
PREMIUM QUALITY MEAT
Natural 100%
206018 036671
NATURAL
POLAR FUSION
HIGH VISCOUS BRINE SYSTEM
CLEANER LABELS
ARE HERE
206018 036671
EST.
1968
PREMIUM PORK
ALWAYS FRESH
NATURAL
PRODUCT
ORGANIC PRODUCT
206018 036671

JBT®

Polar Fusion
High Viscous Brine System

A Clean Label is Attainable

As consumer demand grows for a greater transparency in food recipes, an increased pressure has been put on processors to deliver a cleaner label. To keep pace with the market, processors are now faced with a whole new set of challenges. In order to meet stringent recipe specifications of clients and quality standards of the end customers, processors are facing losses in product yield, an increased product failure rate and the task of finding new product binders acceptable by the consumer.

To address this multi-tiered challenge, the experts at JBT have applied their vast knowledge of secondary and further processing to assemble a new solution with their new Polar Fusion High Viscous Brine System. With process optimization at multiple phases, processors can see:

- **Increased product yields**
- **Recipe alternatives with no loss in quality**
- **An overall cleaner end product label**

To test a new product, work with an expert on a new recipe or train at our state-of-the-art facility, schedule time at JBT's Tech Center in Sandusky, Ohio by calling 419 627 4319.

APPLICATIONS IN A VARIETY OF PROTEIN SEGMENTS

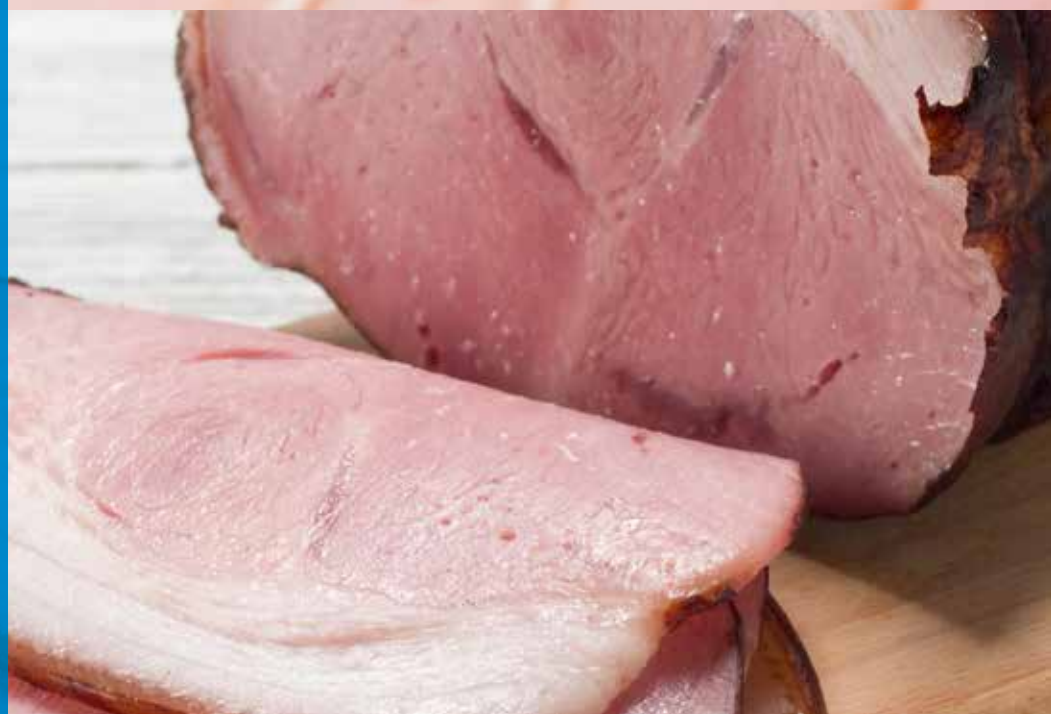
- POULTRY
- DELI MEATS
- RED MEAT
- FRESH PORK
- FISH

ELIMINATE PHOSPHATES

REDUCE SODIUM

ALL NATURAL INGREDIENTS

COMBINED YIELD INCREASE OF UP TO 5%



Polar Fusion
High Viscous Brine System

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System Overview

To fully understand JBT's Polar Fusion High Viscous Brine System and process variables, we have segmented the process into three phases:

Phase I

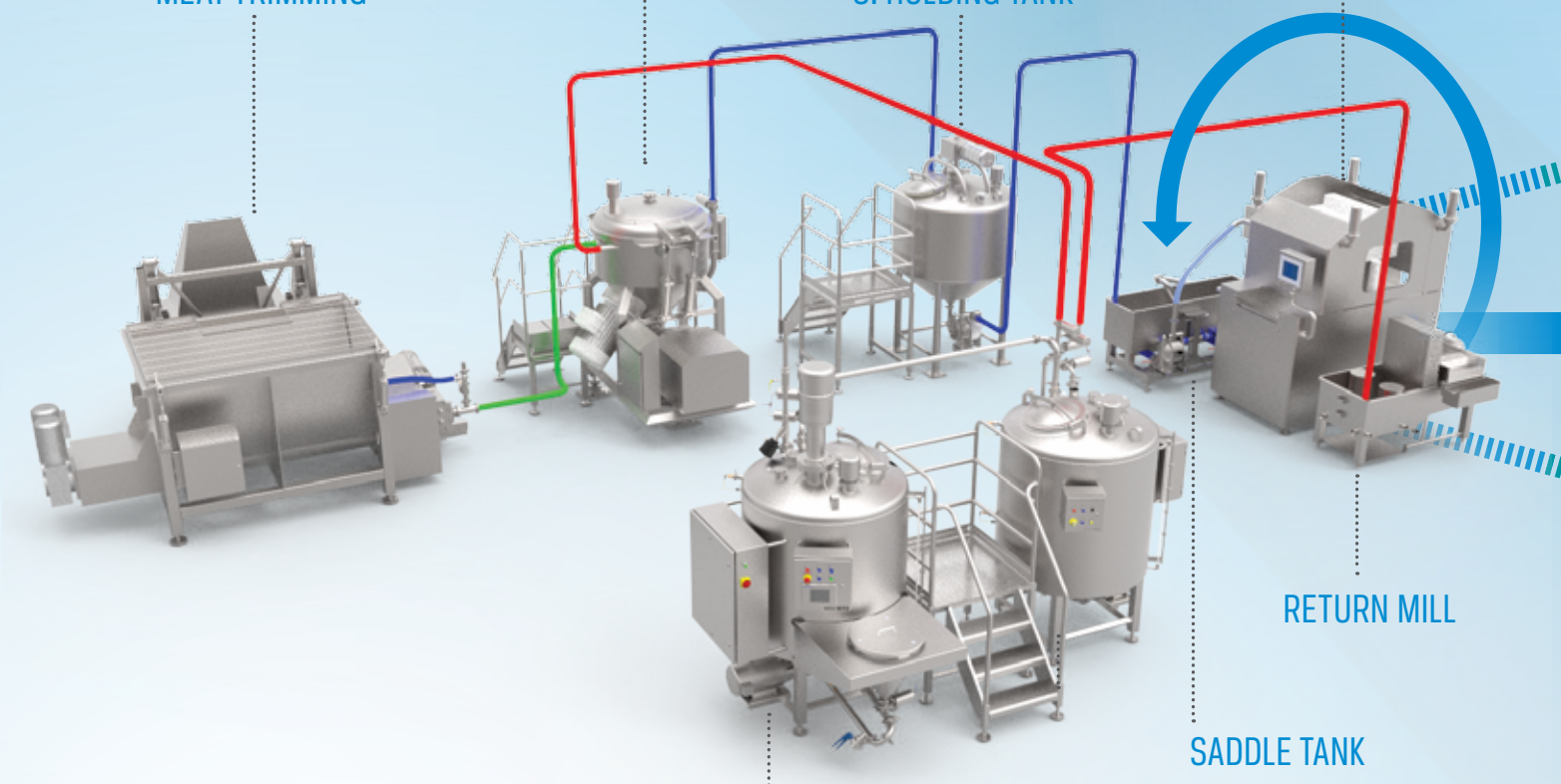
At this stage of the process, the initial high viscous brine is prepared and applied to the protein substrate.

2. HOMOGENIZATION

All-natural protein trimmings are added to the base brine and then mixed/sliced until the brine reaches a uniform, highly viscous consistency.

4. INJECTION & RETURN MILLING

Post-homogenized solution is transferred to a holding tank, where it can then be accessed and directly injected into whole-muscle protein substrates. After injection, excess solution is collected, run through a mill to re-filter the solution and then cycled back into the saddle tank for further use.



1. BRINE PREPARATION

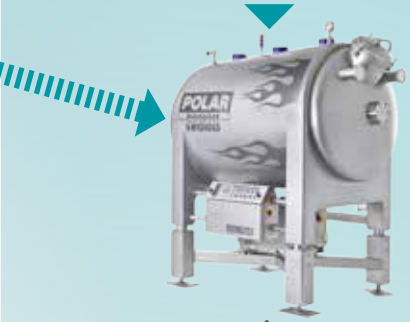
Base brine is mixed and chilled prior to addition of all natural ingredients.

Phase II

At this stage, additional secondary processing steps may be applied to help improve product yield during phases II & III.

5. MACERATION

Dependent on application, a maceration step may be added to help achieve specific product attributes or increase cumulative product yield through surface preconditioning.



6. MASSAGING

Dependent on application, a massaging step may also be added. Massaging on its own or in combination with maceration can greatly improve product binding and ingredient distribution.

Phase III

At this stage, product is fully cooked or sent on to final processing stages dependent on product application.

7. COOKING

Product passes through one or multiple oven stages to fully cook the protein substrate. Dependent upon desired product attributes and line capacity, a variety of oven styles such as spirals, impingement, charmarking, etc. can be utilized on their own or in conjunction with each other.

CHARMARKING

IMPINGEMENT

INFRARED

MULTI-PURPOSE

SPIRAL

TEFLON BELT

8. FREEZING & FURTHER PROCESSING

Fully cooked product is either frozen, packaged or sent out for additional further processing stages such as smoking. Dependent on application, a variety of freezer styles such as spiral, impingement, contact, etc. can be utilized.

FREEZING

DICING/ SLICING

SMOKE HOUSE

CUSTOM PROCESS

END PACKAGING

PHASE I

BRINE PREPARATION

The first step of Phase I is the brine preparation. During brine preparation, the base brine is mixed and chilled prior to addition of all natural ingredients.

CONSISTENT BATCH, EVERY TIME

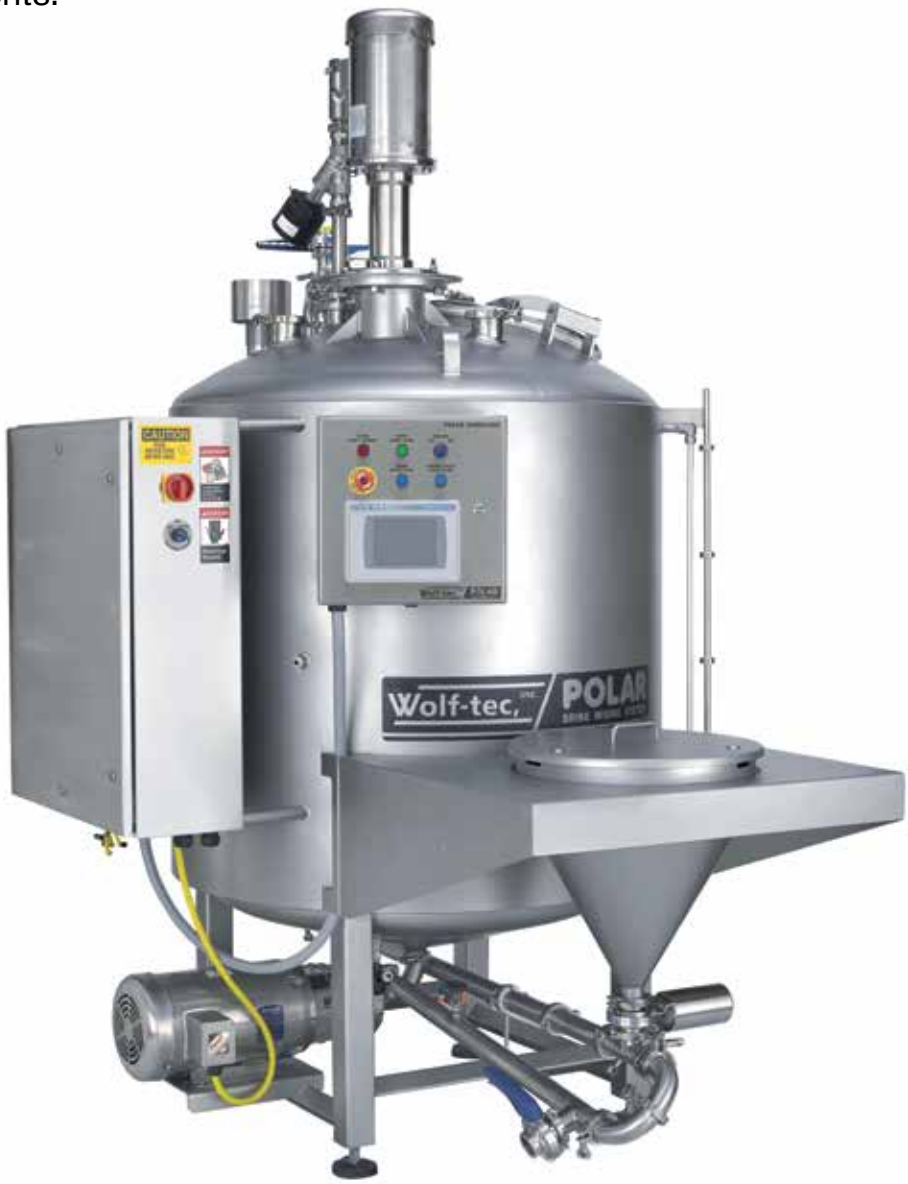
- Manage ingredient order, temperature, mix time and velocity for consistent brines batch after batch

ELIMINATE CLUMPING

- Automated eductor valves allow for dry ingredient addition without brine clumping

MIX **CHALLENGING INGREDIENTS**

- Optional high shear mix head provides a competitive advantage when dealing with difficult ingredients such as starches or gums



Polar Fusion Dissolver PDM/PDH 250

KEY FEATURES & OPTIONS:

100% temperature control: Accommodate a wide variety of brine specifications with the ability to precisely control temperature during the mixing process.

Consistent mixing:
Eductor allows for ingredients to be introduced directly into liquid stream to eliminate clumping during the mixing process.

Touchscreen controls:
User-friendly controls allow for simplified recipe management and greatly reduces operator error. Optional recipe programming is also available.

Modular design:
Available tanks sizes of 250, 500, 800 gallon and more, allow processors the ability to easily expand their operation.

PHASE I

HOMOGENIZATION

The second step of Phase I is brine homogenization. During homogenization, all-natural protein trimming are added to the base brine and then mixed/sliced until the brine reaches a uniform, highly viscous consistency.

ELIMINATE OR REDUCE ADDITIVES

- Incorporation of all natural meat trimmings eliminates or reduces additives such as sodium and phosphates

ACCOMMODATE MULTIPLE PROTEIN TRIMMINGS

- Capable of handling a variety of different whole-muscle trimmings such as white and dark meat poultry, turkey, beef and pork

Polar Fusion Homogenizer

KEY FEATURES & OPTIONS:

Standard pre-cutting:
Pre-cutting knife improves mixing consistency and increases operator control while meat trimmings are added during homogenization.

High-speed slicing: Secondary slicing system utilizes a high-speed knife with hole plate to transform protein trimmings into a uniform highly-viscous brine.

Recipe controls: Touchscreen controls allow for precise recipe monitoring and ensure consistency from batch-to-batch.

PHASE I

INJECTION AND RETURN MILLING

The third step of Phase I is solution injection and return milling. Post-homogenized solution is transferred to a holding tank, where it can then be accessed and directly injected into whole-muscle protein substrates. Excess solution is then collected, run through a mill to be refiltered and then cycled back into the saddle tank for further use.

INCREASE PRODUCT MOISTURE

- Injection of all natural ingredients is more effective at retaining product moisture than non-protein binders

EXTEND BRINE LIFE

- Incorporation of a return milling step allows for excess solution to be filtered and re-introduced back into the Polar Fusion System

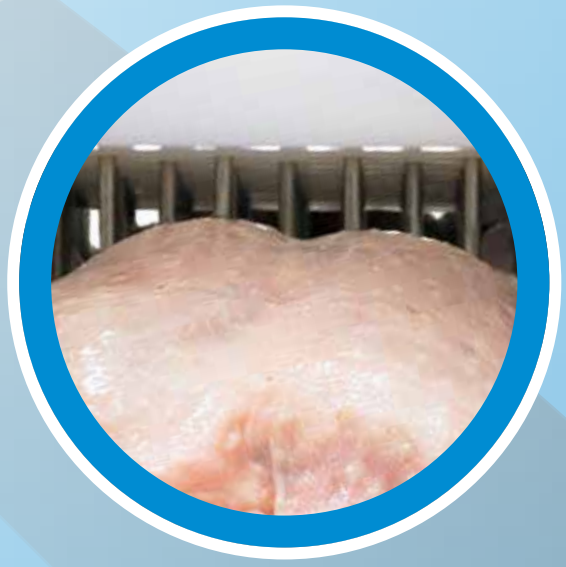
IMAX 620DH-HVB Injector

KEY FEATURES & OPTIONS:

Specialized needles: Specially designed needles have wider openings to accommodate thick, highly-viscous brines.

Brine pump: High-capacity brine pump is capable of handling .5-4.5 bar (7-65 psi) pressure.

Needle Manifold: Needles in the retraction block allow for the injection of bone-in-protein substrates.



SADDLE TANK

PHASE II

MACERATION

During Phase II, dependent on application, a maceration step may be added to help achieve specific product attributes or increase cumulative product yield through surface preconditioning.

IMPROVE
PRODUCT BINDING

- Surface treatment of product increases protein extraction for an improved product bind

ACCOMMODATE MORE
APPLICATIONS

- Multiple macerator blade options provide a wide variety of surface treatments. Razor blades, castellated blades and blunt rollers available

Flexcarve Macerator

KEY FEATURES & OPTIONS:

Adjustable blade depth:
Easily adjustable blades allow for protein penetration at a variety of surface depths.

Adjustable pneumatic rollers: Multiple roller configurations allow for single- or double-pass maceration.

Recipe-driven controls: PLC controller stores specific maceration settings by application and can eliminate costly user errors with simplified controls.

PHASE II

MASSAGING

During Phase II, dependent on application, a massaging step may also be added. Massaging on its own or in combination with maceration can greatly improve product binding and ingredient distribution.

INCREASE INGREDIENT DISPERSION

- Patented massager paddle action provides more uniform dispersion of ingredients
- Improved ingredient dispersion forms a stronger water/protein matrix for yield improvement during cooking

IMPROVE MOISTURE ABSORPTION

- Optional or Available Temperature Guidance System cycles product through multiple heating and cooling temperature bands to improve moisture, product color, protein extraction and yield

Polar Massagers

KEY FEATURES & OPTIONS:

Accu-Massage torque control: Real-time product condition monitoring automatically reduces paddle speed if product becomes too dry to avoid over-working.

PolarVision Process Monitoring: Automated process controls ensure recipe specifications are met and allow for remote monitoring/alert notification.

Modular Vacuum Loading System: A modular vacuum loading system can be incorporated with a Polar Massager to provide total, in-line automated loading of massaged product.

PHASE III

COOKING

During Phase III, product is cooked utilizing JBT's MultiPhase™ cooking process. Dependent on application, the cooking process may involve multiple pieces of equipment to reach desired product attributes.

INCREASE YIELD BY UP TO 5%

- Combining MultiPhase™ cooking with process optimization during Phases I and II can achieve overall yield increase as much as 5%

IMPROVE OVERALL FLAVOR PROFILE

- All natural ingredients create a firmer bite and better tasting end product when fully cooked

ACCOMMODATE A VARIETY OF PRODUCT ATTRIBUTES

- Wide variety of oven options allows for an array of different color, texture or surface treatments

Cooking Equipment Options:

Stein JSO IV Jet Stream® Thermal Fluid Impingement Style Linear Oven

Stein GCO-II 1000 TF GYRoCOMPACT® Self-Stacking Spiral Oven

Stein PG PRoGrill® Teflon® Belt Grill

Stein CM-II Double Sided Charmarker™

PHASE III

FREEZING AND FURTHER PROCESSING

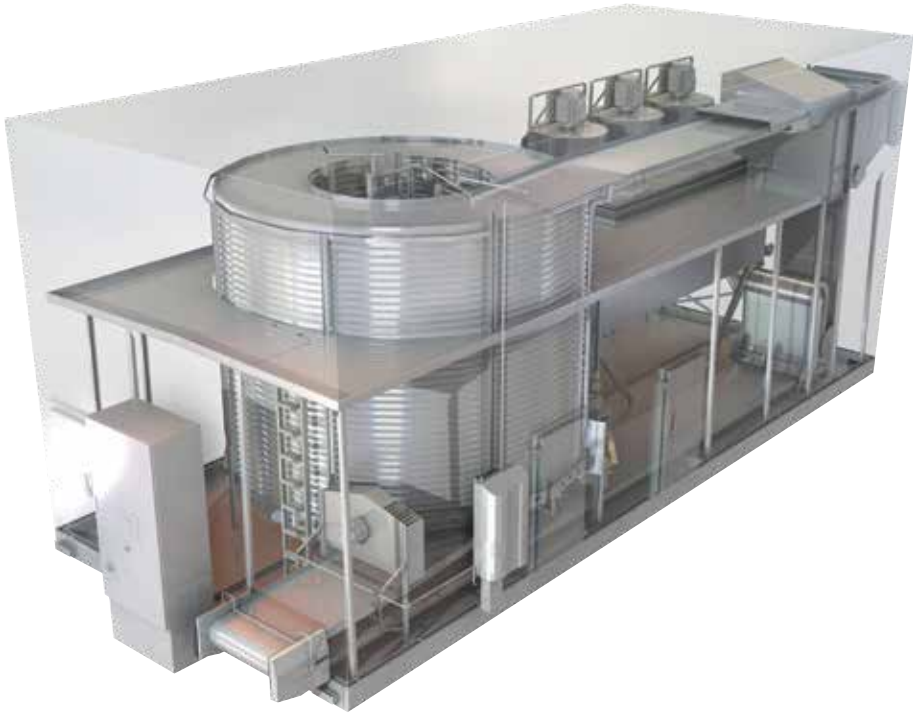
After the cooking stage, product is either frozen or sent to subsequent further processing stage such as a smokehouse, etc.

FREEZE OR CHILL PRODUCT TO VARYING DEGREES

- Multiple freezing and chilling equipment options allow product to be slightly chilled or fully frozen based on appplication need

ACCOMODATE MULTIPLE CAPACITY REQUIREMENTS

- Multiple freezer styles allow for a variety of capacity options based on operation



Freezing Equipment Options:

Frigoscandia GYRoCOMPACT M10
Tight Curve Self-Stacking Spiral Freezer

Frigoscandia ADVANTEC™
Compact Chiller

Northfield SuperTRAK™

Additional Further Processing:

- DICING/ SLICING
- SMOKE HOUSE
- CUSTOM PROCESS
- END PACKAGING

We Are Your Single Source for Profitable Processing Solutions

JBT can provide you with portioners, freezers and everything in between – including process control, food product development assistance, operator training and a full range of customer support alternatives.

Our Food Technology Centers have served leading processors in the development of many of the world's most popular food brands. Learn how to increase your processing potential by contacting your JBT Account Representative or by visiting our website.

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