualifications. You'll find them reflected in our per-

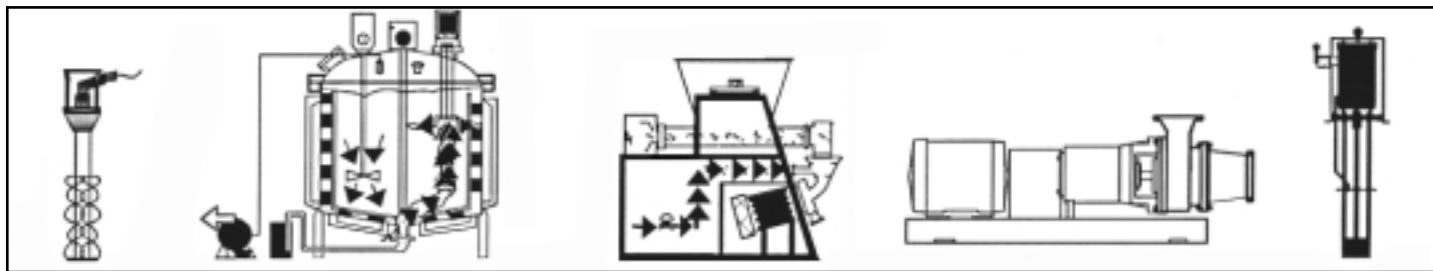
formance -- durable, reliable products and fast, customer-oriented technical support.

Equipment To Meet Your Needs

We're specialists in finding solutions to mixing problems -- and we bring a wide range of mixing technologies to bear. Our standard product line includes specialized equipment to mix hard-to-wet dry solids into fluids and to create fine-grain emulsions (droplet sizes of 1-2 microns).

We're ready to meet your needs with:

- Low Shear Solids/Fluid Dispersers ● Reversible Homogenizers
- Continuous In-Line Mixers ● Batch Processing Mixers ● Sanitary Mixers ● High-Viscosity Mixers
- Multi-Viscosity, Multi-Shear Mixing Systems with Comprehensive Process Analysis Capabilities
- Propellor Mixers ● Axial and Radial-Flow Turbines ● Anchor-Scraped Surface Agitators



Test Facilities and Rental Machines to Assure Your Satisfaction

We're committed to total customer satisfaction. The ARDE Barinco mixers in our 2,000 square foot pilot test facility are fully equipped to measure significant process parameters such as viscosity, solid particle size distribution, liquid emulsion droplet size distribution, percent solids, density, power consumption, pH, RPM, temperature, amperage draw, shear rate and shear stress.

On-line digital monitoring allows us to provide continuous, real-time feedback on many of these parameters. We'll videotape tests and demon-

tions to provide a visual record -- to give everyone in your operation a firsthand look at the process.



Our full inventory of rental equipment, available in most commonly used configurations, allows us to provide mixers for short-term use, to allow you to test them in your plant.

All ARDE Barinco equipment is sold with free lifetime technical support. If you have any questions or require assistance, we're always available.

Need more information? Contact us today.

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