

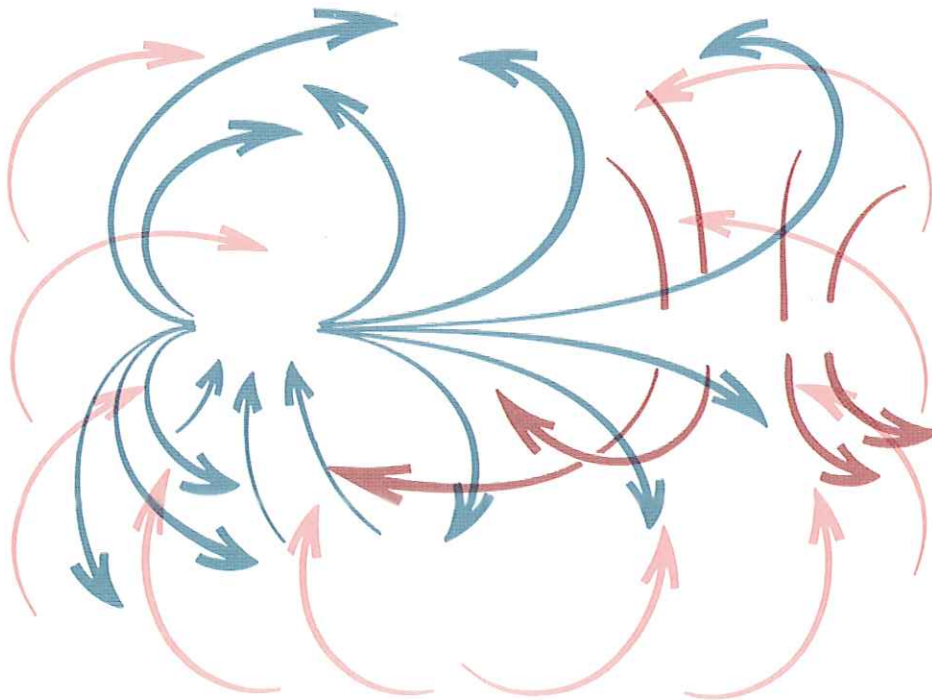
VersaMix

The Ross VersaMix is a proven multi-agitator mixer designed to meet the rapidly changing requirements of today's major process industries.

VersaMix units are tailored to suit the individual process demands of customers manufacturing products that range from low to high viscosity consistencies. This is possible by selecting the best combination of the three agitation systems offered with this unit.

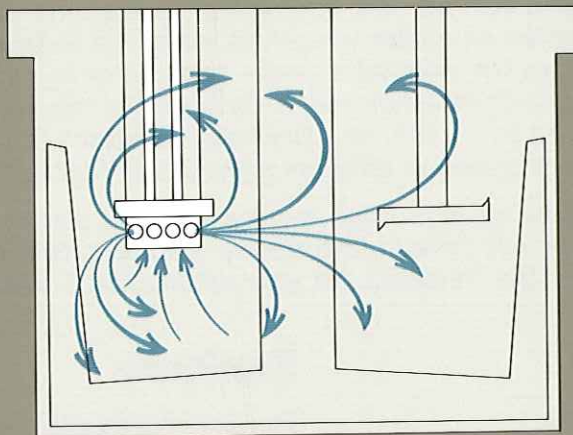
Standard sizes are available from a two gallon laboratory size through a large 4,000 gallon production model. A wide selection of horsepower for the various component mixers and many optional features are offered for each machine.

Applications are extensive in the adhesives, cosmetics, chemical, food, pharmaceutical and plastics industries. Ross maintains a VersaMix as well as other types of mixing, blending and dispersion equipment in its Customer Service Laboratory for testing by potential users. These machines are also available for trial-rental in your own facilities. A visit to the Ross Customer Service Laboratory enables you to test and evaluate alternate processing methods.



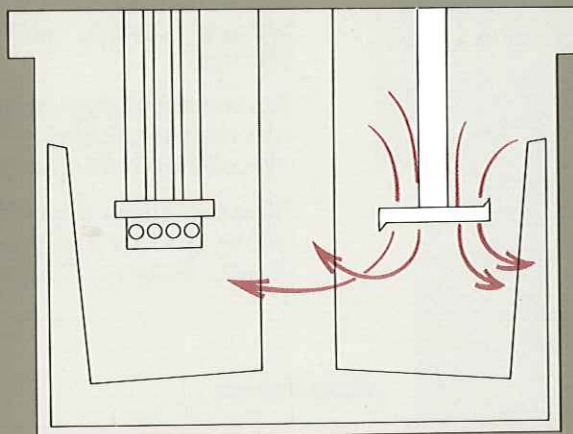
Combined mixing pattern of Mixer Emulsifier, Disperser and Anchor.

1 MIXER- EMULSIFIER



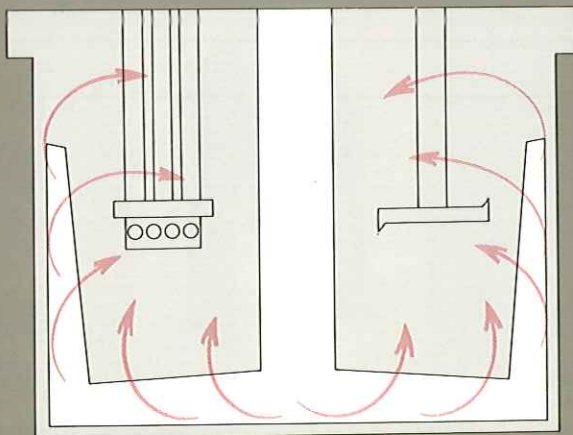
The high speed close-tolerance rotor and stator of this unique mixer provide a high degree of shear to all materials being passed through the rotor/stator gap. This intensive shearing action is used for reducing the particle size of solids, dissolution, homogenization, and emulsification. By itself it is best applied for materials that have a maximum viscosity of approx. 10,000 cps. In conjunction with the anchor its useful range can be extended to over 100,000 cps.

2 HIGH SPEED DISPERSER



The conventional shear disc dispersion blade is used to disperse solids into viscous liquid vehicles that are beyond the viscosity range of the mixer-emulsifier and anchor combination. This mixer is best applied by itself in a viscosity range to 50,000 cps, and in conjunction with the anchor to several hundred thousand centipoise.

3 ANCHOR AGITATOR



The standard three wing anchor agitator is designed to provide maximum movement under low shear conditions within the mix vessel. It moves materials in both a radial and axial direction to feed the materials to the high speed mixer heads and to also improve heat transfer by constantly removing material from the tank wall. The anchor is designed to permit either fixed adjustable or hinged teflon wiper attachment. Since the design is of a closed triangular shape it is easy to clean and is preferred for applications that will require regular cleaning between batches.



VersaMix

CHANGE

The change-can mixing concept lets the mixer do its job while additional cans are being loaded or unloaded. Other mixers are idle much of the time while being loaded and unloaded—a terrible waste of time considering the sizeable investment made in the equipment.

The Ross VersaMix is different! Its only interruption is the time that it takes to change cans. Cans may be mounted on caster wheels to make the changes quickly and easily. Mix cans may also be used for material storage, aging prior to packaging, or quality control checks. Cleaning is done efficiently away from the mix room thus keeping contamination possibilities to a minimum. Discharge systems are available to facilitate emptying. These may be supplied in different styles. See illustration below.

Most attractive are the cost savings. High quality products can be produced and achieved in less time at lower cost. We can prove the superiority of the VersaMix for your application in our laboratory.

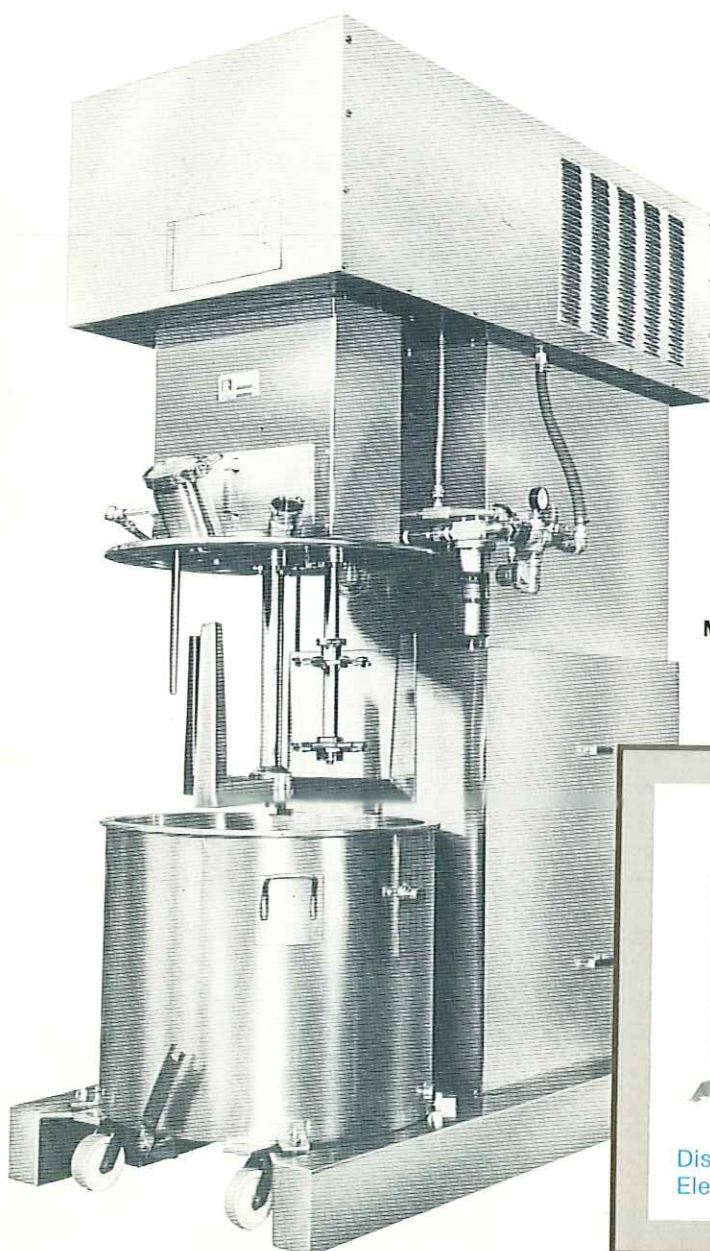
Sanitary

Sanitary change can models are offered in the same wide range of sizes as are the standard models. They are constructed in either type 304 or 316 stainless steel. Corners are rounded and wetted stainless surfaces are polished to a 140 grit finish to facilitate cleaning between batches.

The stainless steel panels covering the drives and hydraulic lifting mechanism are all easily removed permitting access as required.

Ross designs and builds a unit to meet your exacting sanitary and process requirements, including superior polishes, as required.

MODEL PVM 100



Discharge System—
Elevated Position

FOLLOWER PLATE

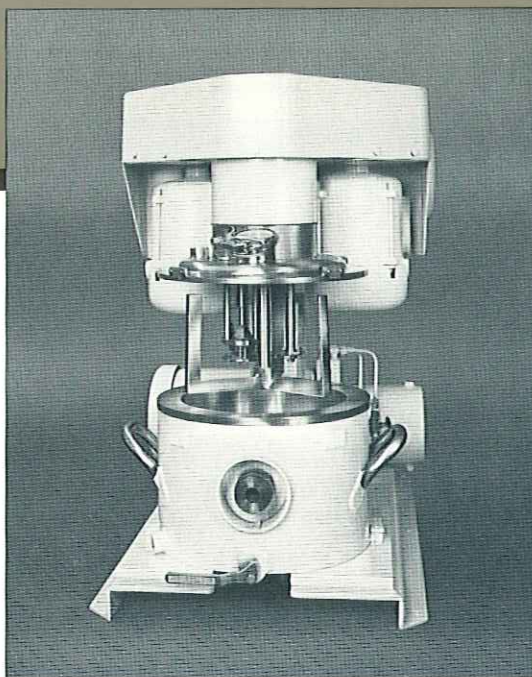
In an effort to assist our clients in the efficient handling of their material, we have designed a special follower plate discharge system for use in conjunction with our change-can mixers from 2 through 500 gallons capacity.

A flat follower plate of stainless steel construction is mounted on a heavy steel structural base frame assembly. The base may be mounted directly in front of the mixer or at a remote location. The base is either elevated on a platform to permit discharge of the

CAN DESIGN

Laboratory

Research and development results are readily scaled up to pilot plant and production equipment. The 1½ gallon working capacity laboratory model allows users to develop new products with the knowledge that their work can be duplicated on larger production equipment. This machine includes standard features such as stainless steel wetted parts, a jacketed mix bowl, up to 29½" Hg vacuum, Three-Wing Anchor, Mixer Emulsifier with three interchangeable heads and a conventional High Speed Disperser. All agitators have electrically controlled variable speed drives.



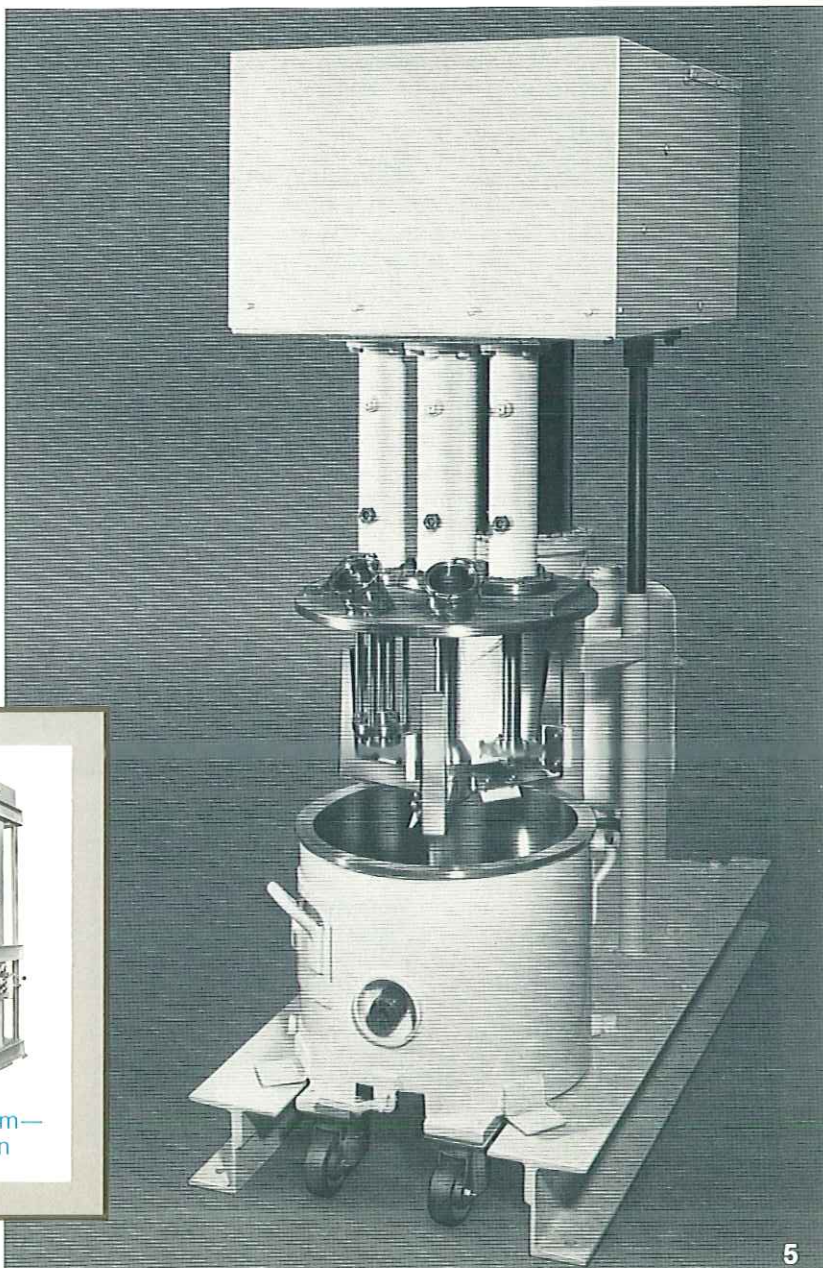
MODEL PVM 2

Standard

Standard units include steel wetted surfaces and heavy structural frames. All exterior surfaces are cleaned and painted with a high quality two-component epoxy coating formulated to resist a wide range of solvents. The motors and reducers are mounted in a manner to make them easily accessible for routine maintenance procedures. Bearings, shaft seals and sealing gaskets are selected so they can be replaced in a minimum of time.

Agitator shafts are supported in a 1 to 1 ratio relative to their overhung length. This feature minimizes possible shaft deflection and potential mechanical failures. Since most of these units are used for dense, viscous materials the rugged construction of the VersaMix lends itself to long term trouble-free operation.

A wide selection of optional features are available to meet your particular needs.



MODEL PVM 10

CHARGE SYSTEMS

mixed materials directly to packaging machinery or containers or it is automatically raised as illustrated.

A pneumatic or hydraulic cylinder is utilized to push the follower plate down into the mix can. The pressure of the plate forces the mixed materials through a discharge opening in either the bottom or front of the mix can. Wipers of either neoprene or Viton mounted around the periphery of the follower plate help to minimize hang-up of mixed materials on the walls of the vessel.



Discharge System—
Lowered Position



VersaMix

FIXED TANK DESIGN

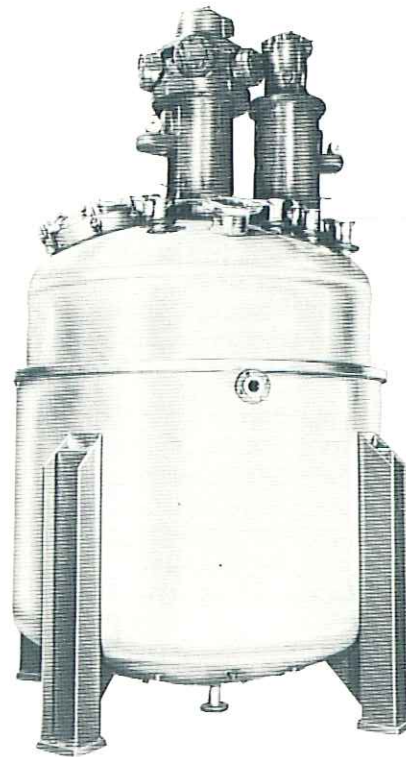
The rugged fixed tank configuration is manufactured in a wide range of sizes from 10 through 4,000 gallons capacity. Special designs are available in both smaller and larger sizes.

The fixed tank design allows a great deal of design latitude and permits user selection of bottom shape, a wide range of horsepower options, high internal pressures, vacuum, etc. A choice of tank configurations is also available to best meet your process requirements.

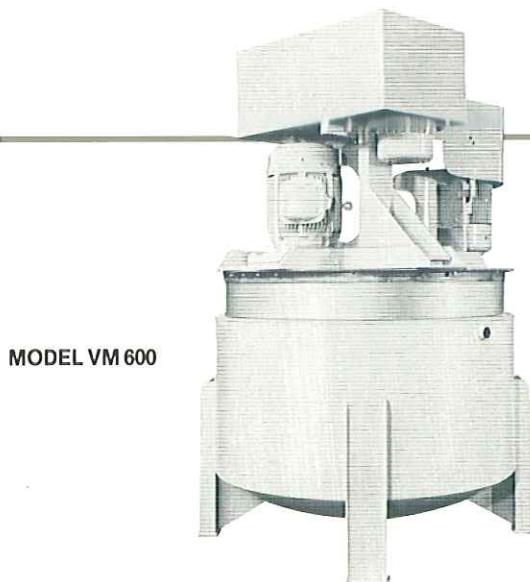
Tank mixers have the capability to mix the same range of viscosities as the change can models. They are somewhat limited however by the flow properties of the final mixture. The mixture must be of a nature to discharge either by gravity or with a modest amount of internal pressure.

Since maintenance is a consideration, Ross attempts to consider the unique characteristics of each individual installation taking into account such factors as headroom and the space surrounding the mixer. Special bottom manholes may be provided to allow access to the vessel interior.

VersaMix has a 1,000 gallon working capacity and a 1,400 gallon full holding capacity. The wetted parts are type 304 stainless steel. It includes a special hydraulic drive package. The anchor agitator is driven by a 75 HP motor providing an operating speed range between 10 and 60 RPM. The disperser is driven by a 125 HP motor and has a speed range of 600 to 1,800 RPM. The top and bottom heads are dished, the sides and bottom are jacketed for 30 psi operating pressure. Design is for operation from full vacuum to 25 psig internal pressure. Vessel is ASME Code constructed and stamped.



MODEL VM 1000



MODEL VM 600

A 600 gallon working capacity VersaMix with a full holding capacity of 750 gallons. All wetted parts are type 304 stainless steel. The vessel operates at atmospheric pressure. Included are a 20 HP single speed anchor, 50 HP single speed Mixer Emulsifier and a 40 HP variable speed Disperser. The bottom is conical and includes a 15 psig heating/cooling jacket.

TYPICAL APPLICATIONS

FOODS

- Salad Dressings • Flavorings
- Food Colors • Chocolate coatings
- Fillings • Syrups

Salad Dressing

The VersaMix is an efficient means of preparing salad dressings. The high shear of the Mixer Emulsifier breaks down starch agglomerates and produces a smooth lump-free product in a short time. Thorough dispersion of the thickeners and spices produces a stable and physically appealing product with a minimum of production effort. Cleaning is easily accomplished by means of high pressure spray balls located in the cover of the unit.

ADHESIVES

- Rubber solutions • Polysulfides • Epoxies
- Polyurethanes • Silicones • Hot Melts

Rubber Cement

High quality rubber cements can be produced by using the Three-Wing Anchor and High Shear Mixer Emulsifier. Initially, solvents, resins, and minor solids are charged to the vessel; they are pre-mixed for about 10 minutes. The rubber is then added and the anchor moves it to the Mixer Emulsifier head where it is chopped into small pieces. This drastically increases the surface area to volume ratio of the rubber particles and permits complete dissolving within 1½ to 2 hours. Formulations containing a high percentage of solids may also require the disc-type High Speed Disperser.

COSMETICS

- Shampoo • Lotions • Creams
- Toothpaste • Wax Emulsions • Hair Dyes

Shampoo

VersaMix units to 4,000 gallons are manufactured to exacting sanitary standards. These machines are of polished stainless steel and include heating/cooling jackets, variable speed agitators, and vacuum construction. High quality emulsions are formed by feeding either the water or oil phase directly through an inlet line to the high speed emulsor head. Once the emulsion is formed, surfactants, perfumes, detergents, etc., are added and dispersed with the aid of the efficient Three-Wing Anchor.

PLASTICS

- DOP Dispersions • Plastisols • Organasols
- Polyester Dispersions • Resin Cutting

Plastisol

Low to high viscosity plastisols are manufactured within 20 to 30 minutes in the VersaMix. Production is enhanced by the Anchor which constantly moves materials in the mix vessel to the high speed dispersion head. This movement prevents undesirable heat build up and degradation of the product. It also helps shorten the overall mix time when compared to less sophisticated single shaft machines. Most VersaMix units designed for plastisol production are built for vacuum and include cooling jackets.

PHARMACEUTICALS

- Blood Reagents • Creams
- Lotions • Ointments

Creams/Ointments

The VersaMix heats, cools, mixes, blends, and emulsifies—all in one machine. The most complex cosmetic formulations are produced in this one machine. The key to its success is the unit's flexibility. Standard machines include vessels with dished or conical bottoms, baffled jackets, teflon wall scrapers, polished stainless surfaces and vacuum construction. These features result in products having superior quality.

COATINGS

- Inks • Paints
- Magnetic tapes • Asphalts

Coatings

Specialty high solids or high viscosity coatings that tend to have poor flow characteristics are easily manufactured in the VersaMix. The unit's anchor agitator acts as a feeding device continuously moving materials to the high speed dispersion and mixer-emulsifier heads. The combination of low and high shear agitation in some cases eliminates the need for additional downstream milling equipment such as media mills, ball mills, colloid mills, etc.

OPTIONAL FEATURES

1. Vacuum
2. Internal pressure
3. Jackets for heating or cooling
4. Stainless steel wetted parts
5. Sanitary construction
6. Special discharge valves
7. Thermocouples
8. Choice of agitators
9. Single, multiple or variable speed drives
10. Wall scrapers



Cone Bottom

Excellent choice for complete discharge of flowable materials. The conical bottom is also the best choice where complete scraping of the bottom by scrapers is desired. The shape allows us to construct and fit teflon scrapers to the straight line bottom shape.



Dished Bottom

Provides good form for complete discharge and flow to the discharge valve which is normally mounted in the bottom center of the head. The dish helps to deflect materials and to set up advantageous flow pattern within the mix vessel. Both conical and dished heads allow a user to mix smaller amounts of material compared to the volumes required in a flat bottom vessel.



Flat Bottom

This configuration is often used when headroom is limited. It provides for maximum volume within a confined vertical height. Flat bottoms are also the most economical and are used where cost is a major factor in equipment selection.

MODEL PVM CHANGE CAN AND VM FIXED TANK SELECTION CHART

Mixer	Mixing Capacity in Gallons (liters)	Full Holding Capacity in Gallons (liters)	Weight Lbs (kg)	Horsepower Range			Tank Diameter	Tank Depth	Base Length	Base Width	Lowered Height	Raised Height
				Mixer Emulsifier	Disperser	Anchor						
PVM 2	1½ 5.7	2 7.5	350 155	½	½	½	9½"	6½"	31"	18"	21⅞"	28⅞"
PVM 10	10 (37.5)	15 (56)	2,000 (910)	1½	2-5	1½-3	18"	13½"	48"	25½"	62"	77"
PVM 40	40 (151)	47 (179)	3,400 (1547)	1½-5	3-7½	3-5	25"	22"	65½"	33"	66"	89"
PVM 100	100 (378)	115 (435)	5,500 (2500)	5-15	5-10	5-10	34½"	28½"	88"	41"	91"	121"
PVM 150	150 (567)	184 (696)	8,000 (3640)	10-25	7½-20	7½-15	44"	28"	108"	47"	108"	144"
PVM 200	200 (757)	225 (851)	8,500 (3865)	10-25	7½-20	7½-15	44"	34"	108"	47"	108"	144"
PVM 300	300 (1135)	398 (1506)	9,500 (4320)	25-50	10-30	10-20	55½"	38"	140"	54"	130"	170"
PVM 500	500 (1875)	600 (2250)	11,500 (5330)	25-75	15-60	15-30	58"	55"	122"	62"	142"	198"
VM 750	750 (2812)	912 (3420)	10,200 (4533)	50-75	20-60	20-40	60"	82"	NA	68"	NA	106"
VM 1000	1,000 (3750)	1,231 (4616)	12,000 (5333)	50-75	25-75	25-50	66"	90"	NA	76"	NA	120"
VM 1500	1,500 (5625)	1,767 (6626)	15,000 (6666)	75-100	40-100	25-50	78"	94"	NA	90"	NA	124"
VM 2000	2,000 (7500)	2,420 (9075)	18,000 (8000)	75-150	75-150	25-75	90"	98"	NA	104"	NA	134"

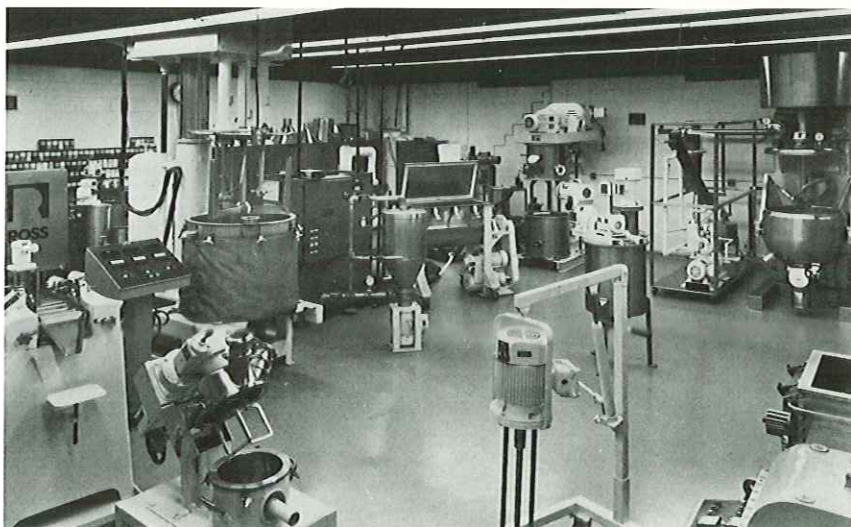
*All dimensions and weights are approximate as they vary with the actual horsepower and drive arrangement selected for a particular unit.
Fixed tank VersaMix units available from 10 through 4000 gal capacity.

ROSS CUSTOMER SERVICE LABORATORY

A wider range of testing capability than any other single lab.

A complete Customer Service Laboratory is located at the main plant in Hauppauge and occupies over 3,000 sq. ft. This facility offers all types of equipment manufactured by Ross for your use prior to final selection and purchase of equipment. Many new ideas have been translated into actual production by such testing with the assistance of our technical service personnel.

If more convenient, laboratory and pilot plant models are available for rental and use in your facilities. We welcome the opportunity of assisting you on your mixing requirements. Our qualified technical staff is prepared to assist and recommend the correct mixer for each individual application.



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