

# CAVITRON

## REACTOR SYSTEMS



**AN EFFICIENT ALTERNATIVE  
TO HIGH-SHEAR  
PISTON HOMOGENIZERS**

**ARDE BARINCO** INC.

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# HIGHER THROUGHPUT FROM A SMALLER MACHINE

**C**avitron reactor systems are based on kinematic high-frequency technology. This revolutionary process is remarkably efficient, enabling Cavitron systems to handle throughputs that used to require much larger machines.

## NOZZLE TOOLS

↓ provide the highest-frequency shearing effect. Rotor and stator openings can be as small as 500 microns.

Cavitron tools consist of a series of concentric rings, or chambers. As the medium enters the center chamber, it is compressed at a rate of up to 10 bar. One one-thousandth of a second later the chamber opens, and the medium “explodes” outward into the next chamber. A series of nozzles breaks down the medium as it passes from chamber-to-chamber. These nozzles can be as small as 500 microns (.5mm), and the rotor/stator segments can meet up to 500 million times per second.

## A VARIETY OF APPLICATIONS

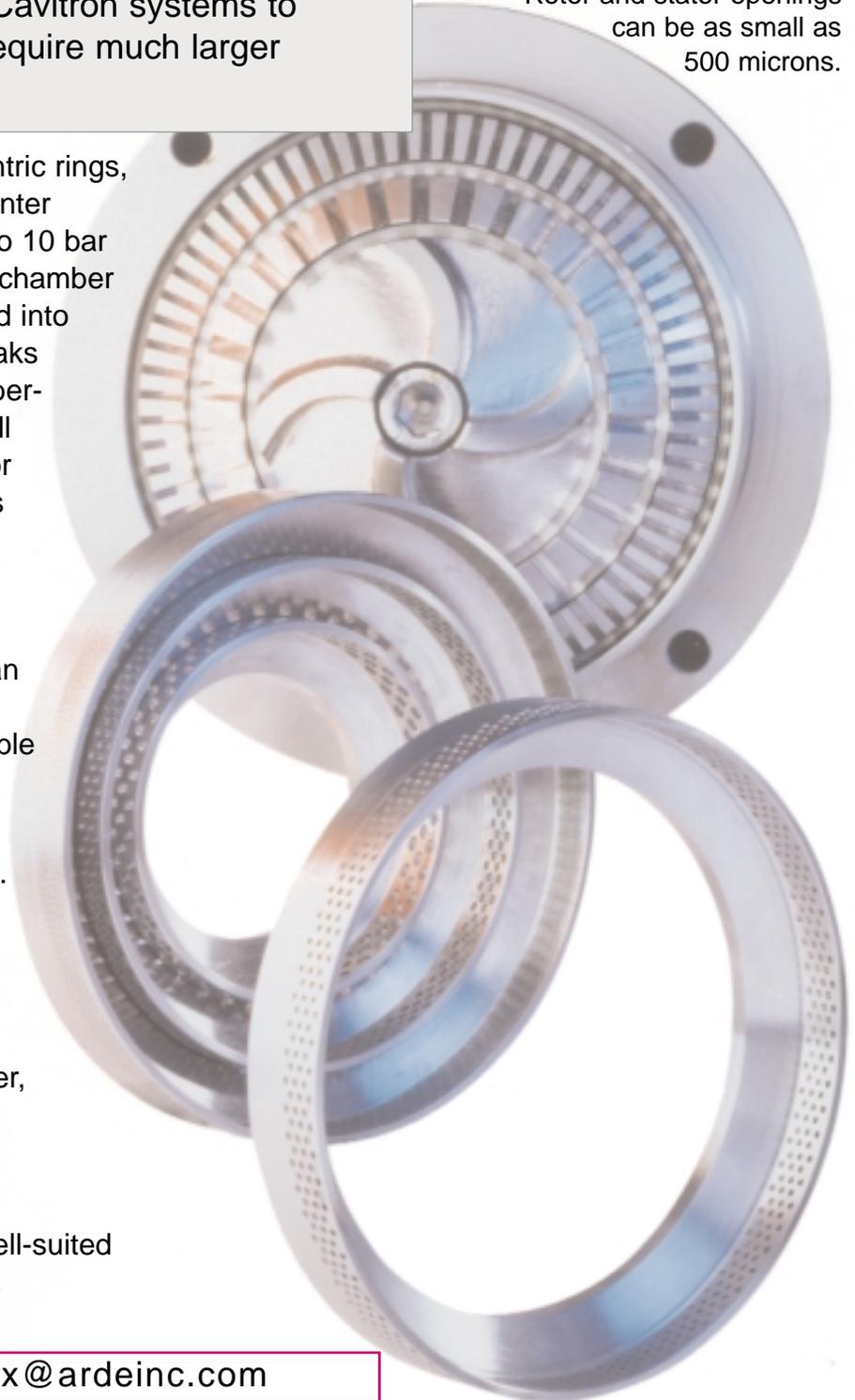
Free of rheological restrictions, Cavitron can process solid, liquid, gaseous, fibrous and pasty media. That makes it widely applicable in a variety of industries.

**Pharmaceutical** - Produce fine-grain emulsions down to sub-micron droplet size. Precise control makes Cavitron the perfect choice for critical chemical reactions.

**Food** - Applications include decomposition of hops for brewing, homogenization and refining of cocoa, and emulsification of butter, margarine and mayonnaise. Cavitron can also be used for enzymatic reactions and dispersion during fermentation.

**Biotechnology** - Cavitron technology is well-suited for cell disruption and liposome production.

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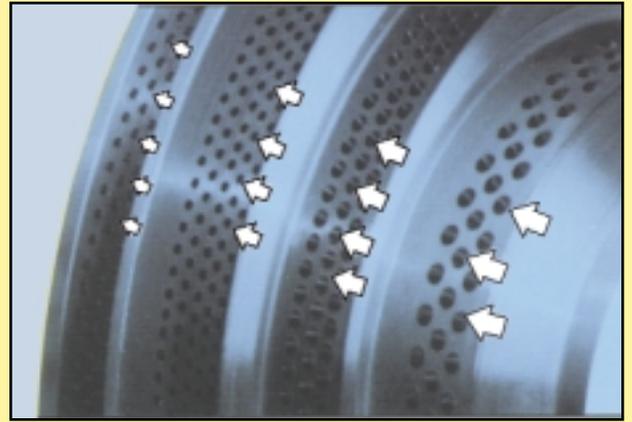


## APPLICATIONS (continued)

**Chemical** - Producing chemical reactions in a Cavitron system can significantly decrease undesirable side reactions of hazardous chemicals such as furans and dioxin.

**Cosmetics** - Process fine-grain creams and lotions, including those containing liposomes, and evenly disperse pigments.

**Paper** - Cavitron can be used for de-fibering and de-flaking, and to optimize the dispersion of TiO<sub>2</sub>.



As the medium passes outwardly, it is broken down by a series of tiny nozzels that decrease in size from chamber-to-chamber.

## AVAILABLE IN A WIDE RANGE OF SIZES

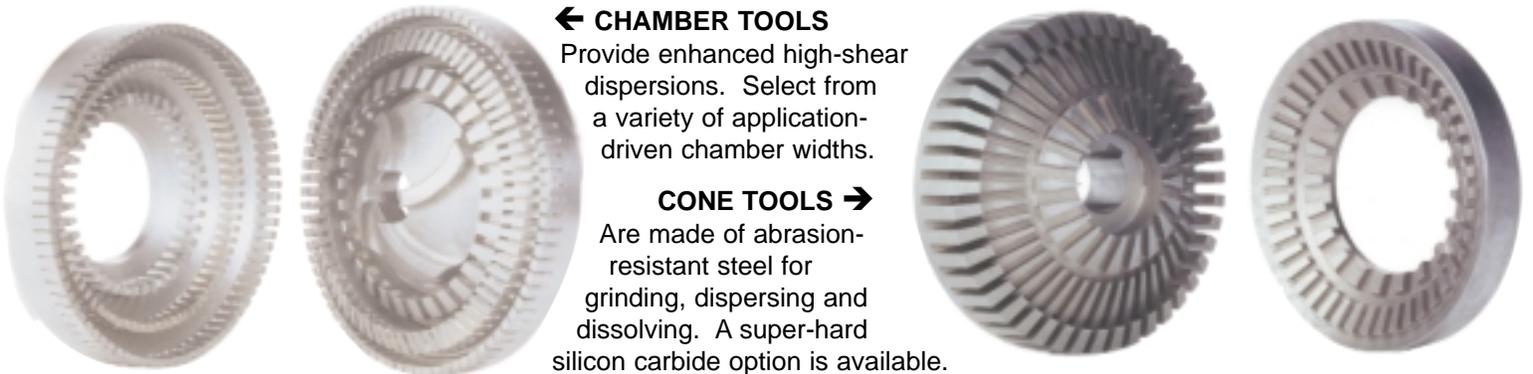
| MODEL   | TOOL    | CAPACITY (GPM) | POWER     | MAX. RPM |
|---------|---------|----------------|-----------|----------|
| 1008    | Chamber | 0.2 - 3.5      | 1.5 - 10  | 13000    |
| 1010.06 | Nozzle  | 0.2 - 3.5      | 1.5 - 7.5 | 13000    |
| 1020    | Nozzle  | 4 - 66         | 10 - 40   | 7500     |
| 1020.06 | Nozzle  | 2 - 25         | 10 - 40   | 7500     |
| 1025    | Chamber | 4 - 66         | 10 - 50   | 7500     |
| 1030.06 | Nozzle  | 4 - 50         | 10 - 50   | 6000     |
| 1035    | Cone    | 10 - 176       | 10 - 60   | 6000     |
| 1048    | Chamber | 20 - 240       | 40 - 175  | 3600     |
| 1050    | Nozzle  | 20 - 220       | 40 - 175  | 3600     |
| 1050.06 | Nozzle  | 20 - 130       | 40 - 175  | 3600     |
| 1060    | Cone    | 20 - 260       | 40 - 175  | 3000     |
| 1070    | Chamber | 100 - 375      | 75 - 300  | 2200     |
| 1090    | Cone    | 130 - 440      | 75 - 300  | 2200     |

### ← CHAMBER TOOLS

Provide enhanced high-shear dispersions. Select from a variety of application-driven chamber widths.

### → CONE TOOLS

Are made of abrasion-resistant steel for grinding, dispersing and dissolving. A super-hard silicon carbide option is available.



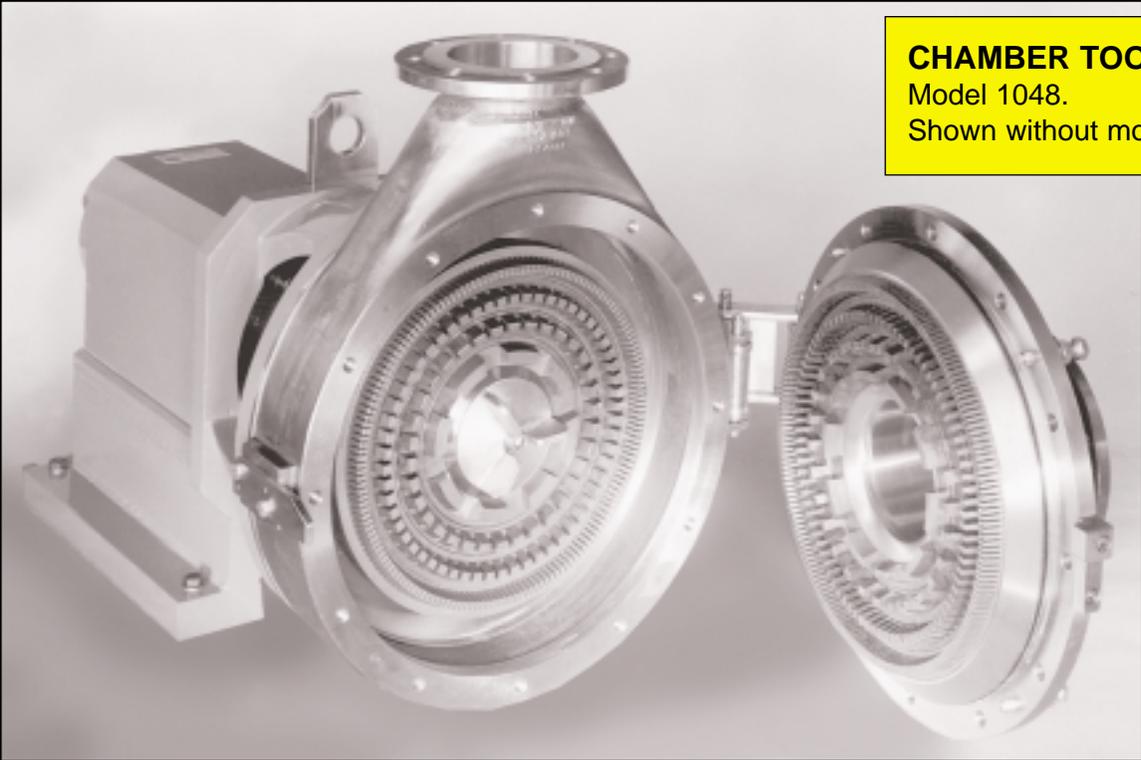
## Buy With Confidence

As with all our products, Arde Barinco will let you find out if the Cavitron Reactor System 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.

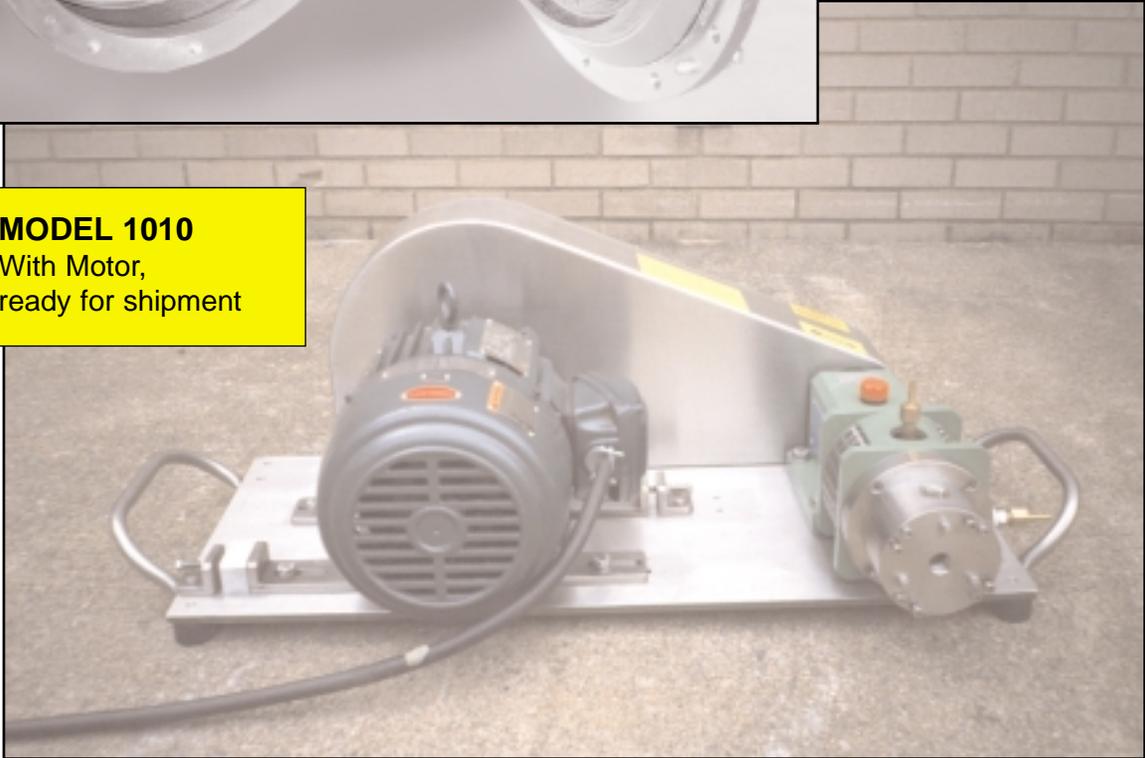
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# CAVITRON Reactor Systems



**CHAMBER TOOL**  
Model 1048.  
Shown without motor

The image shows a stainless steel chamber tool, Model 1048, which is a large, cylindrical vessel with a flanged top and a hinged lid. The lid is open, revealing a complex internal structure of concentric rings and a central mixing element. The tool is shown without its motor.



**MODEL 1010**  
With Motor,  
ready for shipment

The image shows the Cavitron Model 1010 reactor system, which includes a motor and a control panel. The motor is a large, grey, three-phase motor with a cooling fan. The control panel is a green, rectangular unit with a pressure gauge and a handle. The entire system is mounted on a stainless steel base.

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# 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-

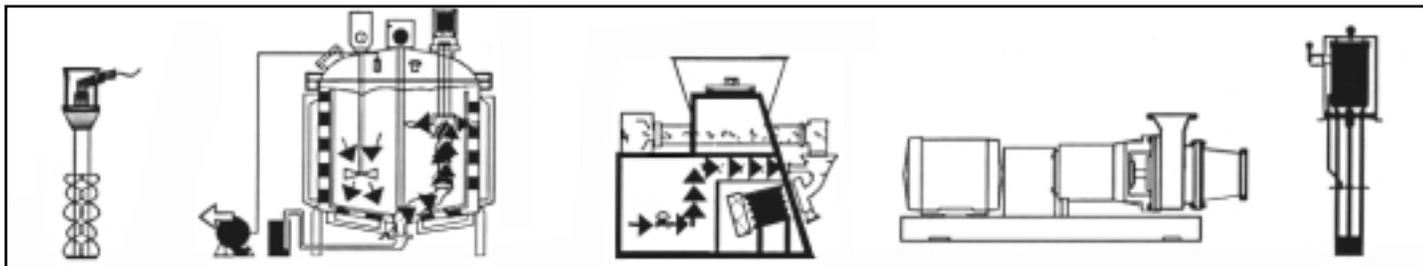
formance -- durable, reliable products and fast, customer-oriented technical support.

## 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 demonstra-

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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