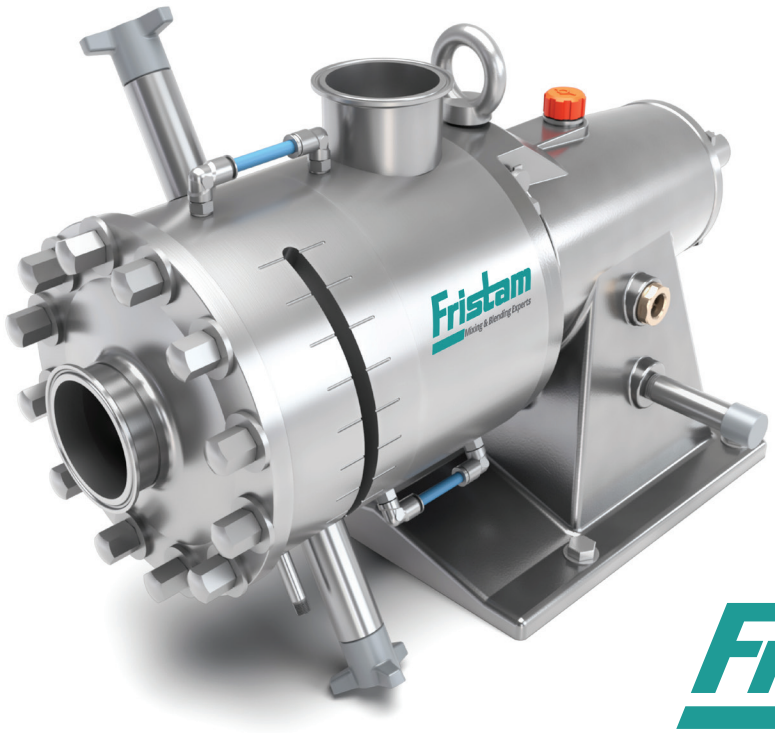
Enhancing Mayonnaise, Dressing, and Sauce Production with the Fristam FCM Colloid Mixer



Fristam
Mixing & Blending Experts

Innovation in Hygienic Mixing and Blending for Superior Product Quality and Operational Efficiency

INTRODUCTION: THE IMPORTANCE OF EMULSION STABILITY

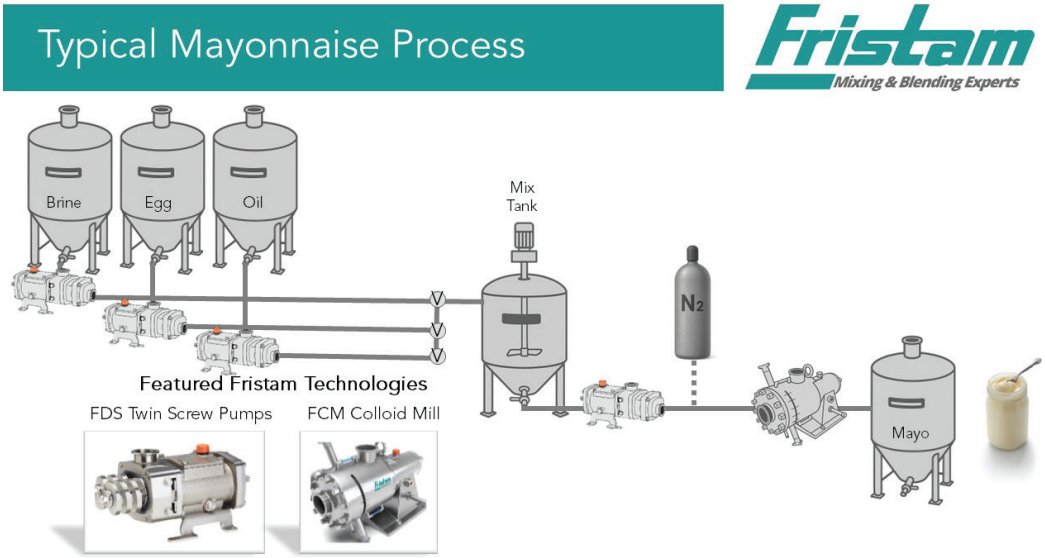
Mayonnaise is a classic oil-in-water emulsion consisting primarily of oil, water, egg yolk or emulsifiers, acids, and seasonings. Achieving a stable mayonnaise requires the oil phase to be finely dispersed into microscopic droplets that remain evenly suspended within the continuous water phase. If droplet size is inconsistent or insufficient shear is applied, the emulsion can separate, resulting in poor texture, oiling-off, and reduced shelf life.

Mixing technology plays a defining role in this process. The ability to apply consistent, controllable shear ensures uniform droplet size distribution, smooth mouthfeel, and long-term emulsion stability—key quality attributes expected by both processors and consumers.

EXECUTIVE SUMMARY

In today's competitive food processing landscape, manufacturers of mayonnaise, dressings, and sauces are under increasing pressure to deliver consistent quality while maximizing uptime and operational efficiency. Central to meeting these demands is the ability to produce a stable, repeatable emulsion. The Fristam FCM Colloid Mixer is engineered to deliver precise, high-shear mixing that supports superior emulsion stability, reduced processing time, and hygienic operation. This paper outlines how mayonnaise is produced, why controlled emulsification is critical, and how the Fristam FCM provides measurable advantages over conventional colloid mills.

HOW MAYONNAISE IS MADE: A PROCESS PERSPECTIVE



During mayonnaise production, ingredients are typically combined into a pre emulsion. As oil is incorporated, intense mechanical energy is required to reduce droplet size and activate emulsifying agents. Inadequate shear can lead to incomplete emulsification, while excessive or poorly controlled shear may damage ingredients or introduce air.

The ideal mixer must therefore deliver:

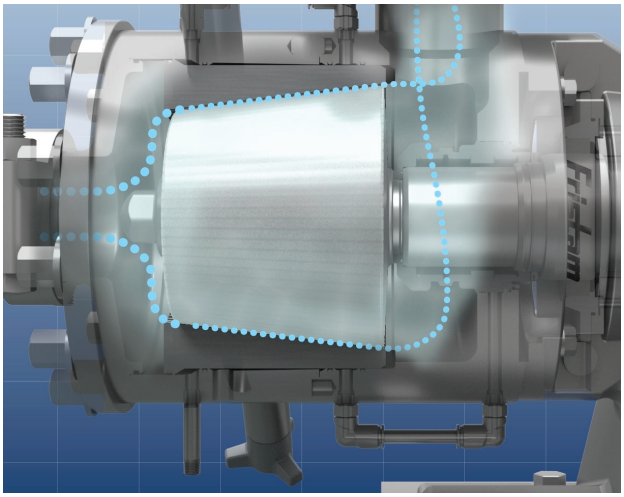
- Precise, repeatable shear
- Minimal air entrainment
- Consistent product flow
- Hygienic, cleanable design

The Fristam FCM Colloid Mixer was developed to meet these exact requirements.

THE FRISTAM FCM COLLOID MIXER: ENGINEERED FOR EMULSIFIED PRODUCTS

The Fristam FCM is a high-shear, hygienic colloid mixer designed for demanding food applications such as mayonnaise, dressings, and sauces. Its rotor/stator configuration delivers intense yet controlled shear, producing fine emulsions with exceptional consistency.

KEY DESIGN ADVANTAGES:



ON-THE-FLY GAP ADJUSTMENT

The FCM allows operators to adjust the rotor/stator gap during production, without stopping the process. This enables real-time control of viscosity and texture, eliminating downtime and reducing product waste associated with trial-and-error adjustments.

HANDS-OFF SANITARY DESIGN

Unlike many traditional colloid mills that require cover removal for cleaning or adjustment, the FCM's enclosed design supports full clean-in-place (CIP) operation. This minimizes manual intervention, improves operator safety, and reduces the risk of contamination.

CIP-CAPABLE CONSTRUCTION

The FCM is fully CIPable, allowing processors to clean the system without disassembly. This stands in contrast to many competitive colloid mills that are clean-out-of-place (COP), requiring additional labor, downtime, and handling.

KEY FCM BENEFITS IN MAYONNAISE, DRESSING, AND SAUCE PRODUCTION

1. Consistent, Stable Emulsions - The FCM produces uniform droplet size distribution, resulting in stable emulsions with excellent mouthfeel and appearance. This consistency helps processors maintain brand standards across batches.

2. Reduced Downtime and Increased Throughput - On-the-fly gap adjustment and CIP capability significantly reduce production interruptions, enabling higher line utilization and faster changeovers.

3. Improved Process Control - Operators can fine-tune shear levels to match product formulations, supporting a wide range of viscosities and textures without changing equipment.

4. Hygienic and Operator-Friendly - The enclosed, sanitary design minimizes exposure to product and cleaning chemicals while supporting industry hygiene standards.

5. Lower Total Cost of Ownership - With its integrated CIP capability, the FCM helps reduce the need for manual COP procedures—minimizing the risk of component damage and contributing to a lower overall cost of ownership compared to competitive designs.

6. Compact Footprint and Efficient Use of Floor Space - Compared to traditional homogenizers, the Fristam FCM Colloid Mixer requires significantly less floor space. Its compact, inline design allows processors to maximize production capacity within existing facilities, reduce the need for costly plant expansions, and simplify integration into both new and retrofit applications. This space-efficient configuration is especially valuable in high-cost processing environments where every square foot of floor space matters.

Reduced cleaning time, fewer production stoppages, and minimized product waste contribute to long-term operational savings.

CONCLUSION

Producing high-quality mayonnaise and emulsified sauces depends on achieving and maintaining a stable emulsion through controlled, hygienic mixing. The Fristam FCM Colloid Mixer provides processors with the precision, flexibility, and sanitation advantages needed to meet modern production demands. With on-the-fly gap adjustment, full CIP capability, and robust hygienic design, the FCM delivers measurable improvements in efficiency, product quality, and process reliability.

Learn more about how the Fristam FCM can enhance your emulsion processing operations at www.fristam.com

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