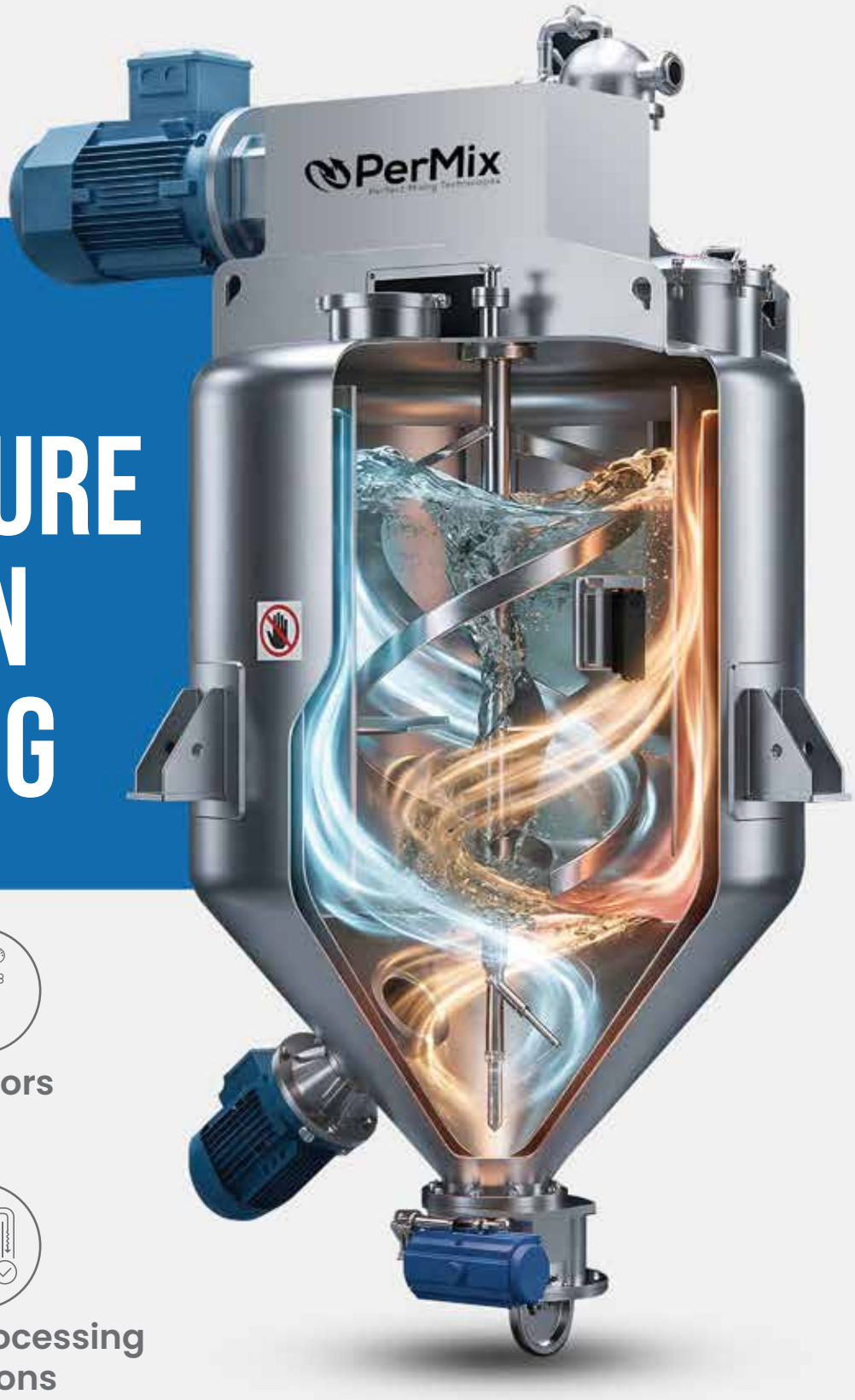
PerMix
Perfect Mixing Technologies

PRECISE TEMPERATURE CONTROL IN PROCESSING



Cook & Chill Systems

Reactors

Mixers

Thermal Processing Solutions

www.permixmixers.com

PerMix
Perfect Mixing Technologies

ENGINEERING CONTROLLED THERMAL ENVIRONMENTS FOR MODERN MANUFACTURING.

Temperature control is one of the most critical variables in industrial processing. Whether manufacturing foods, pharmaceuticals, chemicals, or biotechnology products, controlling thermal conditions during mixing determines the success of the process.

PerMix engineers advanced cook & chill systems, jacketed kettles, and bioreactors designed to precisely manage heating and cooling during production.



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WHY TEMPERATURE CONTROL MATTERS IN INDUSTRIAL PROCESSING

Reaction Rates

Accelerate or stop chemical reactions.

Viscosity & Flow

Manage thickness and pumpability.

Protein Stability

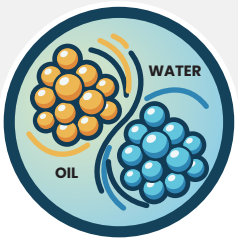
Prevent denaturation in dairy and biotech.

Microbial Activity

Eliminate pathogens for food safety.

Crystallization

Control particle size in pharma.



Emulsion Stability

Prevent separation of oils and water.

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THE ROLE OF HEAT TRANSFER IN PROCESSING

Efficient heat transfer is essential to achieving controlled processing conditions.

PerMix maximize thermal exchange through:

- Conduction: Heat transfer through vessel walls.
- Convection: Movement of heated product within the vessel.
- Mixing-Induced Circulation: Agitation patterns that distribute heat evenly.

Benefit:
Prevents localized overheating (burn-on) and reduces energy consumption.

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REACTION CONTROL

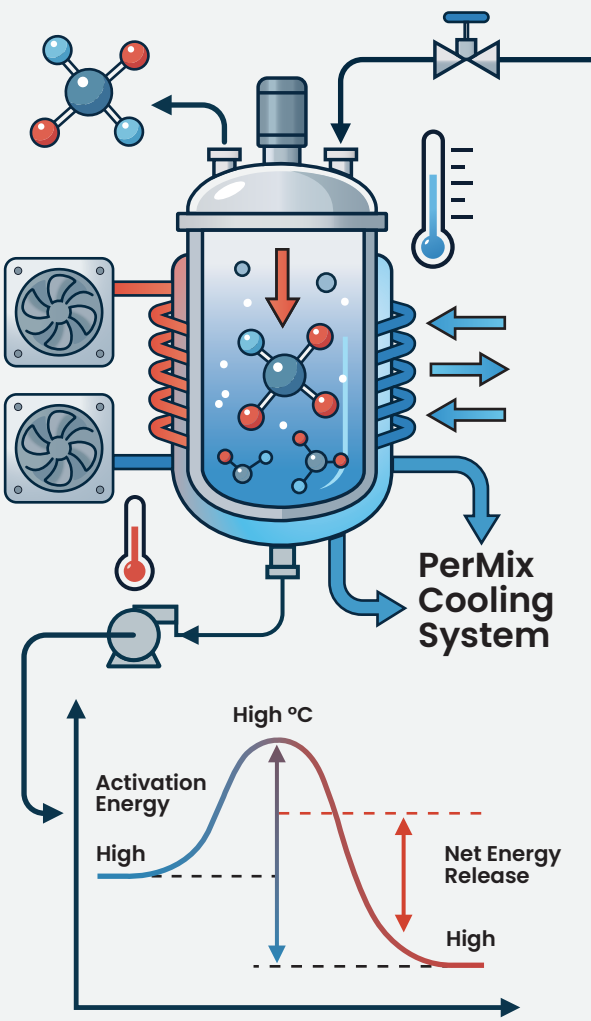
EXOTHERMIC & ENDOTHERMIC PROCESS CONTROL

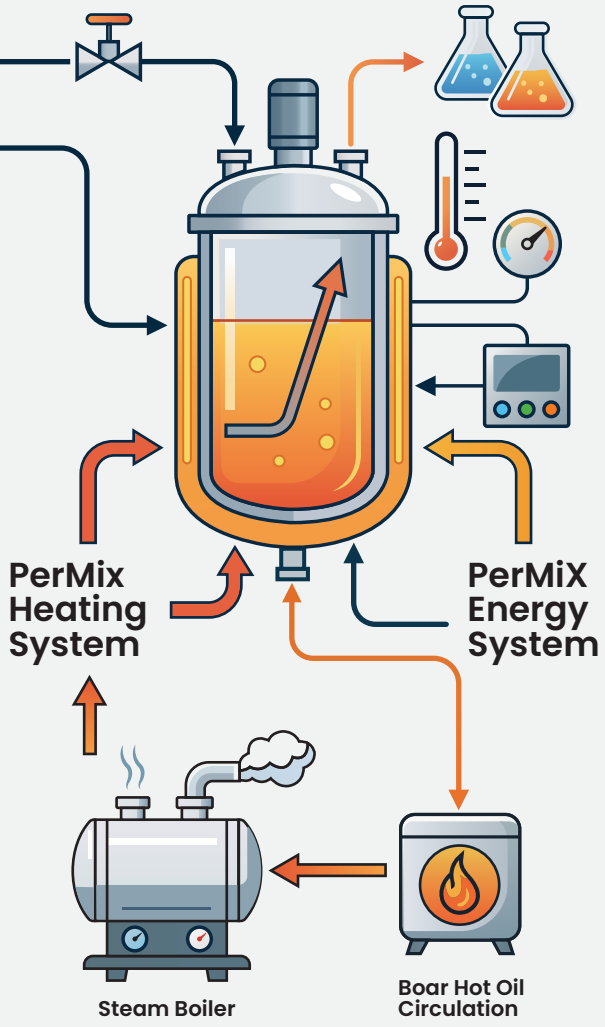
Left Column (Exothermic):

- Releases heat during reaction.
- **Examples:** Polymerization, fermentation, catalytic reactions.
- **PerMix** removes excess heat to prevent runaway reactions.

Right Column (Endothermic):

- Requires continuous heat addition.
- **Examples:** Dissolution of solids, evaporation.
- **PerMix** provides precise energy input via steam or thermal oil.





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COOK & CHILL TECHNOLOGY

The process involves controlled cooking within a jacketed vessel, uniform heat distribution, and rapid cooling to safe storage temperatures.

Ideal for:

Sauces and Soups

Dairy Products

Ready Meals

Plant-Based Foods

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COOK & CHILL TECHNOLOGY

PerMix cook & chill systems enable precise control over temperature-critical steps to ensure product integrity.

Reliable cooking to eliminate pathogens.

Rapid cooling to prevent bacterial growth.

Repeatable batch consistency for regulatory compliance.

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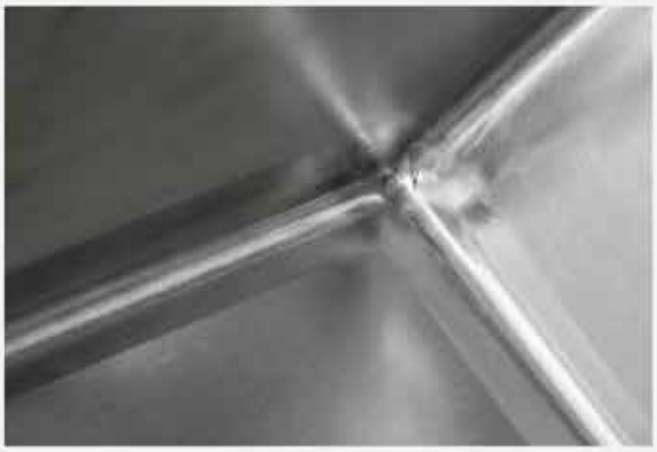
SQF AND GLOBAL FOOD SAFETY STANDARDS

PerMix equipment supports SQF-compliant manufacturing through:



Sanitary stainless steel construction.

Smooth weld finishes and easy-clean designs.

CIP (Clean-in-Place) automated systems.

Full traceability of process data.

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TEMPERATURE CONTROL IN PHARMACEUTICALS

In Pharma, temperature influences active ingredient stability and dissolution rates.

Precise heating cooling profiles.

Sanitary pharmaceutical-grade construction.

Automated process monitoring for total compliance.

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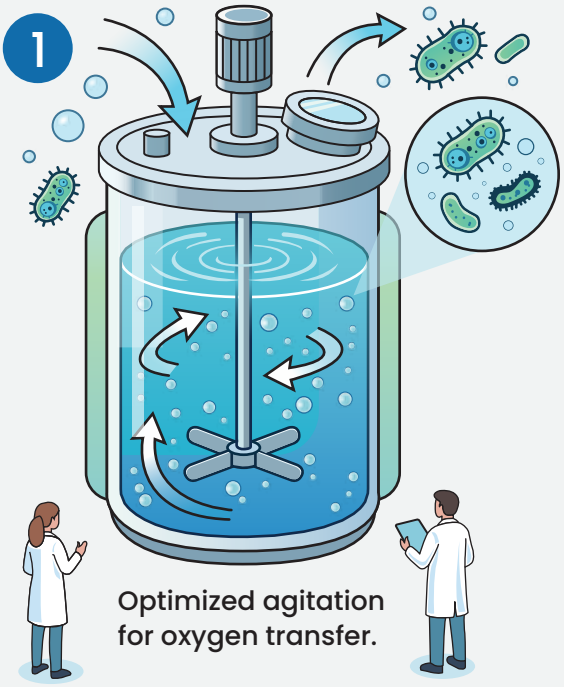
BIOTECHNOLOGY AND BIOREACTORS

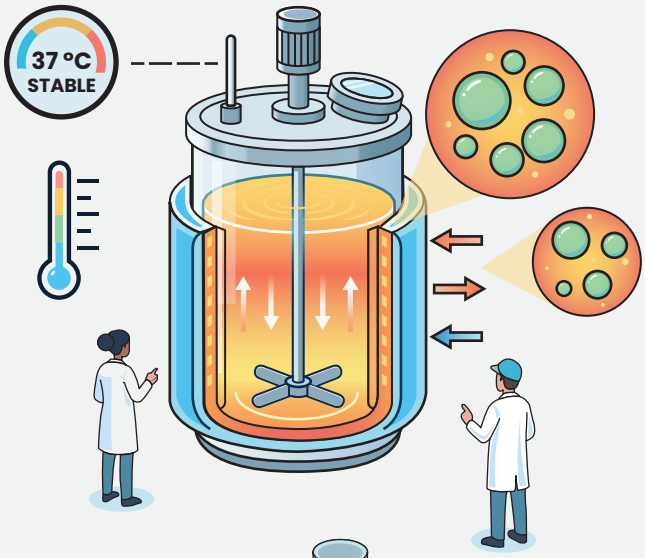
Biological systems are extremely sensitive. PerMix bioreactors provide:

1

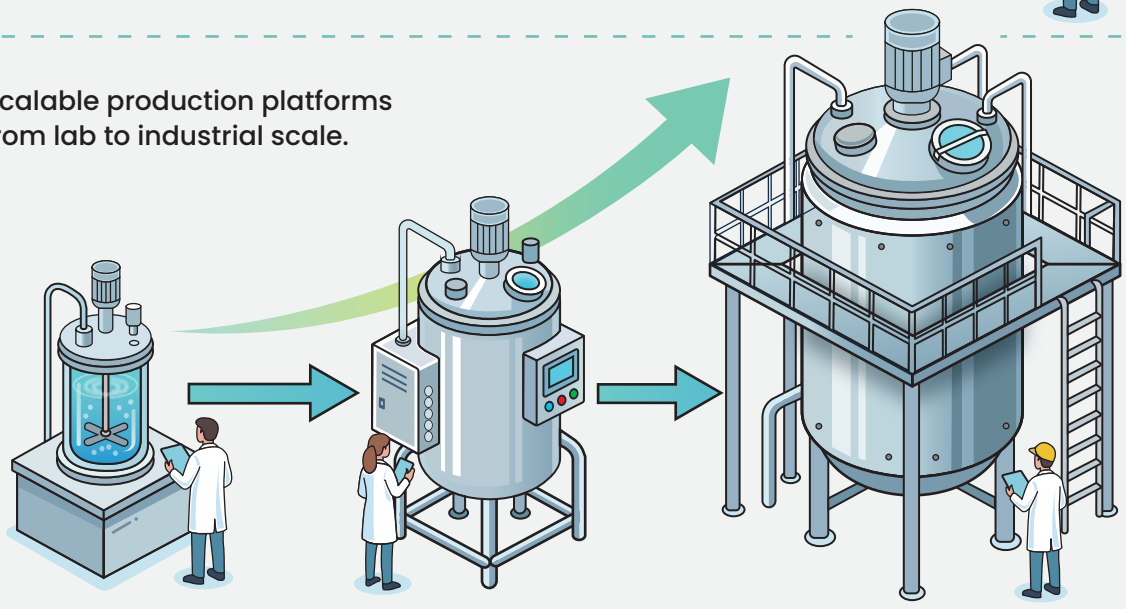


Optimized agitation for oxygen transfer.

2 Stable thermal environments for cell culture.



3 Scalable production platforms from lab to industrial scale.



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PROCESS AUTOMATION & ADVANCED EQUIPMENT

Integrated PLC and HMI systems allow operators to monitor:

- Heating/cooling rates.
- Mixing speed and batch time.
- Temperature curves and safety alarms.

Equipment Range

Jacketed Mixing Tanks, High-Shear Systems, Industrial Reactors.

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PerMix
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ENGINEERING ADVANTAGES OF PERMIX SYSTEMS

Unmatched Process Expertise: We don't just build machines; we understand the chemistry behind the mix. Our engineers analyze your specific requirements for reaction rates, viscosity, and thermal curves to optimize your production.

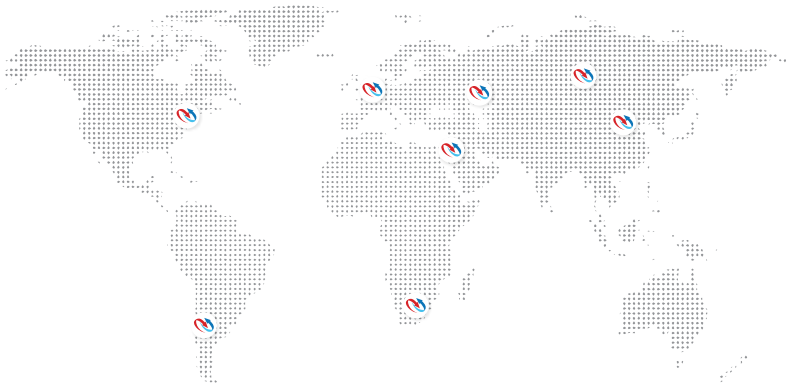
Custom Engineered Solutions: From small batch R&D reactors to massive industrial bioreactors, we design systems tailored to your unique scaling needs and facility constraints.

Advanced Thermal Control: Maximize efficiency and consistency with our precisely jacketed vessels and integrated Cook & Chill technologies, reducing energy costs and product burn-on.

WHY MANUFACTURERS CHOOSE PERMIX
(GLOBAL TRUSTED PARTNER)

Global Manufacturing & Presence: Factories and engineering offices in USA, Europe, and Asia ensure seamless support and local compliance.

Built to Last: Every vessel is constructed with sanitary stainless steel and features smooth, easy-clean welds. We stand behind our work with a 5-Year Warranty on all ASME vessels.



Reliability:
5-YEAR WARRANTY
on ASME vessels.

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