



**Charles Ross & Son Company**  
710 Old Willets Path  
P.O. Box 12308  
Hauppauge, New York 11788  
www.mixers.com

*Engineering  
Excellence*

**The World Leader in Mixing and Blending Technology**

**Multi-Shaft Mixers**

## **Ross Multi-Shaft Mixers**

### Laboratory Models





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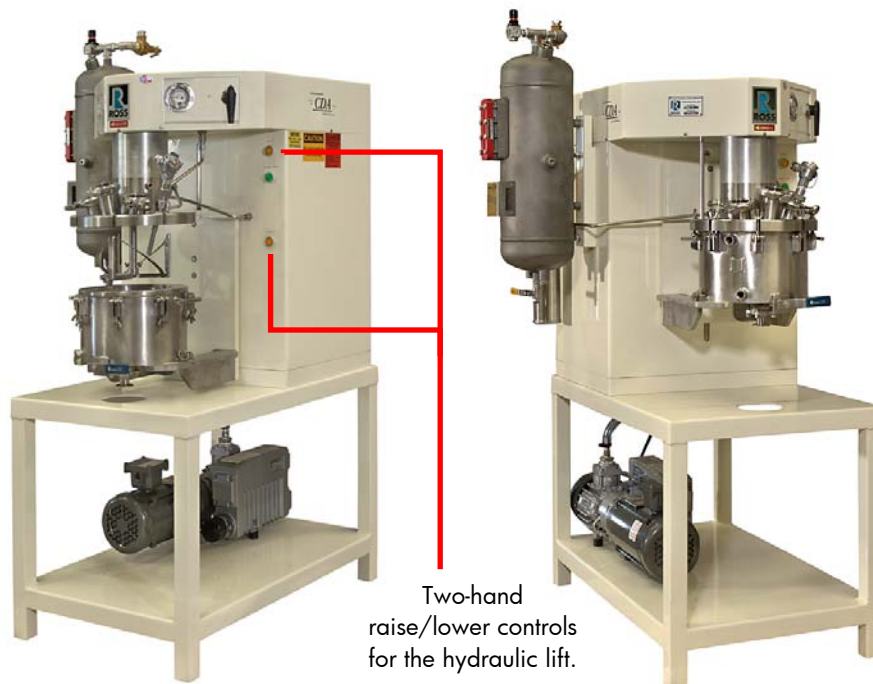
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## GENERAL FEATURES

- Standard capacities: 1, 2 and 4 gallons.
- Air/Oil Hydraulic Lift for raising/lowering the mix vessel. 80–100 psig air source required. Motorized Hydraulic Lift can also be supplied.
- Mixer is capable of operating under atmospheric condition, full vacuum (up to 29.5"Hg) or internal pressure (pressure rating must be specified by the customer).
- Stainless steel 304, 316, 416 or Hastelloy wetted parts.
- Polish on interior and exterior stainless steel surfaces: 80-, 150-, 240- or 320-grit finish. Electropolishing also offered.
- Choice of O-rings, elastomers and gaskets: Viton, Silicone, Telfon-encapsulated Silicone, Neoprene, Buna-n, EPDM, Kalrez.
- Explosion-proof proximity switches prevent operation of drives when the mix vessel is not in the proper position.



Vessel in the loading position.

Vessel in the mixing position.



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## SAMPLE AGITATOR COMBINATIONS



**Dual-Shaft Mixer** with Two-Wing Anchor Agitator and High Speed Disperser.



**Dual-Shaft Mixer** with Three-Wing Anchor Agitator and High Speed Disperser. The Anchor Agitator's dished shape matches the mix vessel's profile.



**Dual-Shaft Mixer** with Three-Wing Anchor Agitator and High Speed Disperser. The Anchor Agitator is equipped with helical flights for improved top-to-bottom mixing.



**Triple-Shaft Mixer** with Three-Wing Anchor Agitator, High Speed Disperser and High Shear Rotor/Stator.



**Triple-Shaft Mixer** with Three-Wing Anchor Agitator, High Speed Disperser and High Shear Rotor/Stator with SLIM (Solids/Liquid Injection Manifold). The SLIM is utilized for sub-surface addition of powders that tend to dust or form agglomerates.



**Dual-Shaft Mixer** with Three-Wing Anchor Agitator and High Shear Rotor/Stator with SLIM (Solids/Liquid Injection Manifold). The SLIM option is available on 4-gallon units and larger.



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**MIXER COVER OPTIONS**

- Tri-clamp port connections.  
*(For vacuum, nitrogen purge, etc.)*
- Liquid injection ports.
- Glass sight/charge ports.



Each sight port includes gaskets and a stainless steel quick-release clamp.

Barrier fluid tank for double mechanical seals on agitator shafts (supplied on units rated for internal pressures typically above 10psig).



Tank light mounted on a dedicated 2" port with on/off switch and clamp.



Thermoprobe installed through the cover.



Custom feed hopper.





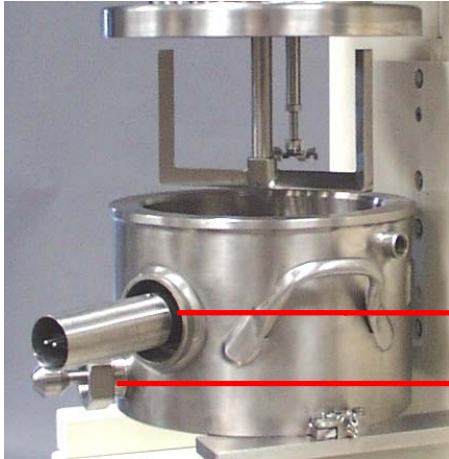
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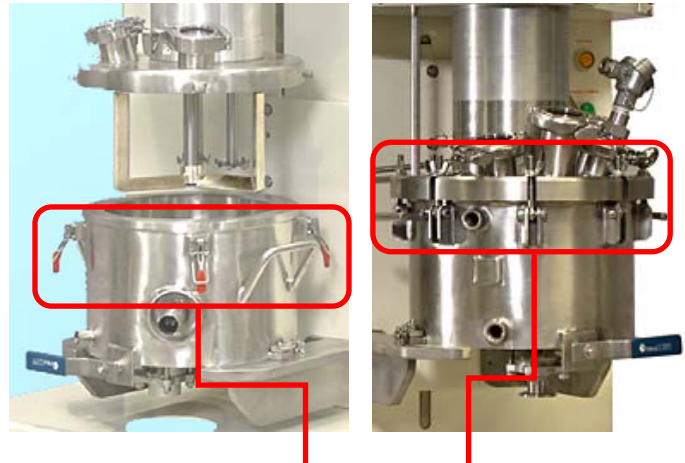
### MIX VESSEL OPTIONS

- Vacuum capability (up to 29.5"Hg).
- Internal pressure capability (rating must be specified by customer). ASME-stamp can be provided if required.
- Thermocouple installed on sidewall.
- Choice of flush discharge valves: ball valve, Y-valve, cove plug, diaphragm valve, etc.

Mix vessel can be supplied with a flat or dished bottom.

A loose cover can be provided (choice of atmospheric, vacuum-rated and pressure-rated designs).

Stainless steel handles are supplied on all mix cans.



- Stainless steel clamps or swing bolts are used to secure the mix vessel to the cover when processing under internal pressure.
- Heating/cooling jacket. ASME-stamp can be provided if required.
- Insulation and stainless steel sheathing for jacket.
- Locating and locking pins (standard features).
- Caster wheels for easy movement.



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## OPTIONAL AUXILIARY EQUIPMENT AND OTHER FEATURES

A **Ross Discharge System** is recommended for non-flowable applications. Pictured on the right is a Discharge System mounted on a common bench with the mixer. The platen of the Discharge System is lowered hydraulically into the vessel and a specially-fitted O-ring rides against the wall, wiping it clean. Product is forced out through the top of the platen or through the bottom discharge valve of the mix vessel. A round opening on the bench-top allows the operator to catch the product into a container underneath.



The mixer can be supplied with a **heating/cooling unit** installed on the lower shelf of the bench. Quick connect hoses are shown on the top photo.

The **mixer bench** may be bolted to the floor or supplied with caster wheels for portability.



A **vacuum pump** may be installed within the mixer's support frame cabinet (see photo above) or on the lower shelf of the bench (see right photo).

Vacuum pump assembly includes 10-micron filter, three-way line valve (vacuum/closed/release), vacuum gauge, as well as plumbing and wiring to the control panel. If desired, the vacuum pump may also be supplied loose.



**All stainless steel exteriors** can be supplied for sanitary multi-shaft mixers.

Multiple **interchangeable mix vessels** allow semi-continuous processing. When mixing several formulations, each vessel can be dedicated to a specific product to further minimize contamination.



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## POPULAR MIXER CONTROL PACKAGES

- A.** Variable Speed Ross SysCon Control Panel with readouts for speed, power draw, cycle time, temperature, vacuum level, etc. Tank light on/off controls, Emergency stop push-pull actuators and “make and break valve” for vacuum pump can be supplied.

Control Panel Classifications:

- NEMA 1, 12, 4, 4X panels for non-hazardous locations.
- NEMA 7, 9 panels or Type X, Type Z purge panels for hazardous locations.

- B.** Ross SysCon PLC Control System with touch screen for data entry and recipe selection. System is capable of creating and storing ten (10) recipes. Recipe variables include mixer speed, cycle time, vacuum and temperature.

- Control system is capable of communicating with heating/cooling unit(s) to control temperature.
- A USB port can be provided for retrieving batch data in Excel format.



NEMA 12 Control Panel  
(Package **A**)



NEMA 7/9 Control Panel  
(Package **A**)



NEMA 12 PLC Control System  
(Package **B**)