Tuna Processing Line

Simplicity of design and processing flexibility

Receiving and sizing

Upon receipt by the cannery, bins of frozen tuna are unloaded and stacked in holding areas, or in cold storage. For sizing, bin dumpers empty the bins over a double conveyor belt that runs at two speeds in order to properly feed the Shaker-Aligner. A specially-designed elevator feeds the fish individually into the sizer, which groups the fish into predetermined sizes, up to a maximum weight of ten kilograms. Large fish, weighing in excess of ten kilograms, are collected separately and undergo a cutting process. The tuna are then loaded by size into bins, which are either stacked in cold storage, or dumped into the processing line.

Dumping

Bin dumpers empty bins of pre-sized fish onto a double-conveyor belt. Large tuna are sent through the cutting line. The smaller sizes are transported intact to the pre-cooking system. The heads and tails are removed from the large fish and they can be cut into loins.

Cleaning after Pre-cooking

The trays of vacuum-cooled fish are placed on merry-go-round cleaning tables, where the heads, fins and tails are removed manually. Skin and dark meat are scraped off, producing clean loins ready to pack in cans. All fish scraps are usually transported by a worm-type conveyor to the mill plant. Dark meat can be separated for the preparation of pet food. Due to pre-cooking optimization the skinning operation results to be very easy.

Yield control

By installing electronic scales (weight checkers) with printers on line, one at the beginning and one at the end of the cleaning process, fish weights are automatically recorded.
Weight loss due to cooking and cooling, and loss resulting from cleaning can be continuously monitored.

Pre-cooking and cooling

The trays of tuna are loaded into pre-cooking racks. The racks are moved into a pre-cooker on a chain-conveyor belt when a sufficient number of loaded racks have accumulated. The pre-cooker is equipped with a door at each end. Each lot of fish is pre-cooked in live steam for the period of time appropriate for its size and initial temperature.
The pre-cooking/cooling process is under vacuum. After cooling, the tuna can be handled by the workers at the cleaning table.
The Pre-Cooking and Cooling process is fully controlled by a PC/PLC designed by JBT the LOG-TEC Momentum™ and optimized by TunaCAL™ software.
TunaCAL™ is a highly refined mathematical modeling software created to optimize the tuna pre-cooking process and provide significant benefits in yield, consistency and quality.
TunaCAL™ automatically adjusts for multiple product variables in real time, and enables the scientific optimization of your pre-cooking process without using trial and error.

LOG-TEC Momentum™

LOG-TEC Momentum™ hardware is designed to precisely control the delivery of a process. The system removes the human operator from the critical delivery functions and ensures a more efficient process. JBT research demonstrates that TunaCAL™ can deliver a positive yield increase, depending on the species and the environmental conditions existing at the time of processing. TunaCAL™ supports a complete line of benefits throughout your processing line. For instance, TunaCAL™ helps deliver consistent product to your cleaning tables, which facilitates skin removal and cleaning. Our economic models show that TunaCAL™ combination of consistency, yield improvement, and direct support of better line operations contributes to the customer's organization with:

- Significantly higher quality end product
- More overall revenue generated from the line
- Higher operational profitability.

Central Supervisory Control Systems

The LOG-TEC™ Thermal Process Management System incorporates a central host computer in which all the sterilization programs are stored and where all the processing records are archived. Depending on system complexity, JBT can offer a variety of supervisory control systems to aid with automation, documentation and visualization of the sterilization room. These supervisory systems may also be integrated into plant local area networks.

LOG-TEC™ Process Management System

The LOG-TEC™ Process Management System of individual retort controllers with a central Host PC controls every aspect of the sterilization process.

Automatic process deviation correction

The LOG-TEC™ process controller automatically corrects temperature deviations without operator intervention. NumeriCAL® Online predictive modeling software (optional) incorporates a lethality tracking feature that allows for process deviation correction on the basis of online F0 calculation.

Automated documentation

Computer generated process records by LOG-TEC™ meet the HACCP, FDA and USDA requirements and provide full traceability of the sterilization operation.

Modeling Tuna
Perfect heat transfer profiles through advanced mathematical modeling techniques.

Filling (Tuna Fillers)

Trays containing the cleaned loins are transferred by a merry-go-round conveyor to the JBT high speed tuna-filler.

The loins are then placed manually onto sanitary feed-belts, which do not require precise, regular placement of the product. These feed-belts work by intermittent movement, ensuring consistent intake of the product into the infeed chamber. Mechanical and pneumatic modifications - to adjust the weight and appearance of the final tablet - can be made while the machine is running. The results are consistently accurate weight and a visually-pleasing product.

High production speed achieved by a newly developed mechanism that fills two cans simultaneously at up to 300 cans per minute (speed referred to 3 oz. can size).

Increased profitability by keeping consistent fill weight accuracy and by reducing the squeeze loss thanks to a particularly designed transfer system that keeps the tuna density uniform during the shaping of the tablet.

Improved reliability by minimizing the downtime for maintenance and clean up.

Greater versatility by meeting various packing standards with different species of tuna in either frozen loins or tuna “round”.

Complete sanitation as all the product contact parts can be easily disassembled for accurate clean up to meet regulatory requirements.

Oiling, brining and closing

The filled cans produced by one or more Tuna Fillers collect on a conveyor belt and are transferred to the vacuum-oiler.

During transfer, a small amount of brine is added to each can.

The vacuum-oiler is set for a specific can size. It completely vacuumizes the cans, then fills each with oil to a pre-fixed headspace.

The vacuum-oiler is synchronized with a closer that shoots a jet of steam across the top of the can, removing the air from the headspace before sealing. Vacuum-sealed cans maintain a fresh product smell, taste and appearance.

Automated Batch Retort Systems (ABRS)

The modules of JBT's ABRS are designed to work seamlessly together to provide the optimum combination of flexibility and operating efficiency for each sterilization operation.

Loaders and unloaders

The range includes semi and fully-automatic basket loader/unloader for cans and glass jars (sweep on/off and magnetic head types) as well as automatic equipment for stacking/destacking and loading/unloading of trays to handle plastic containers and pouches.

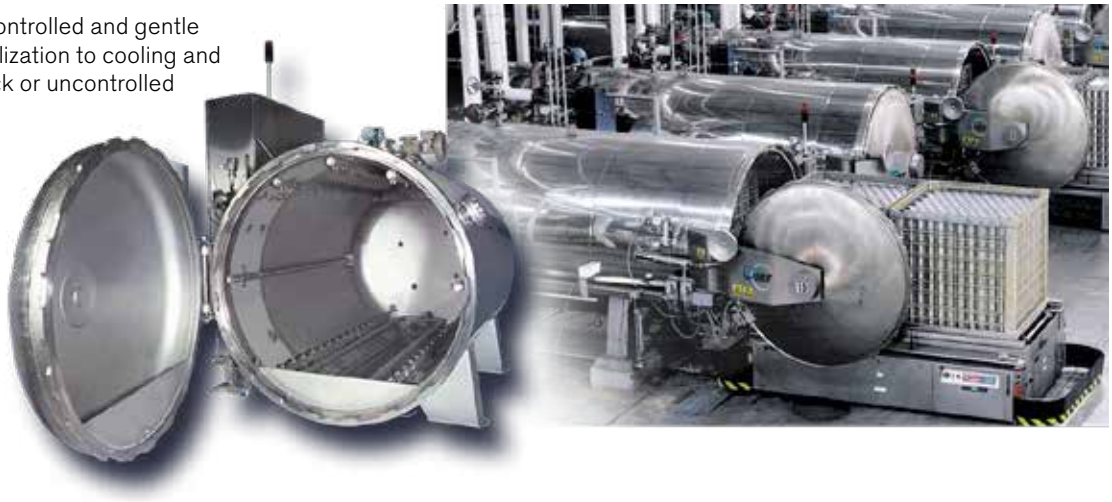
These units are specifically engineered to achieve a high throughput and maximum reliability for all container handling.

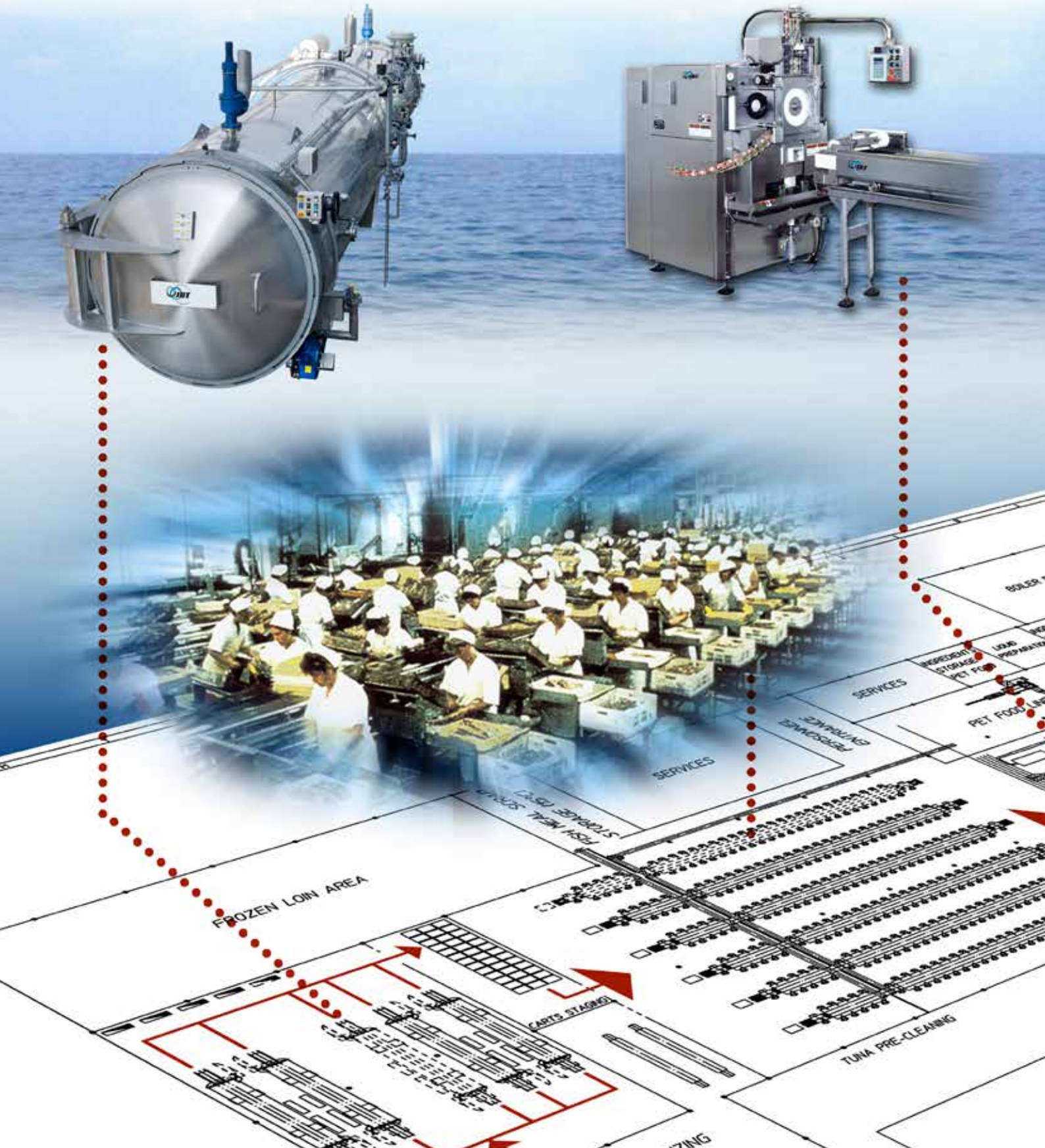
The Steam Water Spray™ (SWS™) process

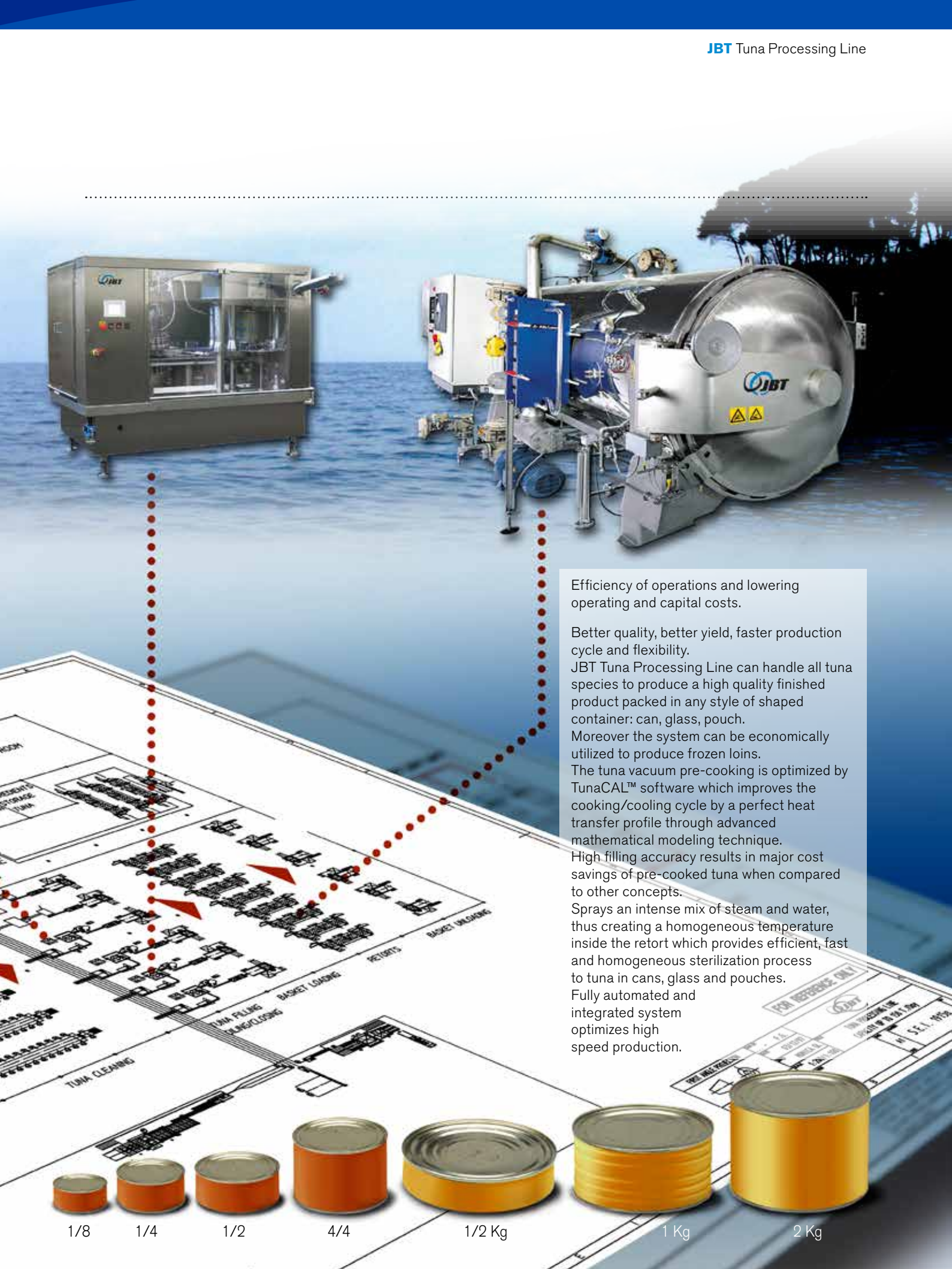
The SWS™ process is an efficient, fast and homogeneous sterilization process with air overpressure. Direct steam injection ensures fast and uniform come-up. Sprays intensely mixed steam and water, and creates a homogeneous temperature distribution. Indirect, sterile cooling over a plate heat exchanger saves water, water treatment chemicals and energy.

Micro cooling

Micro cooling is a controlled and gentle transition from sterilization to cooling and avoids thermal shock or uncontrolled pressure drop.




SERVICES
SERVICES
FROZEN LOIN AREA
TUNA PRE-COOLING



Efficiency of operations and lowering operating and capital costs.

Better quality, better yield, faster production cycle and flexibility.
JBT Tuna Processing Line can handle all tuna species to produce a high quality finished product packed in any style of shaped container: can, glass, pouch.
Moreover the system can be economically utilized to produce frozen loins.
The tuna vacuum pre-cooking is optimized by TunaCAL™ software which improves the cooking/cooling cycle by a perfect heat transfer profile through advanced mathematical modeling technique.
High filling accuracy results in major cost savings of pre-cooked tuna when compared to other concepts.
Sprays an intense mix of steam and water, thus creating a homogeneous temperature inside the retort which provides efficient, fast and homogeneous sterilization process to tuna in cans, glass and pouches.
Fully automated and integrated system optimizes high speed production.

WE ARE YOUR SINGLE SOURCE FOR PROFITABLE PROCESSING SOLUTIONS

JBT is a leading provider of integrated food processing solutions. From single machines to complete processing lines, we enhance value and capture quality, nutrition and taste in food products. With a local presence on six continents, JBT can quickly provide our customers and partners in the food processing industry with the know-how, service, and support needed to succeed in today's competitive marketplace.

JBT LIQUID FOODS

FRESH PRODUCE TECHNOLOGIES | FRESH-CUT, ROBOTICS, STEAMING | FRUIT AND VEGETABLE PROCESSING | SECONDARY PROCESSING | ASEPTIC SYSTEMS | FILLING AND CLOSING | IN-CONTAINER STERILIZING | TRAY SEALING | HIGH-PRESSURE PROCESSING | POWDER PROCESSING | TUNA PROCESSING

OUR BRANDS

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