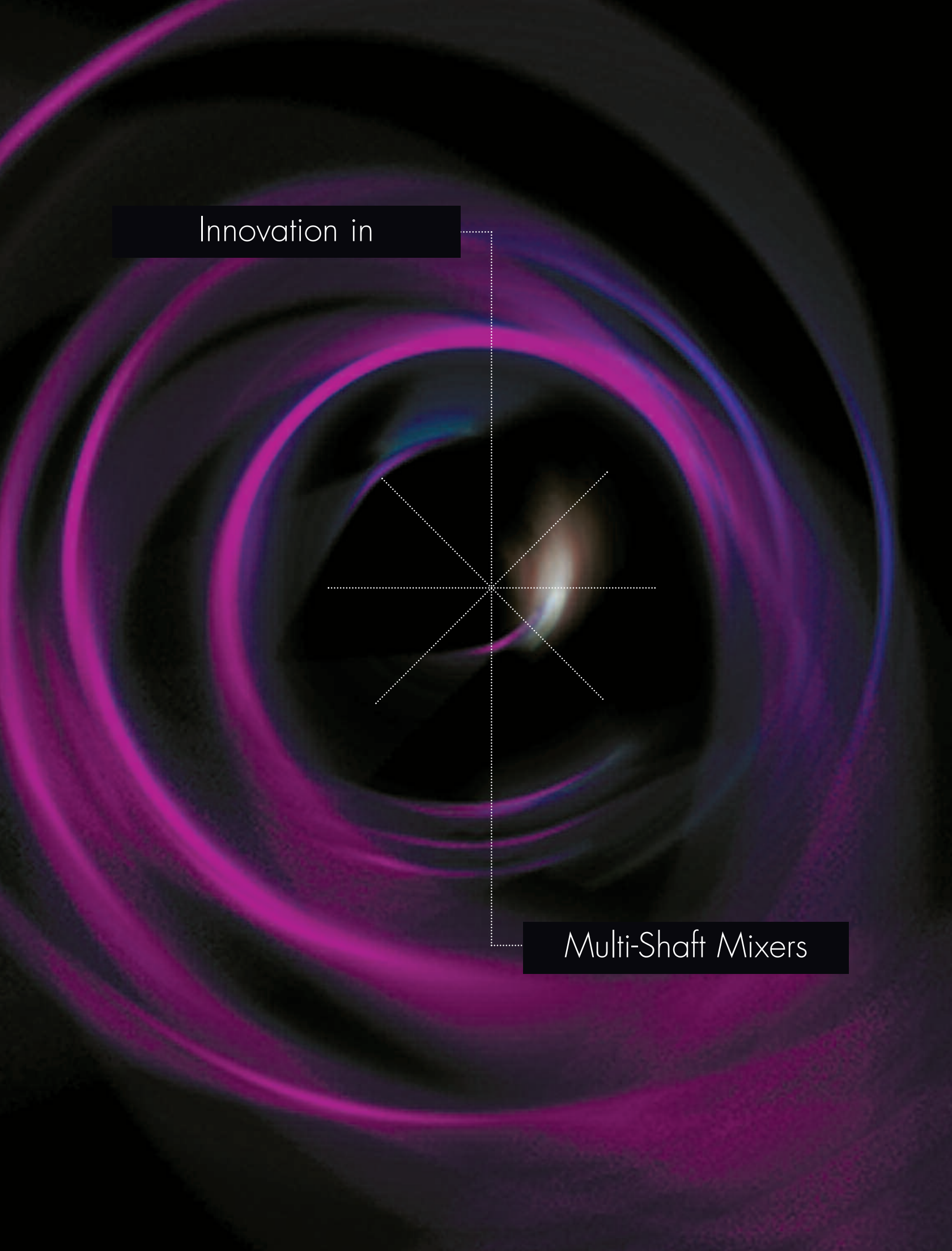

Innovation in
Multi-Shaft Mixers

Ross Multi-Shaft Mixers

THE WORLDWIDE STANDARD FOR DESIGN AND INNOVATION

Ross is the leading manufacturer of Multi-Shaft Mixers and has been since we introduced the original Multi-Shaft Mixer over 80 years ago. Today, Ross operates five plants in the USA, along with Ross owned plants in China and India. Ross can deliver a combination of economy, productivity and fast delivery that no other company can match.

The Ross family of multi shaft mixers includes sizes from 1/2 - gallon to 4000 gallons capacity– and a multitude of options to meet the needs of most industrial applications.

THE WORLD'S LARGEST INVENTORY OF MIXERS IN STOCK FOR FAST DELIVERY

Our multi-million dollar inventory of mixers and blenders is your ultimate assurance that you can have the equipment you need, when you need it. Test on your own process line or in our Test and Development Center – before you purchase.







THE ROSS DIFFERENCE – INNOVATIVE DESIGN AND FABRICATION

Take a close look at a Ross Dual or Triple Shaft Mixer. You will see that all multi-shaft mixers are not the same. Ross design innovations – like the use of special dry running seals for sanitary applications, or a lubricated bushing system for the rotor stator mixer – give Ross customers a terrific advantage. All Ross Multi-Shaft Mixers are built with generous shaft supports to eliminate the concern over maintenance issues. Our engineering and fabrication facilities are uniquely equipped to handle the job, at a reasonable cost, for standard or complex designs.

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The Ross Difference

DUAL OR TRIPLE SHAFT DESIGNS TO FIT YOUR EXACT PROCESSING NEEDS

We offer Dual and Triple Shaft designs to meet your specific process requirements. Our economical Dual Shaft design includes a conventional high speed disperser and a two wing anchor agitator. This configuration is ideal for straight forward dispersion and mixing applications.

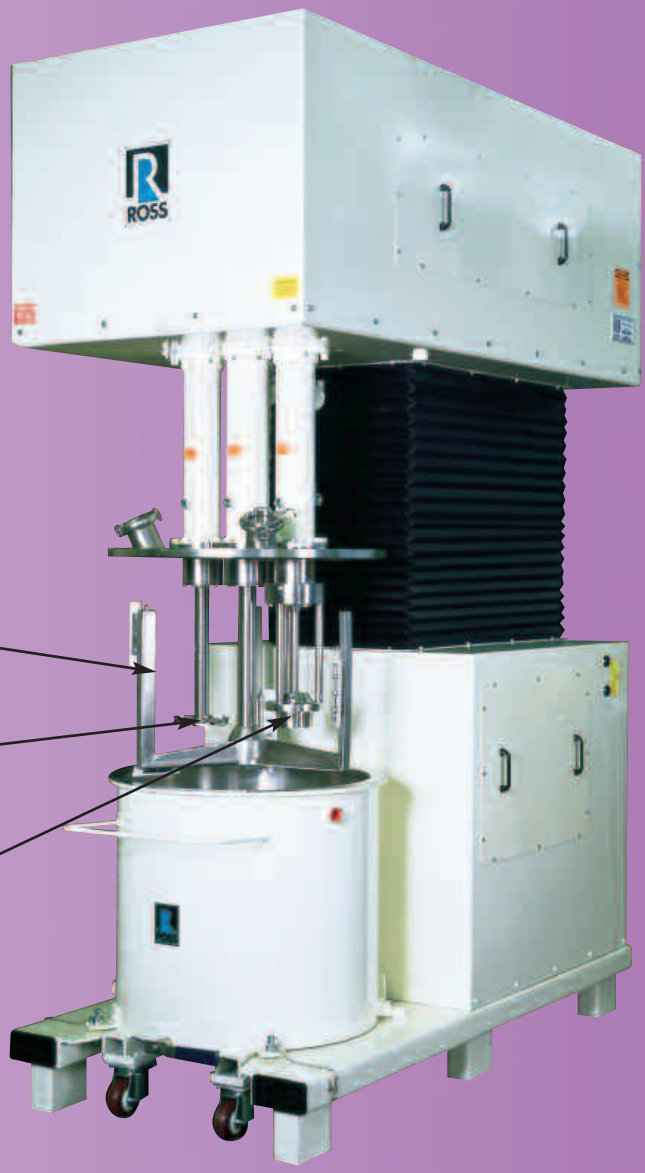
The Triple Shaft design extends the operating range of this product line by adding either a high shear rotor/stator mixer, or a second high speed disperser. The addition of a high shear rotor/stator mixer adds the capability of emulsifying and homogenizing products that require higher shear to reduce the size of the particles being mixed.

The Dual Shaft and the Triple Shaft designs are available in standard or sanitary configurations. They can be customized to meet any special process considerations such as vacuum or pressure operation.

The Ross Multi-Shaft Mixer is a proven design to meet the changing requirements of today's major process industries.

Ross Multi-Shaft Mixers are tailored to suit the individual process demands of customers manufacturing products that range from low to high viscosity. This is possible by selecting the best combination of the three agitation systems offered with this mixer.

Models are available in fixed tank and change-can designs. Change-can units are built through 1000 gallons capacity whereas fixed tank models are available to 4000 gallons capacity. An extensive range of design combinations, horsepower selections and optional features are available with each mixer.

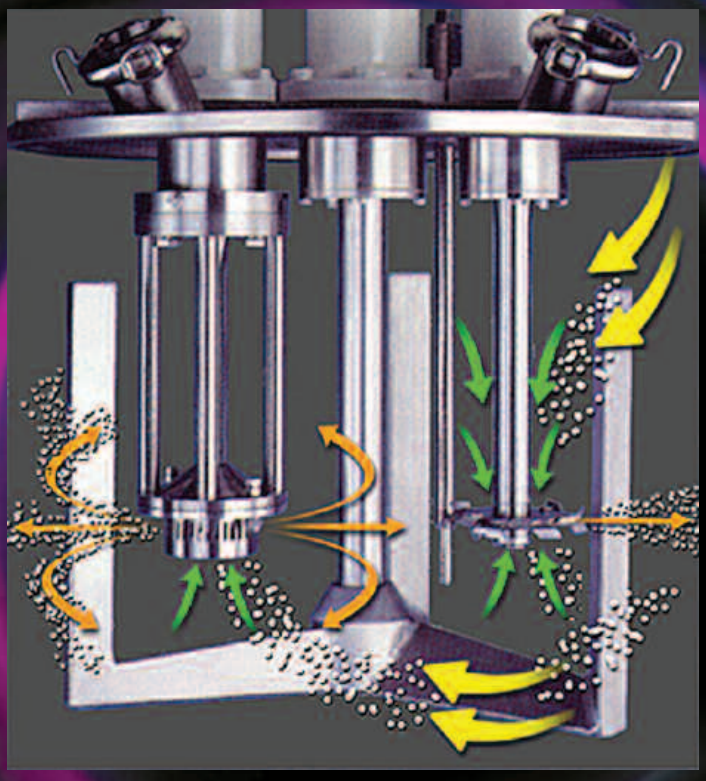


Three Wing Anchor Agitator
Provides movement of materials to high speed mixers

High Speed Disperser
Disperses solids into viscous liquids

High Shear Rotor/Stator Mixer
Used for products that require very fine dispersions and emulsification

MODEL VMC-100 VACUUM MIXER



The three separately driven agitators work in concert with each other to produce a thorough mixture of all product components.

When all three agitators are used, the mix cycle is usually shorter when compared to dual shaft models.







High Shear Rotor/Stator Mixer

The high speed close tolerance rotor and stator provide high shear to all materials being passed through the rotor/stator gap. This intense shearing action is used to reduce particle size for homogenization, dissolution and emulsification. Used alone this mixer is best applied with materials having a maximum viscosity of 10,000 centipoise. In conjunction with the anchor its useful range can be extended to over 100,000 cps.

High Speed Disperser

The conventional dispersion blade is used to disperse solids into viscous liquids that are beyond the viscosity range of the high shear rotor/stator mixer and anchor combination. This mixer is best applied by itself in a viscosity range up to 50,000 cps and in conjunction with the anchor to over a million centipoise.

Three Wing Anchor Agitator

The three wing anchor agitator is designed to provide maximum movement of product under low shear conditions. It moves materials in radial and axial directions to feed the product to the high speed mixer heads. It is also used to improve heat transfer by constantly moving stagnant materials from the interior tank walls. Teflon scrapers attached to the anchor can assist in heat transfer. The shape of the anchor makes it easy to clean between batches.



Model VMC VersaMix

This triple shaft model is ideal for research and development activities. This mixer is available in 1, 2 and 4 gallon sizes. It allows users to develop new products with the confidence they can scale up to production sizes. The mixer is designed with the user in mind with all stainless steel wetted surfaces, also optional features are available such as vacuum construction, a jacket to heat or cool a choice of agitator designs, our two or three wing configuration, or the newest helical design. The mixer controls are built into the mixer housing to permit single point hook up upon receipt of the mixer from the factory.





Model CDA-50, 100 and 200 Gallon Dual Shaft Mixers are normally available in stock for immediate shipment.

They include vacuum hoods for operation to 29-1/2 Hg, and a single post air/oil hydraulic lift system. Our Dual Shaft Mixers are supplied in a wide range of sizes from 1 through 1000 gallons capacity. Mix vessels are available with a jacket to provide heating or cooling and can be mounted on non-sparking caster wheels for ease of movement within the plant. The drives include explosion proof motors and each agitator is independently driven for precise mixing control."





Model CDA-1000 Triple Shaft Mixer

Triple Shaft Mixers above 300 gallons working capacity are supplied in single and dual post hydraulic lift design. Most Multi-Shaft Mixers are supplied with stainless steel wetted parts. The Anchor and two High Speed Dispersers are independently variable speed. The ASME code constructed and stamped jacket is insulated and sheathed in stainless steel. Complete control panels are normally supplied to enable fast start up upon installation.

For further details see specification sheets.

Sanitary Model VMC-40S

This all stainless steel model is ideal for applications that require sanitary construction. The VMC- 40S includes three independently driven agitators – a) Three wing anchor b) High shear rotor stator mixer c) High-speed disperser. This sanitary vacuum design includes controls and a jacket for heating and cooling. Multiple mix vessels enable semi-continuous operation of the mixer. All interior and exterior exposed surfaces are of polished stainless steel construction.



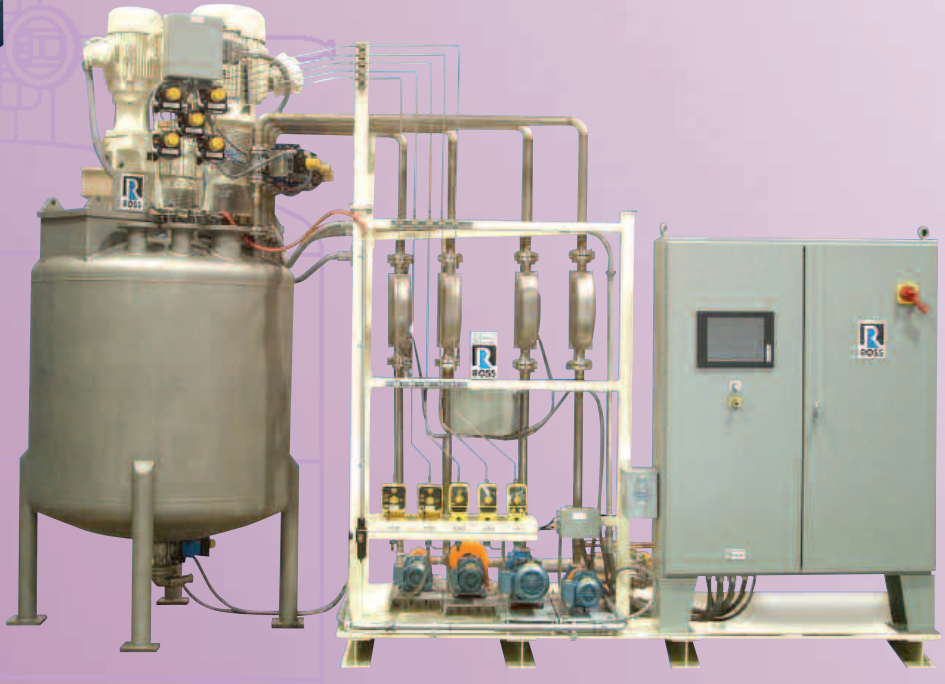


Sanitary Model VMC-200S

Ross is often the manufacturer of choice for those who require the ultimate in design for critical sanitary mixing and dispersion applications. This mixer includes three independently driven agitators. This sanitary design includes vacuum/pressure, CIP and SLIM (Solid/Liquid Injection Manifold) for the subsurface injection of powders and liquids. Multiple mix vessels enable semi-continuous operation of the mixer. All interior and exterior exposed surfaces are of polished stainless steel type 316 construction.

Complete Production System

Complete computerized systems can automate your mixing process and ensure consistency and flexibility. All mixing parameters from individual agitator control to vacuum and thermal control, and raw material addition, at key process stages can be pre-set for a variety of mix recipes. These systems are easily updated to meet changes in your production requirements.



For further details see specification sheets.

Fixed Tank Designs



Fixed Tank Designs

Fixed tank models are available from 10 through 4000 gallons working capacity. All of our fixed tank designs are custom built to meet our client's special process requirements. Materials of construction, bottom designs including flat, dished or conical shapes, discharge valves and atmospheric or vacuum construction are all available.



Typical Applications

Ross has been involved in hundreds of different applications throughout the process industries. This exposure to many different applications permits us to apply our expertise across a wide range of industrial needs.

Food	salad dressings, flavorings, food colors, chocolate coatings, fillings
Adhesives	hot melts, formulated epoxies, urethanes, silicones, rubber solutions
Plastics	plastisols, polyester dispersions
Ceramics	slurry dispersions
Coatings	inks, specialty coatings, paints, asphalt, magnetic coatings
Pharmaceuticals & Cosmetics	creams, lotions, ointments, shampoo, toothpaste, hair dyes

Optional Features

Ross design and application engineers are the best in the business. They can recommend a package of options that will ensure that your new mixer will deliver superior performance for many years.

- Internal pressure
- PLC control systems
- Sanitary designs
- Jackets for heating or cooling
- Bottom and wall scrapers on the anchor
- Solenoid operated discharge valves
- Special coatings such as Kynar, Teflon and Nylon
- Explosion proof designs
- Discharge systems
- Devices to measure and monitor torque
- Vacuum construction
- Drive options such as electronic and hydraulic variable speed drives
- A range of materials of construction including stainless type 304 and 316, Hastelloy, carbon steel and titanium

For further details see specification sheets.

Automated Discharge of Viscous Products

A Ross Discharge System can eliminate wasted hours scraping heavy or sticky materials from a mix vessel. With push-button simplicity, the system can automatically discharge a batch in minutes – into bulk containers, filling or packaging equipment, an extruder, or a two or three-roll mill. The system easily handles non-flowing products up to several million centipoise. By combining the Discharge System with a set of interchangeable mix vessels, you can make your operation even more productive. Change Cans from multiple mixers can be rolled to the Discharge System for fast discharge, then rolled away for cleaning as the next Change Can is positioned for discharge. This flexibility can boost production on several process lines, all working with a single Discharge System.

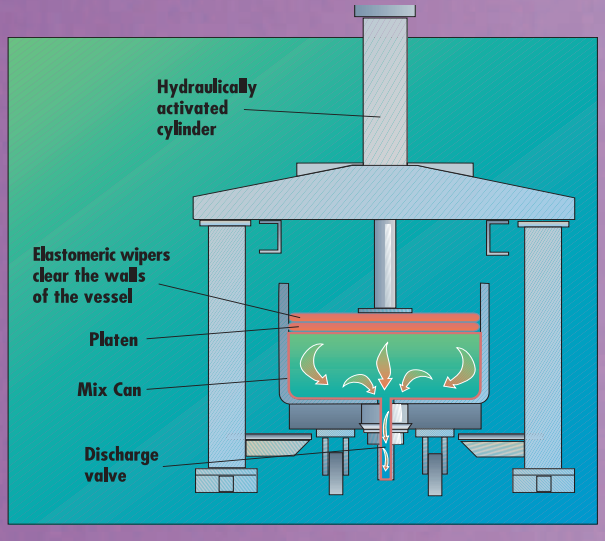
The Ross Discharge System improves plant safety, because it lowers the risk of injury while scraping heavy materials from the mix vessel. It also reduces the operator's exposure to the batch material, while it helps to minimize the release of vapors into the plant atmosphere. Ross Discharge Systems are available for use with Ross mixers and for mixers built by many other manufacturers. Many options are available to suit the special requirements of virtually any application.



Sanitary 4 gallon Lab Model – *For applications involving pharmaceuticals, cosmetics, personal care or food products, we offer a Sanitary design for full GMP compliance with an all-stainless-steel support structure.*



Elevated Production Model – *Ross provides Discharge Systems in a variety of configurations. Our Elevated Discharge System raises the change can for discharge and allows room for a receiver to be positioned beneath the vessel. Standard sizes are available from 10 through 1000 gallons.*



With the Change Can positioned beneath the Discharge System, a stainless steel platen is lowered hydraulically into the vessel. The product is forced out through a valve in the side or bottom of the vessel, or through the top of the platen. For the discharging of thermoplastic materials, the platen may be jacketed for heating.



Standard 4 gallon Lab Model with Mixer on common bench – *The lab models are often mounted with a dedicated mixer system on a common bench.*

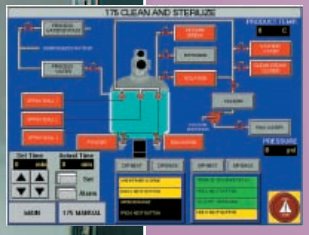
Control Systems

Ross offers a complete line of control systems that are pre-programmed/pre-wired for turn-key start-up and long-term flexibility. With many options available, Ross can build multi-agitator and PLC/PC-based control systems with all the functionality you need for efficient data acquisition and process control.

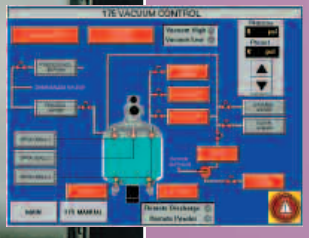
Our new streamlined, built-in designs reduce cabling while they simplify maintenance. Routine operation is also simplified. Intelligent menus reduce the risk of error while they help improve process consistency.















Ross control options include turn-key automation, datalogging, trend analysis, and a simple interface with your PLC and production management system.

LONG TERM QUALITY ASSURANCE – IN OUR TEST AND DEVELOPMENT CENTER

Before you buy *any* mixer or blender, Ross strongly recommends a test in a well-equipped analytical laboratory. In the Ross Test and Development Center, you will have an opportunity to test *using your own ingredients* and a variety of equipment. A close simulation of actual conditions on your process line is essential to accurately predict machine performance.

Once you've identified the right mixer for your application, our mixing experts will help you fine-tune your process. Sophisticated analytical instruments enable us to document each test sequence and proceed methodically.

To learn more about our extensive test facilities, visit our website: **www.mixers.com**.



SUPPORT YOU WON'T FIND ANYWHERE ELSE

Ross Multi-Shaft mixers are engineered to outlast all others. They can provide many *decades* of service.

Throughout the life of your mixer, Ross stands beside you with a complete package of support.

- ***World class experts on call –*** Experts with years of experience maintaining multi-shaft mixers."
- ***Chances are we have your parts in stock –*** We maintain the world's largest inventory of spare parts – so you don't have to. We ship most orders for spare parts in less than 48 hours.

Contact Ross today for detailed information on any of the products and services we offer, or to schedule a test in the Ross Test & Development Center.



Ross Mixing
Port Saint Lucie, FL



Ross Wuxi Equipment Ltd.
Wuxi , China



Ross Process Equipment Pvt. Ltd.
Pune, India



Ross Metal Fabricators, Inc.
Deer Park, NY



Charles Ross & Son Company
Hauppauge, NY



Ross Engineering, Inc.
Savannah, GA



Ross Systems & Controls, L.L.C.
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