

The World Leader in Mixing and Blending Technology



World-Class Manufacturing

In virtually every industrialized nation, Ross equipment is the first choice for mixing, blending, drying and dispersion.

Since the company was founded in 1842, we have built a world-class reputation for innovative engineering, superb quality and fast delivery. Over the years we have continuously reinvested in our technology and manufacturing capacity.

Today, Ross equipment is manufactured in five plants in the USA, along with Ross-owned plants in China and India.

All of our plants are equipped with advanced, computerized engineering and production tools.

Our employee owners are the best in the business. In industries including foods, chemicals, pharmaceuticals, adhesives, electronics and many more, Ross is uniquely equipped to meet the special needs and challenges of every customer, anywhere in the world.





LEADERSHIP

INNOVATION

QUALITY

SOLUTIONS





**THE WORLD'S LARGEST
INVENTORY OF DRY BLENDERS
IN STOCK FOR FAST DELIVERY**

Our multi-million dollar inventory of 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.

**CHOOSE A BLENDER
THAT MATCHES
YOUR APPLICATION**

Since only Ross manufactures a complete line of Ribbon Blenders, Tumble Blenders and Vertical Blenders, we can guarantee that you will find a Ross blender that solves your blending requirements.

BLENDING AND DRYING

VERTICAL BLENDERS

Ross Vertical Blenders are designed and built without bottom screw support bearings in capacities through 500 cu. ft. These blenders are designed to gently blend solids in a short cycle time. Options include variable speed drives, vacuum and vessel jacketing, as well as special sanitary finishes. Sizes range from 1 cu. ft. to 500 cu. ft.



Model VB 300

RIBBON BLENDERS

Ross Ribbon Blenders are the highest quality available from any manufacturer and are capable of handling a wide range of dry blending applications. Standard designs are built in quantity and stocked for immediate shipment, at very competitive prices. Whether you require an off-the-shelf standard blender, or a special design to include vacuum or pressure, Ross's expertise and experience can assist you. Sizes range from 1 cu. ft. to 515 cu. ft.



Model 42N 515

For more information visit www.dryblenders.com

DOUBLE CONE BLENDER

Double Cone and V-Blenders are most often used for the intimate dry blending of free flowing solids. The solids being blended in these units can vary in bulk density and in percentage of the total mixture. Materials being blended are constantly being intermixed as the cone rotates. Normal cycle times are typically in the range of 10-15 minutes, or even less depending on the degree of homogeneity required.

Ross Double Cone and V-Blenders are stocked in 5, 10 and 15 cu. ft. capacities. A full range of sizes from 1/2 to 100 cu. ft. working capacity are available. These blenders are constructed of type 316 stainless steel and internally polished to a 240 grit sanitary finish. The exterior is polished to an easily cleaned 150-grit finish.



Model DCB 15



Model VCB 30

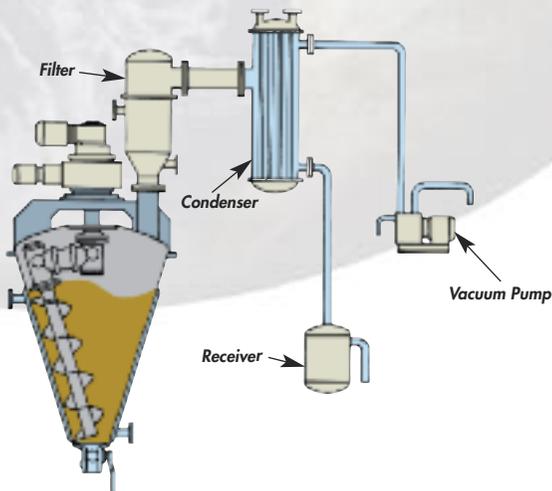
V-BLENDER

All Ross Tumble Blenders are supplied with Intensifier bars to permit delumping and deagglomeration as needed. Discharge is accomplished through a manually operated butterfly valve. Clearance from the valve and floor is 24" when in the discharge position. All units are provided with appropriate safety railings and interlock switches. Stop-Start and E-Stop push-buttons are included with all blenders.

VACUUM DRYING

Trust the experts for controlled drying and efficient solvent recovery. Requiring only gentle heat to drive off moisture or solvents, vacuum drying is an excellent method for drying heat-sensitive materials — including many foods, botanicals and pharmaceutical products — without fear of thermal degradation. The application of both heat and vacuum quickly takes the batch material through a series of changes in physical state — from slurry to a paste, and from a paste to a dry powder.

A well-equipped vacuum drying system allows you to draw off solvents so they can be condensed and captured. This prevents them from contaminating the atmosphere (both inside and outside the plant). They are then available for re-use, or they can be safely discarded to meet environmental requirements.





A HISTORY OF INNOVATION

Since we introduced the change can mixer design over 100 years ago, we have continued to innovate and to offer improvements in technology and mixing performance. Our Double Planetary, PowerMix and Multi Shaft designs are continually evolving to include new agitator combinations, and next generation systems for digital control, data management and hands-free discharge.



POWER AND PROCESS FLEXIBILITY

DOUBLE PLANETARY

The Double Planetary Mixer is ideal for mixing and kneading viscous pastes or for the gentle blending, granulating and drying of shear-sensitive powders. This versatile mixer can be engineered for use in many industries including adhesives, foods, plastics, pharmaceuticals and more. Many available options including vacuum capability, easily interchangeable blades, built-in operator controls, jacketing and variable speed drives, make this a versatile processing tool. Models ranging from 1/2 pint to 750 gallons in capacity are standard.



Model DPM 2

POWERMIX

The patented PowerMix offers remarkable versatility which makes it ideal for applications that undergo a series of mixing stages and require several types of mixing action. In one continuous mix cycle, for example, the PowerMix can apply high shear and quickly disperse powders. As the material thickens, the PowerMix can continue the mixing process even after the product has reached a high-viscosity, non-flowing state. The PowerMix combines a planetary blade and a high speed dispersion blade. Both agitators are in constant motion — they rotate on their own axes at independently-controlled speeds while also revolving continuously around the vessel. The PowerMix combines the mixing action of different mixers — allowing you to retire two or more pieces of equipment — and cut the cycle time by 50% or more. Models are available up to 750 gallons capacity.



Model PDM 500

For more information visit www.planetarymixers.com

MULTI SHAFT MIXERS

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 straightforward 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 designs. They can be customized to meet any special process considerations such as vacuum or pressure operation. Models are available in fixed tank and change-can designs. Change-can units are built through 1000-gallon capacity whereas fixed tank models are available to 4000-gallon capacity.



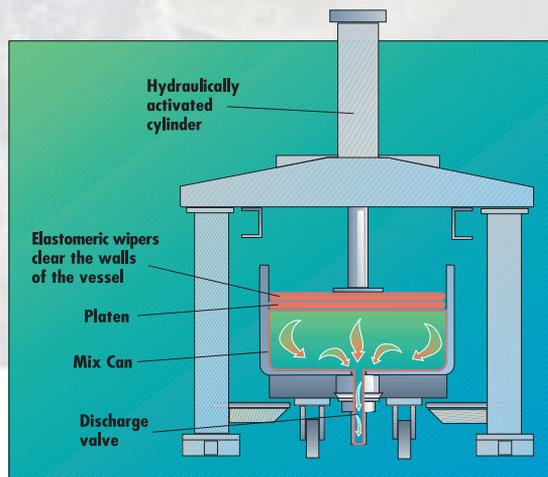
Model CDA 200W



Model VMC 100

DISCHARGE SYSTEMS

With push-button simplicity, the Ross Discharge system can automatically discharge a batch in minutes – into bulk containers, filling or packaging equipment, an extruder, or a 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. A Ross Discharge System can eliminate wasted hours scraping heavy or sticky materials from a mix vessel and boost production on your process lines.





HIGH SHEAR MIXERS

Ross manufactures the world's broadest line of High Shear Mixers – from traditional High Speed Dispersers and single-stage Rotor/Stator Mixers to the new generation of patented ultra-high shear X-Series and Mega Shear mixers. Ross is continuously introducing exciting new design concepts and improvements developed by our R&D team. Our high performance rotor/stator mixers are available in sizes from benchtop through full-scale production, in batch and in-line configurations, with a multitude of options to help you fine-tune mixer performance.

SHEAR POWER

SINGLE STAGE DESIGNS

The rotor includes a single set of four blades. As the rotating blades pass each opening of the stator within a close tolerance, they centrifugally expel material at high velocity into the surrounding mix, creating intense hydraulic shear. These mixers are widely used for various mixing purposes including homogenization, solubilization, emulsification, powder wet-out, grinding and particle size reduction, in batch and in-line configurations. The single stage rotor/stator mixer is ideal for applications that require fast particle/droplet size reduction.



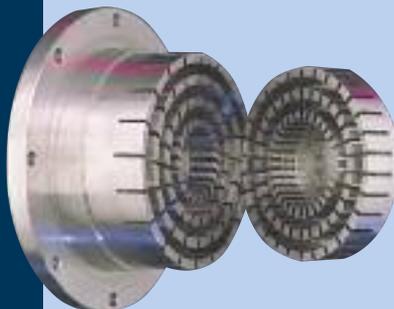
Laboratory Model LCI



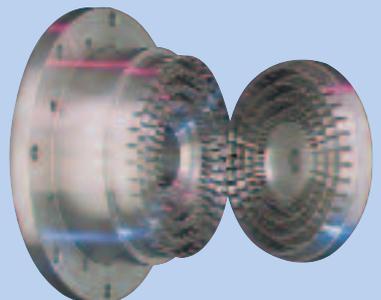
Model 510

MULTI STAGE DESIGNS

Multi-stage rotor/stator generators include multiple stages of rotating blades that nest inside a matching stator. The mix material enters the center of the generator through an inlet connection and is accelerated outward by centrifugal force. By applying a series of shearing events with every pass through the generator, the multi-stage mixer accelerates the mixing process dramatically. Multi-stage rotor/stators are highly applicable for the processing of specialty dispersions and emulsions, especially those requiring submicron particles or droplets to achieve optimal product stability, visual appeal, texture and rheology such as cosmetics, personal care and food products.



Q-Slot Design



X-Series Design

For more information visit www.highshearmixers.com

IN LINE DESIGNS

The standard Inline Model High Shear Rotor-Stator mixer design consists of a single stage rotor that turns at high speed within a stationary stator. Most inline systems are set up for recirculation and a simple valve can divert finished product downstream. With proper piping, the inline mixer can also service multiple tanks and a valve can quickly switch feed streams from one vessel to another. Interchangeable rotor-stator combinations provide unlimited flexibility to adapt to a wide variety of product formulations. The Inline models are supplied in many sizes and materials of construction from 1/2 through 250 horsepower.



Model 400DL



Model 410 & recirculation Vessel



Model HSD 20

HIGH SPEED DISPERSERS

The industry standard for durability, faster dispersion and low maintenance costs. Standard models include explosion-proof inverter-duty motor, heavy duty v-belt drive and precision bearings, safety limit switches, stainless steel wetted parts, anti-rotation bar and shaft guard, and an air/oil hydraulic lift system with controls. Sizes range from 1/2 HP to 200 HP to handle batches from 1 to 2000 gallons. Custom designs, such as tank- or mezzanine-mounted units, multiple-position swivel systems and telescoping or vacuum-rated covers, are also available. Typical applications include pigment dispersions, automotive coatings, dye stuffs, ceramics, plastisols, carbon dispersions, paints and printing inks.



**BOOST PRODUCTION
AND OPERATING EFFICIENCY**

Nothing boosts production faster. The SLIM powder dispersion system is the world's most efficient and reliable device for dispersing powders into a liquid stream, outperforming eductors, turbines, propellers and other rotor/stator mixers. With this technology, proven on process lines around the world, SLIM routinely cuts process times by 80% or more.

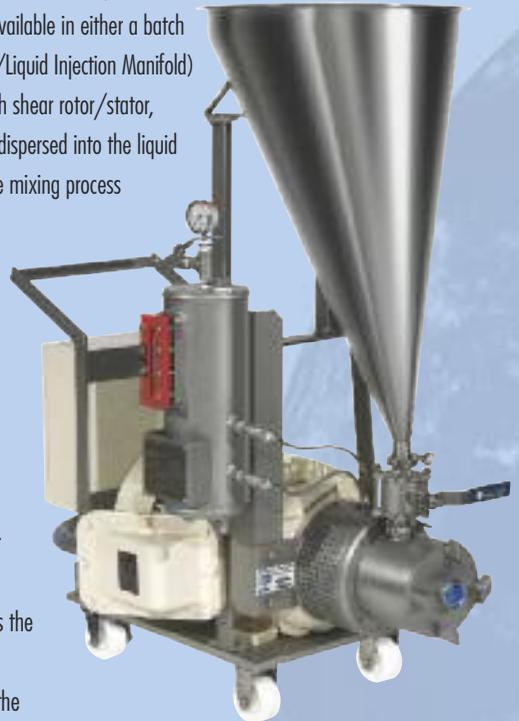
For more information visit www.powderinjection.com

HIGH SPEED POWDER DISPERSION

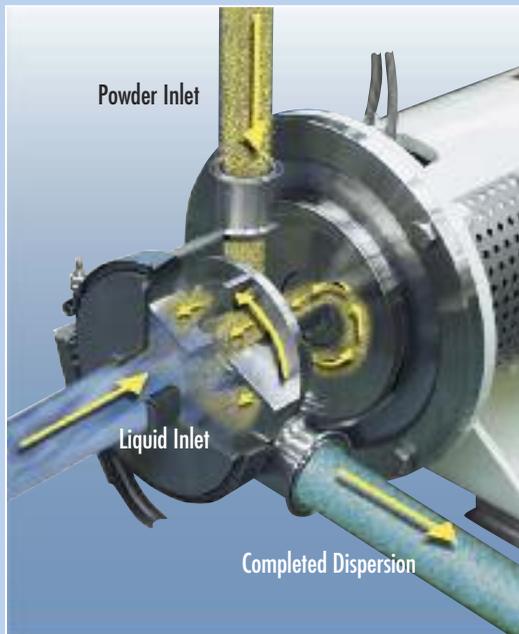
SLIM – Solids/Liquid Injection Manifold

Ross has developed a new technology that enables you to mix and wet out powders almost instantly. Available in either a batch or in-line configuration, the SLIM (Solids/Liquid Injection Manifold) system injects solids directly into the high shear rotor/stator, where it is immediately wetted out and dispersed into the liquid stream. The SLIM system accelerates the mixing process dramatically, while it virtually eliminates dusting – minimizing the amount of airborne particles released into the plant atmosphere. The SLIM system is ideal for the dispersion of gums, starches, fumed silica, alginates, carbomers, pigments and other hard-to-disperse powders.

SLIM eliminates the clogging and poor dispersion quality associated with eductor-based systems. It also eliminates the need for an auxiliary pump in most applications. Operation is simple – and the portable in-line SLIM easily serves multiple process lines.



Slim Model 430



An intense vacuum draws powders including silica, thickeners and pigments into the mix chamber of the SLIM Solids/Liquid Injection Manifold. They are injected through a ported rotor directly into the high shear zone and dispersed instantly.

TURBOEMULSIFIER

The Ross Turboemulsifier consists of a counter-rotating turbine and a high speed rotor/stator. The rotor/stator head is positioned in the bottom center of the mix vessel to enable its use with very small volumes of material. During the mixing operation the outer turbine rotates clockwise and moves materials off the vessel wall and upwards. The inner blades rotate counter clockwise and move material downward and into the high speed homogenizing head. The Turboemulsifier is manufactured in many sizes from 10 through 4000 liters capacity. Each is designed for pressure and vacuum operation. The Turboemulsifier is used extensively in the pharmaceutical and cosmetic industries for the mixing of viscous materials and is ideal for homogenizing, emulsifying, dispersion and particle size reduction. Typical applications include antacids, biopolymers, collagen solutions, dental composites, gelatin compounds, gels, and transdermal patches.



Model TE 4000

PREMAX

The PreMax utilizes the patented Delta rotor/stator generator which runs at higher tip speeds (5000 ft/min) than conventional high shear mixer devices, creating enhanced levels of mechanical, hydraulic and cavitation shear. The Delta rotor/stator is also uniquely contoured to produce vigorous product flow and improve product heat management. Designed especially for pigment dispersion and deagglomeration, the PreMax is typically used for the batch processing of flexo, gravure and offset inks, paints, industrial and specialty coatings, electronic inks and cosmetics.



Model PM 50



Ross is a leader in the design of complete motionless mixer systems. We offer the ISG (Interfacial Surface Generator) and LPD (Low Pressure Drop) static mixer designs, available in industrial and sanitary models.

Fixed Tank Mixers are available from 10 through 4000 gallons capacity. All of our fixed tank designs are custom built to meet our client's process requirements. A selection of materials of construction, tank bottom shapes, jacket designs, discharge valves and atmospheric or vacuum construction are available.

For more information visit www.staticmixers.com

A LEADER IN SYSTEM DESIGN

STATIC MIXERS

The ISG is ideal for viscous, laminar flow mixing while the LPD is used for low viscosity, turbulent flow mixing. We have the ability to customize elements and complete units as needed. Standard options include jackets for heating or cooling, special inlet/injection ports and materials of construction. Typical applications include gas/liquid dispersions, wastewater neutralization, pH control, fuel oil and biodiesel blending.



LPD Design



ISG Design

FIXED TANK MIXERS

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

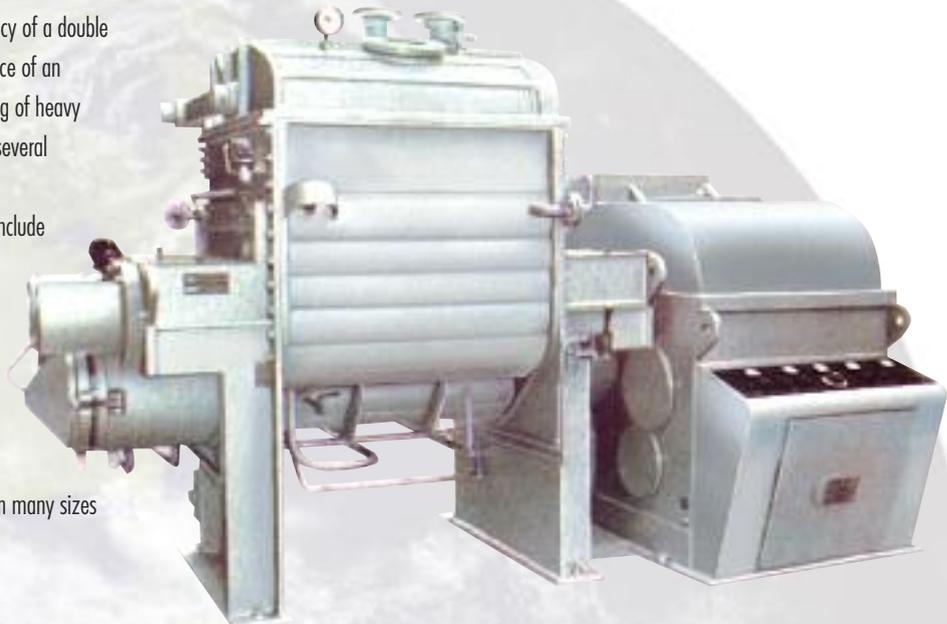


Model VM 1000-S

For more information visit www.mixers.com

KNEADER EXTRUDER

Our Kneader Extruder combines the efficiency of a double arm – sigma blade mixer with the convenience of an extrusion screw for the mixing and discharging of heavy viscous materials. The Kneader Extruder has several advantages over conventional tilt-type or bottom-discharge double arm mixers. These include shorter mixing times, easier discharge (no need to manually scrape out sticky or tacky materials) and minimal operator exposure to products of high temperature or toxic nature. Many sizes and designs are available to meet the most stringent process needs. Kneader Extruders are manufactured in many sizes from 1 through 1000 gallons capacity.



Model KE 1000



Model 4x8

THREE ROLL MILLS

When we introduced the first Three Roll Mill nearly 100 years ago, we revolutionized the pigment dispersion process. Today the original Ross Three Roll Mills are still the standard by which all others are measured – in applications as diverse as magnetic coatings, cosmetics, paints, inks and high performance ceramics. Our design is unsurpassed for safety, product consistency, easy operation and long-term value. Ross offers a complete selection of Three Roll Mills designed for laboratory applications through full-scale production. A broad choice of materials of construction, coated rolls and controls are available.



Ross is equipped to provide a full range of engineering, design and manufacturing services to our clients throughout the world.

Company-owned manufacturing facilities total over 300,000 square feet.

We offer individual mixing, blending, drying and dispersion equipment, or completely integrated systems including automated controls and storage vessels.

Our manufacturing facilities enable us to build economically on both large and small scale ranging from 1/2 pint to 100,000 gallons capacity.

Ross Test and Development Centers are fully equipped with our equipment to allow complete evaluation prior to purchase. When equipment is needed to solve immediate processing requirements, we usually have machines ready to be shipped on a moment's notice.

A COMMITMENT TO QUALITY



FABRICATION

Our fabrication capabilities have grown to support our continually expanding product mix. We have some of the best equipped facilities to build pressure vessels, reactors, API tanks, polished sanitary storage tanks, etc. to meet the needs of our customers. Our plants are ASME Code certified and can provide the stamp when required. We are experienced in working with a wide variety of materials including Carbon and Stainless Steel of all types as well as Hastelloy, Monel and Inconel. Our engineers routinely meet other code requirements such as USFDA, BISSC, ABS, API650, API620 and UL142. Our state of the art machining and design departments permit us to provide air-tight quality assurance for jobs of virtually any size.

www.storagevessels.com

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.

www.rossyscon.com



For more information visit www.mixers.com

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. Use our experience to your advantage. 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.



TRIAL RENTALS

The Ross Trial Rental Program gives process managers a powerful tool for optimizing a process before committing to a large capital purchase. If you need mixing capacity to develop a new process or to verify a new production technique, for a week, a month or a year, or longer, we can help!

Once you've confirmed your mixing strategy and decided to purchase a new Ross mixer, a significant portion of your rental fees are credited against the purchase price. That's smart mixing on any process line, and smart business on any balance sheet.

The Ross Trial Rental Program is supported with a solid commitment. We stand behind our rental program with a commitment that guarantees fast action when you need it, and unbeatable mixing performance. With a multi-million dollar inventory of mixing equipment committed to the Ross Trial Rental Program, you can be sure that Ross will have the right mixer in stock when the need arises. If you need a mixer in a hurry, we'll ship it in a hurry—in most cases within 48 hours. Every class of Ross mixer is included in our Trial Rental Program.



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.



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Port St. Lucie, FL



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