AQUAFLOW WATER COOK & CHILL

SOLUTIONS

Sous Vide & Pasteurization Solutions with Precise Control and Uniformity

MARLEN

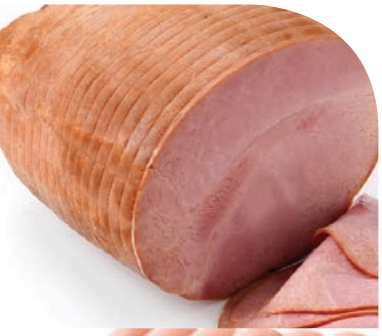
A **DURAVANT** COMPANY

PRECISE CONTROL

CONTINUOUS COOKING OR CHILLING IN WATER

Our Aquaflow system is designed to sous vide cook, pasteurize, or blanch and chill a wide range of food products. Engineered with food safety, efficiency, and footprint in mind, our Aquaflow provides sufficient water volume, movement, and recirculation for optimal heat transfer. With these three elements at its core, the Aquaflow can control the water temperature across the width of the belt and along the full length of the tanks to nominally one degree. These systems can be designed with a custom tank size, including linear or stacked tanks for minimal footprint. Automatic loading and unloading systems are also available for a turnkey solution.

FEATURES & BENEFITS



- Water immersion transfers heat about 24 times faster than air.
- Direct steam injection is used for efficient heating.
- Independently controlled tanks reduce footprint and improve product quality.
- Flighted belt design gently conveys product reducing risk of product degradation.
- Sparging manifold releases energy directly to product flights. A shower drench can be used for products that float.
- Multiple probes are used to control water temperature to +/- one degree.
- Hygienic design with inline filtration and easy access for cleaning.
- Ewon for remote monitoring, login for maintenance, and data logging capabilities for the ever-evolving IIoT and Industry 4.0.
- No-leak Patented sealed electrical boxes withstand 1350 PSI direct spray to edge of silicone seal.

Marlen has developed a controlled, more precise way to cook that improves product safety and shelf-life. Whether you are looking to vacuum seal the product into pouches and cook/chill for a food service application or need a gentle method for blanching vegetables, the Aquaflow offers precise continuous cooking in a compact footprint.

WATER COOKING:

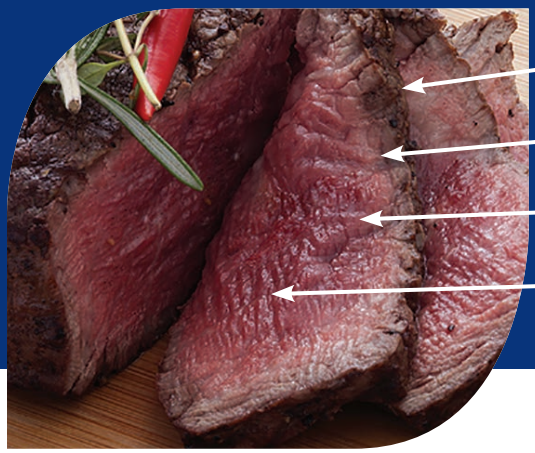
Our Aquaflow offers a continuous scalable process that drives product consistency unlike any batch process out there. Recipe-driven controls enable maximum control for product consistency and optimal results. Our Aquaflow continuous system eliminates double heating and handling to save labor and energy. So, whether you're cooking meat to tender perfection or liquid eggs in a bag, Marlen's Aquaflow system will help you achieve perfection every time.

WATER CHILLING:

Our Aquaflow can be used as a continuous chilling solution for packaged food products. The design is engineered to achieve critical chilling targets using a combination of water volume, movement, and recirculation. Our Aquaflow provides an efficient solution for a variety of pouches to bagged soups, post-pasteurized hot dogs, and more. A shower drench provides chilled water to product that floats and a sparging manifold efficiently delivers fresh chilled water directly to the product flights helping to reduce residence time and increase throughput capacity.

VALIDATION STUDIES HAVE BEEN CONDUCTED WITH MARLEN ENGINEERING TO VALIDATE HEAT TRANSFER & PROCESS TIMES.

TRADITIONAL
COOKING IN OVEN



SOUS VIDE
100% IDENTICAL COOKING

WATER PASTEURIZING:

Marlen's Aquaflow Water Pasteurizers are third-party validated as published in the *American Journal of Food Protection** and designed for Ready-to-Eat Food Products by Submersion Heating for Reduction of Listeria monocytogenes. Our Aquaflow is USDA-FSIS Recognized Technology as a post-package surface pasteurization system**. Marlen's control system and specially designed manifold provide uniform heat treatment for pasteurizing packaged product like hams and hot dogs. Using higher temperature regimens of 195° to 205°F (90.6 to 96.1 °C), reductions of L. monocytogenes (~2 log) within 2 to 4 min.

Heat penetration affects only the outer 1 cm of product, and surface temperatures were equilibrated back to below 50°F (10°C) within a few minutes after submersion in a chill tank.

**Journal of Food Protection, Vol. 65, No.6, 2002, Pages 963-969*
***Food Safety and Inspection Service New Technology Information Table Last Update October 2019 / https://www.fsis.usda.gov/sites/default/files/media_file/2020-08/complete-new-technologies-table.pdf*

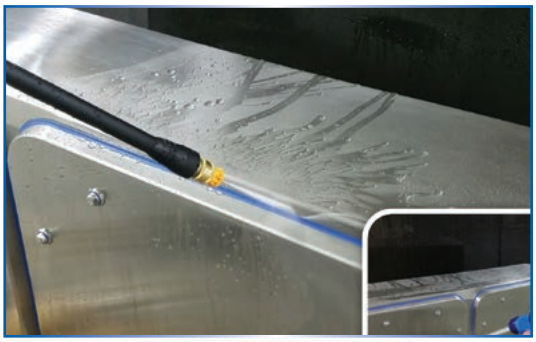
ULTRA-HYGIENIC

DESIGN

8-PORT STAINLESS STEEL BLOCK

ACCESSIBLE BELT DESIGN FOR EASIER CLEANING

HYGIENIC CABLE MANAGEMENT



PATENTED NO-LEAK SEALED ELECTRICAL BOX

ADVANTAGES OF MARLEN AQUAFLOW SYSTEMS

AN EFFECTIVE AND MORE EFFICIENT PROCESS

If your product lends itself to heating or chilling in water, it is undisputed that water will transfer heat much faster than air. In fact, the thermal conductivity of water is .58 (W/m K) and air is .024 (W/m K) Watts per meters kelvin. In other words, water will transfer heat about 24 times faster than air. Marlen's Aquaflow solution leverages the efficiency of water and uses direct steam injection for hot water treatment along with an aggressive, high volume, recirculation approach to cold water treatment for efficiently chilling products.

A CLEANER MORE PRECISE WAY TO COOK AND CHILL

Improve control and safety with Marlen's Aquaflow, continuous sous vide process to cook and chill, or pasteurize product in packaging. A flighted conveyor gently carries your product through the entire process – no racks, baskets, or batch loading required. Recipe-driven software ensures accurate control of product-specific conditions to maintain water temperature to nominally one degree throughout the entire tank, reducing both product spoil and purge. Whether you are processing chicken breast, beef, or post-package pasteurizing deli products like hotdogs, the Aquaflow is a validated USDA-FSIS recognized technology, and the leading continuous water cook and chill system.

MARLEN

A **DURAVANT** COMPANY

4780 NW 41ST ST, STE. 100 • RIVERSIDE, MO 64150

TEL 913.888.3333 | TOLL FREE 800.862.7536 | FAX 913.888.6440 | EMAIL: SALES@MARLEN.COM | WWW.MARLEN.COM