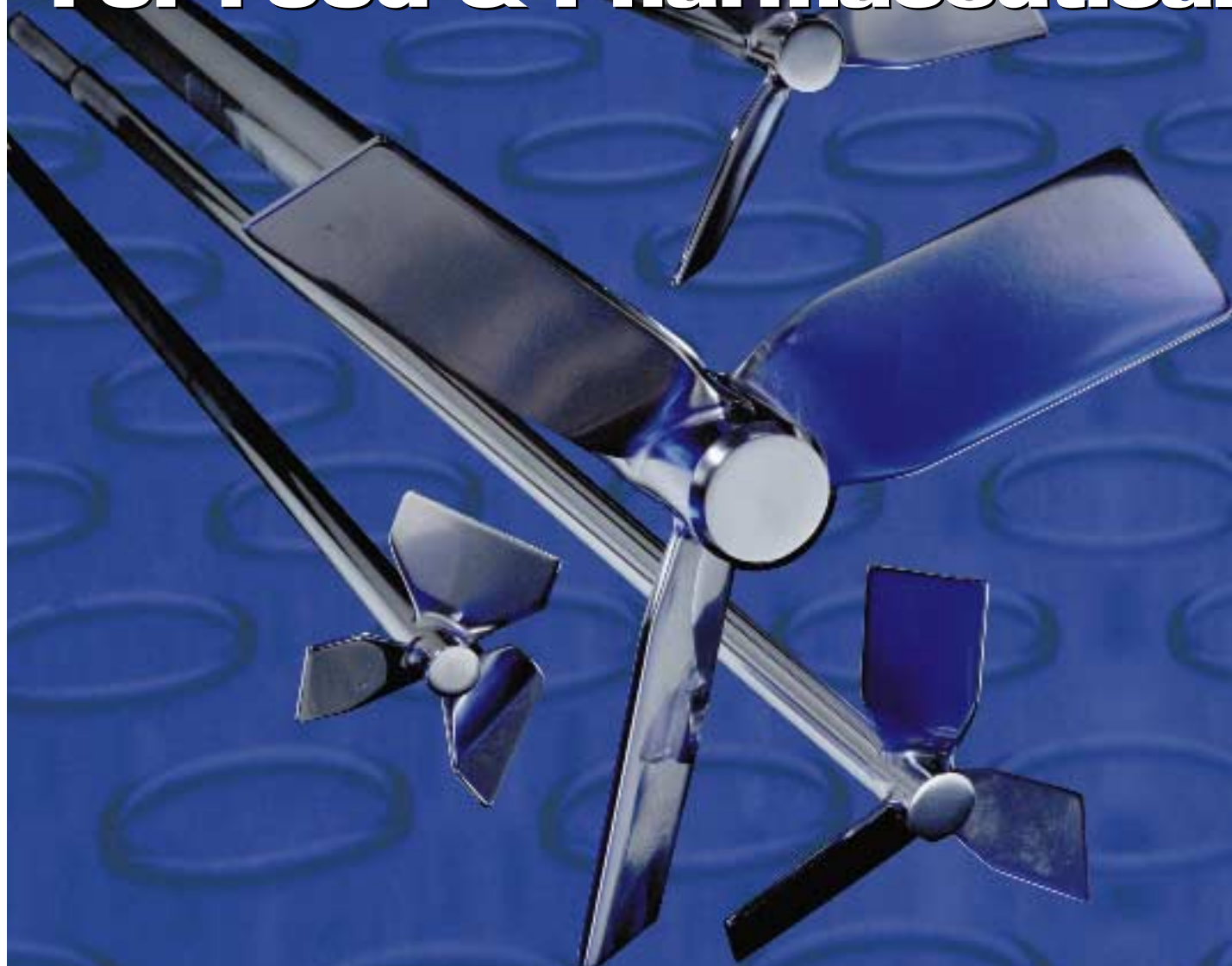


SHARPE **MIXERS**

For Food & Pharmaceuticals



Liquid mixers built specifically for industries that require wash-down, polished, food grade, or pharmaceutical grade equipment





Effective scale-up designing from SHARPE MIXERS' testing facilities and pilot plant operations guarantees performance and optimizes mixer selection.



The Choice of Pharmaceutical & Biotechnology Leaders

The strict regulations governing the pharmaceutical and biotechnology fields require that only top quality equipment be used. SHARPE MIXERS meets or exceeds those requirements with a full line of mixers specifically designed for sanitary applications. Attaining validation, maintaining regulatory compliance, and eliminating product contamination are simple tasks with the use of SHARPE mixing equipment.

All wetted parts are mechanically polished to specification and electropolished when required, from 32 Ra down to less than 5 Ra. Extensive testing, handling, and packaging procedures ensure consistent surface finishes as specified. Sanitary mechanical seal configurations are available, including Clean-In-Place/Sterilize-In-Place (CIP/SIP) features. Mixers are furnished with standard ANSI flange mounts, Tri-Clover sanitary ferrules, or other custom mounting options.

Mixer drives can be supplied with standard grey enamel paint or optional bright white high-gloss two part epoxy coating. For a true paint-free USDA approved finish, all 300 series stainless steel construction is available, including TEFC electropolished stainless steel motors. Variable speed controls are optional with washdown enclosures.



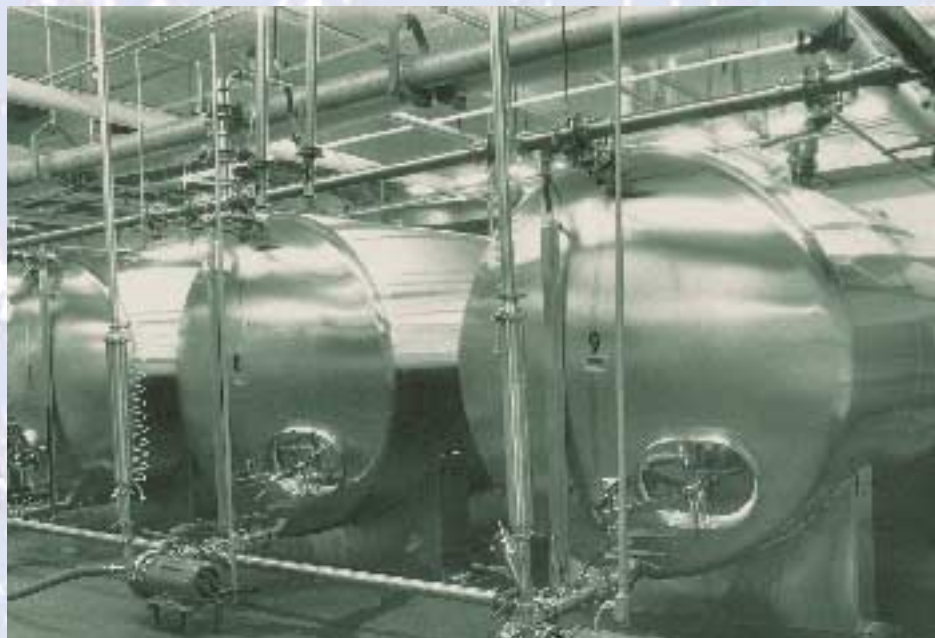
(Above) A 2500 gallon pharmaceutical blending tank is mixed with a sanitary design SHARPE mixer. The dry-running mechanical seal operates without the use of external lubrication. All surfaces exposed to the product were mechanically polished to a 15 Ra finish and electropolished for optimum sterilization.

Sanitary Mixers for the Food and Beverage Industry

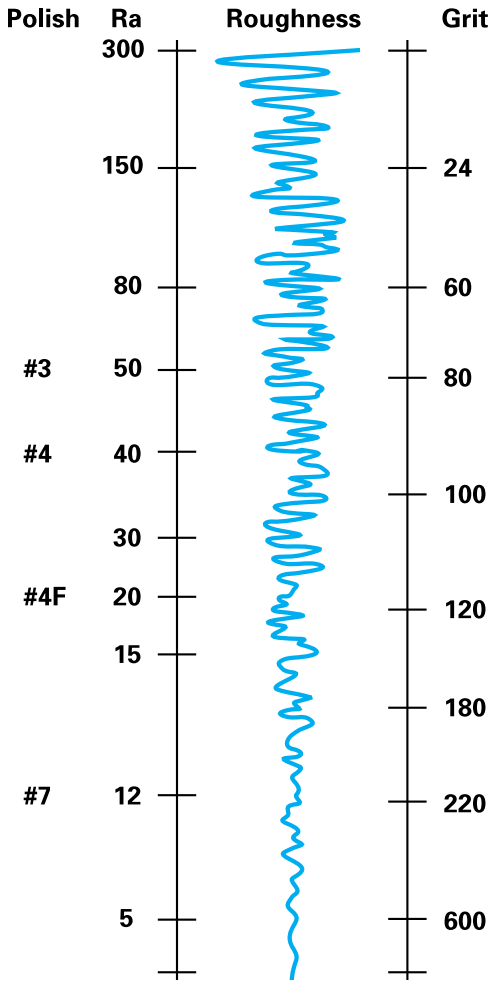
SHARPE MIXERS has been building mixers for the food and beverage industry for over twenty years. From simple beverage syrup and juice concentrate blending to brew mash kettles and high viscosity products, successfully mixing a wide spectrum of food products has built a solid foundation of experience.

SHARPE MIXERS manufactures a wide variety of agitation equipment, from 1/6 horsepower portables to large top and side entry mixers through 300 horsepower. Various impeller styles are available to meet the individual requirements of the application, from small high speed dispersers to large helices and anchors. Each mixer component exposed to the product in the tank is designed specifically for ease of cleaning and sterilization. Standard food grade mixers include washdown-duty motors, all white epoxy painted drives and mountings and S.S.316 wetted parts.

The USDA approved mixer line is built specifically for environments that require "paint-free" equipment. This premium *all stainless steel mixer series* includes electropolished 300 series stainless steel motors, mountings and gearbox assemblies. Food grade lubricants, stainless steel fasteners and #4 polished S.S.316 impellers and shafts combine to provide the ultimate in sanitary mixers.



(Above, left) Sharpe's gear drive portable mixer, part of the all stainless steel mixer series, is built from S.S.316 materials, electropolished for a bright sanitary finish. The photo above shows the lip seal (common to all portables and F-Series mixers) which seals out moisture from entering the mixer drive and corroding internal parts. Access to the shaft coupling is through a gasketed service window.



(Above) Electropolished and passivated stainless steel castings and fabrications make up the mixer drives on SHARPE's all stainless steel series mixers. Shown here is a 350 RPM unit with a sanitary ferrule mount and mechanical seal.



Impellers are available in various configurations from simple propellers to complex helix designs. Split impellers (shown above) with teflon gasketed assembly points allow ease of installation and adjustment while providing easy-clean characteristics. For more stringent polishing needs, the impellers are welded to the shafts and all welds blended and polished.

Careful consideration is required when specifying surface finish on the wetted parts of a mixer, since the costs increase significantly as the quality of the finish increases. The chart above lists some typical surface specifications and how they relate to grit and Ra measurements. Finishes commonly specified include:

- **No. 3 FINISH** - A semi-polished surface with pronounced grain lines measuring approx. 50 Ra.
- **No. 4 INDUSTRIAL FINISH** - A general-purpose bright finish with visible grain lines measuring no greater than 40 Ra.
- **No. 4 SANITARY FINISH** - A more reflective surface with finer grain lines measuring a maximum of 20 Ra.
- **No. 7 FINISH** - A highly reflective finish with minimal grain lines measuring approx. 12 Ra.
- **GLASS BEAD FINISHING** - An inexpensive method of achieving a relatively smooth uniform surface without grinding the welds.
- **No. 2B MILL FINISH** - A smooth reflective unpolished finish available only on sheet metal, therefore not applicable to mixing equipment.
- **ELECTROPOLISHING** - An electrolytic procedure following mechanical polishing to further enhance the reflectivity and cleanability of the surface.



photo courtesy of John Crane, Inc.

(Left) Various mechanical seal configurations are available to meet specific customer needs. The single outside seal shown here with Clean-In-Place and Sterilize-In-Place steam purge fittings is a design commonly used on pharmaceutical applications. Simple vapor seals and stuffing glands are also available for less critical sealing requirements.