



+ Global Product Portfolio

Turn-key Food Processing Solutions



- +hygiene
- +innovation
- +partnerships
- +efficiency
- +service
- +quality

## FPS Global Family

Joining the global FPS family are Charlottetown Metal Products (CMP), Total Solutions Ltd (TSL) and GEM Equipment of Oregon (GEM) as subsidiaries and OptiCept Technologies as a strategic partner in PEF technology, further diversifying the company's product offering with a "one stop shop" to meet customers' needs.

## Through Partnership and Collaboration, We Build Success

"We believe that through collaboration, we create value. When you enter into a partnership with us, you join our family. Together, we promise to set new standards."

*Jeffrey Chang, President  
FPS Food Process Solutions*

### WHO WE ARE

#### About FPS

FPS Food Process Solutions is a global leader in turn-key food processing solutions. We provide innovative systems to ensure the highest efficiencies and to meet the most stringent sanitary demands. These factors transform into superior food quality, lowered total cost of ownership, and maximized profits.



**20+**  
Global Facilities

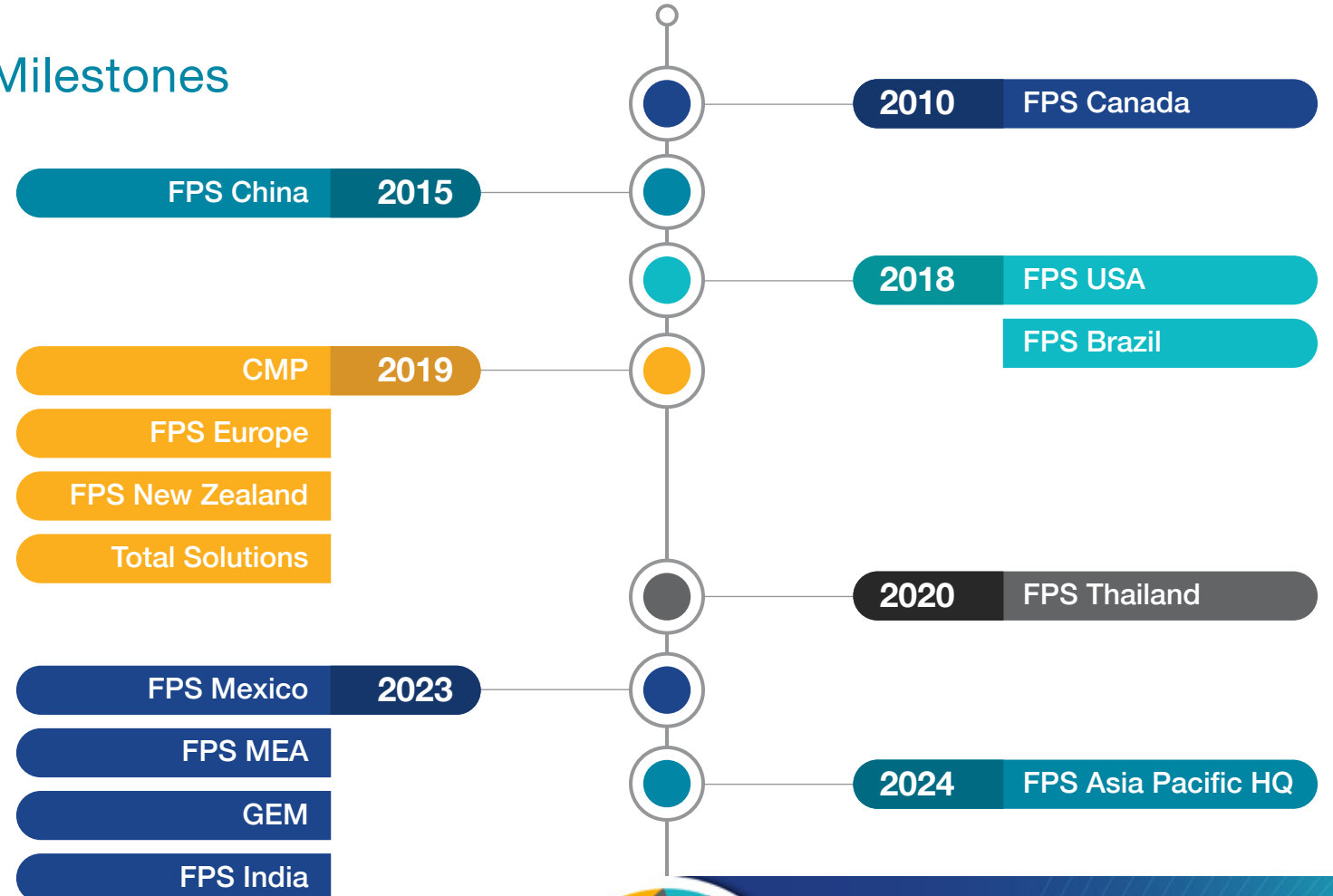


**1200+**  
Employees



**800+**  
Installs

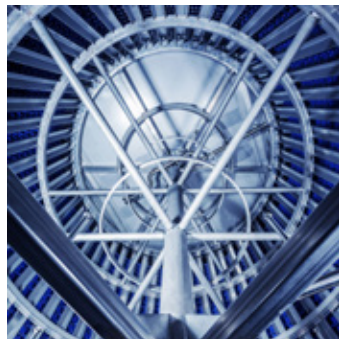
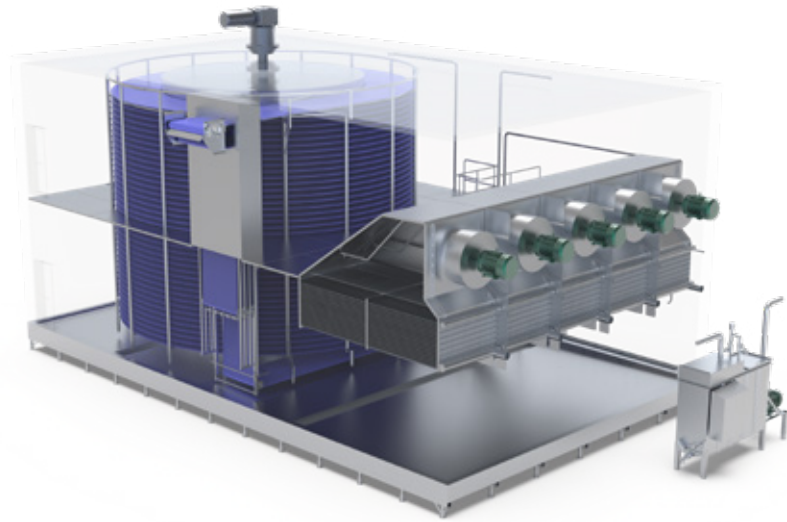
## Milestones



Building the  
**Future Together**

# Spiral Freezers

FPS spiral freezers are custom designed to meet your specific requirements. Aiming to build long-term partnerships with customers, we listen to each of your unique needs and concerns and incorporate these into our designs. Our focus on details ensures the spirals are optimized for all applications, from raw to ready-to-eat foods. We offer a range of innovative technologies to maximize performance and ensure the highest hygienic standards, all integral to lowering total cost of ownership.



### Stainless Steel Spiral Drum

Specially designed engagement bar provides better direct drive. External top drive motor is directly attached to the drum, eliminating the need for intermediary components like belts or chains. This design ensures high efficiency, precise control, and reduced maintenance.



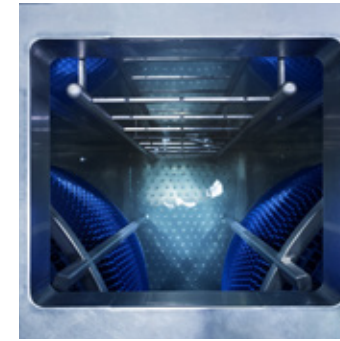
### Welded Stainless Steel Floor

Our bathtub design floor is insulated with polyurethane and shaped with compound slopes for effective drainage and to prevent water pooling. A non-slip surface provides safe access inside the unit. The floor structure integrates solid studs for welding to internal support structure.



### High Performance Airflow

Our horizontal airflow is designed with both performance and hygiene in mind. With minimized air baffles, an effective horizontal airflow is achieved with minimal pressure drop and efficient product cooling. With the latest software in 3D airflow modeling, the airflow designs are carefully fine-tuned.



“ The SIS delivers energy savings, labor savings, higher yields, longer shelf life, safer and better quality food products. The FPS Spiral Immersion System™ is a Game Changer, and it will forever change how we process food. ”

**Steve Kelley**  
Inventor  
Spiral Immersion System (SIS)™

## Game-Changing Technology

The FPS Spiral Immersion System (SIS)™ brings together the small footprint of spiral belting, the energy savings of conduction heat transfer and the labour savings of continuous processing. The SIS is basically a spiral conveyor in a tank of liquid, usually water or brine, that is designed to prevent the displacement of the product from the belt during processing.

The SIS's robust fully welded SS316 stainless steel enclosure contains over 1000 ft of Intralox's self-stacking modular plastic belt in 2 spiral stacks. 95% of the spiral belting is submerged in a sterile saline and SS316 stainless steel environment ranging from as low as -40°F to higher temperatures. The unique design of the SIS provides control over the product and achieves a better quality, safer product in less space, in less time and while consuming less energy.

### Freezing + Chilling

With conduction heat transfer at temperatures as low as -40°F, the SIS is an energy saving green machine. Using naturally anti-pathogenic brine, the SIS maximizes your processing time because it never needs defrosting and rarely needs to be shut down for cleaning.

### Cooking + Pasteurizing + Sous Vide

With gentle product handling and continuous flow processing, the SIS is the most cost efficient sous vide system available.

# Spiral Immersion System (SIS)™

**+ Continuous Processing**  
Achieves a dramatic reduction in labor costs.

**+ Gentle Handling**  
Patented technology contains the product and ensures no product or packaging damage.

**+ Longer Shelf Life**  
The SIS delivers a continuous pasteurization and rapid chill process to minimize post packaging bacterial growth and extend shelf life.

**+ Zero Yield Loss**  
Moisture is trapped inside the package with the product.

**+ Higher Throughput**  
Over 1000 ft of belt under water to offer longer processing times and higher throughput.

**+ Flexibility**  
The corrosion free SS316 stainless steel SIS can be filled with water, chemical treatments, nutrient treatment or brine.

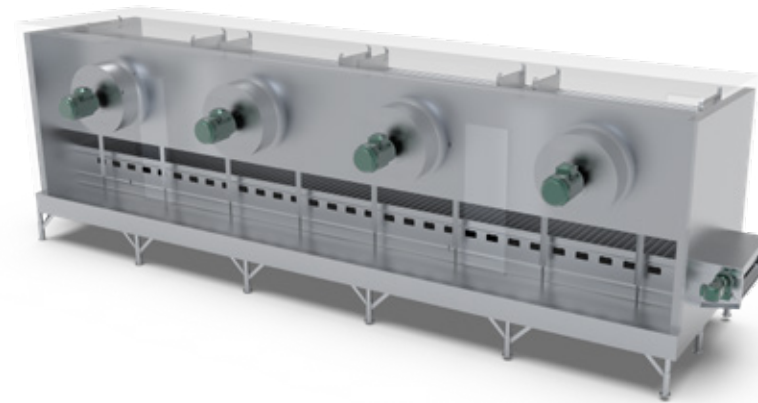
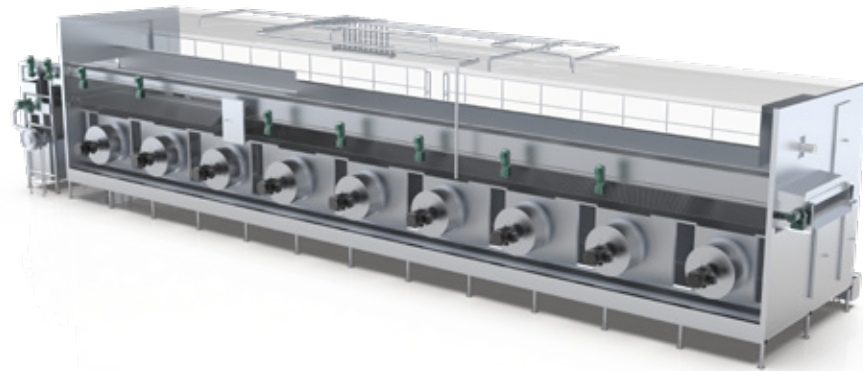
**+ Functionality**  
Processing in temperatures from as low as -40°F to higher temperatures.

# IQF Tunnels

Our range of Individual Quick Freeze (IQF) tunnel freezers implement a combination of air and mechanical fluidization techniques to ensure products like fruits and vegetables are efficiently and individually quick frozen with high quality.

Our Air Flow IQF technology ensures gentle handling by continuously lifting and separating products as they move through the tunnel. Using stainless-steel or perforated Intralox acetal belts, FPS brings years of in-depth experience according to each product type.

The combination of our IQF technologies with our hygienic design fundamentals results in a high-performance tunnel freezer satisfying the most stringent food safety requirements.



# Impingement Freezers

FPS impingement tunnels have been developed for a range of cooling and freezing requirements, including pre-cooling and crust freezing for further processing as well as complete freezing.

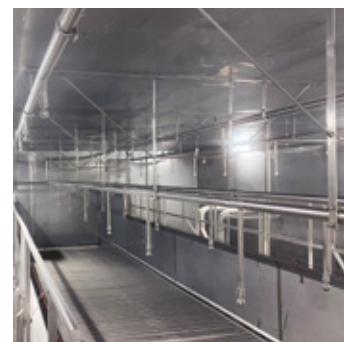
Our impingement freezers incorporate a hygienic pressure duct system to deliver high velocity air that quickly cools or freezes products. The proprietary air duct design ensures efficiency and maximizes yield, even with products of varying geometries.

Our impingement freezers are available with multiple belt pass and lane arrangements and varying belt widths and belt types to match your production needs.



### Integrated Infeed Station

Incorporates a steam and water spray box and high-pressure drying system to remove ice and water from the belt during production. A CMP Fluid Removal System (FRS) can be integrated to increase product dewatering.



### Internal Support Structure

With SS304 stainless steel construction, internal structure is designed to reduce horizontal flat surfaces and utilizes round non-hollow structures to prevent water pooling. CIP piping is integrated as part of the support structure reducing surfaces requiring cleaning and energy to cool excess material.



### High Performance Evaporators

Our custom designed evaporators are offered in a range of fin materials including aluminum, stainless steel or anti-microbial Cupronickel. We match stainless steel tube to chosen refrigerant whether NH4, Freon or CO2. Variable fin spacing and heavy duty fins allow for frost accumulation and durability.



### Optimized Impingement Design

Our air slot design functions as an air knife, directing high velocity jets of cold air from above and below the product. The highspeed air breaks the boundary layer of air on the product surface allowing faster heat removal, resulting in a quick freezing process. This reduces ice crystal formation, dehydration, and drip loss during thawing.



### Fully Welded Stainless Steel Floor

Our bathtub design floor is insulated with polyurethane and shaped with compound slopes for effective drainage and to prevent water pooling. A non-slip surface provides safe access inside the unit. The floor structure integrates solid studs for welding to internal support structure.

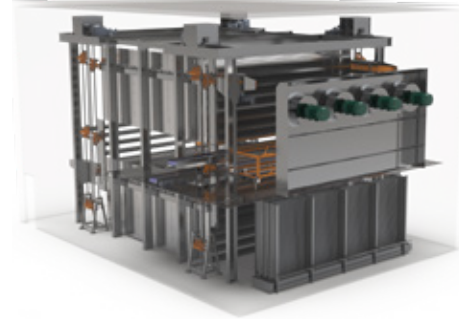


### Hygienic Design

Achieved through focus on details. Smooth TIG welding, sloped surfaces, minimal lap joints and bolting, with spacers used when required. Hollow structures are completely eliminated with our innovatively designed frame. Unnecessary surfaces and components are eliminated from inside the equipment.

## Carton Continuous Flow (CF)

Designed utilizing the latest technology and highest quality materials, the Carton Continuous Flow (CF) is low maintenance yet user friendly delivering maximum uptime and low operation and maintenance costs.



- + Up to 480,000lb or 220,000kg of production per day when applying a 24-hour retention
- + Single retention time, first in / first out
- + Product transported by “bookcase” style carriers

## Variable Retention MultiPass (VRM)

Utilizing Single and Double-Shelf designs to suit each client’s needs and space limitations, the VRM can chill and/or freeze multiple products with single or multiple retention times.



- + Up to 1,300,000lb or 590,000kg of production per day when applying a 24-hour retention
- + Single or multiple retention times
- + Product transported by shelves to allocated levels within the system to suit production requirements



### Carrier - First In / First Out

The carriers and shelves are designed specifically for each application. Transfer points are specially designed to ensure seamless transition from the structure to the primary and transfer elevators. This eliminates harmful shock loading on the elevator chains and drive system while minimizing movement of products on the carrier shelves.



### Shelves / Platforms

Product is loaded on to shelves that are similar to “platforms” that move through the system. Shelf construction is wider and able to accommodate more products.

### Common Features

- + Structural and Mechanical Engineering
- + Remote Monitoring Service
- + Maintenance Access
- + Operation and Maintenance
- + External Fans
- + Evaporators

### MultiPass Air Flow Technologies

- + Provides true counter-flow heat transfer
- + Ensures each carton exits at the same temperature irrespective of its shelf position
- + Offers energy savings and reduces carbon footprint
- + Focuses on freezing consistency and energy usage

## The FPS CIP System

### FPS RECIRCULATING CIP SYSTEM WITH PASTEURIZATION

- + Dishwasher cleaning concept
- + Recirculation with filtering and automatic water heating
- + Multiple cleaning zones with individual scrubbing and soaking times
- + Compact skid with filter, heating and high volume pump
- + Balancing trough with rough filter and return pump
- + Full freezer pasteurization option

### ADVANTAGES OF THE FPS CIP SYSTEM

- + Ability to clean with higher temperatures and more aggressive chemicals than manual cleaning
- + Maximum water impact with minimal consumption and time
- + Cleaning can start when production ends without defrosting saving valuable time
- + Efficient use of energy and chemicals reduces costs
- + Consistent and repeatable results with minimal labor improving safety
- + Full freezer cleaning and pasteurization ensures no bacterial contamination of food

## Foaming System

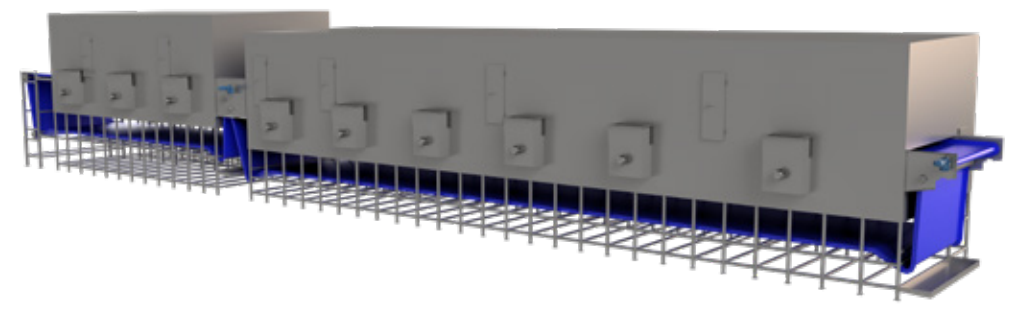
Combined with FPS specially designed CIP piping and valves, the Foaming System provides a compact system option - ideal for medium sized spirals

- + Secured to freezer exterior, system uses minimal factory footprint
- + Offers multi zone cleaning and rinse cycles
- + CIP locations include belt, upper/lower mezzanine, coils and fan chambers

- + Low water usage required due to compact system
- + Efficient use of chemicals and energy reduces costs
- + Hot and cold-water cycles including sanitation ensures minimal bacterial growth
- + Low installation cost, minimal maintenance, easy to operate

# Dryers

Our multi zone dryer solution removes attached water and internal moisture through gentle drying. With precision control of air velocity across the belt width, product is evenly distributed, resulting in uniform drying from end to end.



**Hygienic Design**  
Hygienic fully welded stainless steel enclosure removes all potential harborage points. Externally mounted motors removes conduit, junction boxes and wiring from the enclosure, enabling energy savings, longevity and best in class food sanitation.



**High Performance Air Flow**  
Precision control of air velocity with individually controlled centrifugal fans allows for even distribution across width of product bed.



**Transferability**  
Sprocket-driven plastic belt does not require side chains leading to ease of transfer from one section to the next - greatly improving maintenance.



We custom engineer conveyance and product handling systems for various industry types and food factory settings.

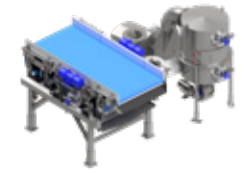
With deep expertise in food processing, we look at every step of the production line to provide the best solution to fit your needs.



**Conveyance + Product Handling**  
Increase throughput with high speed, high volume packaging line with a conveyor transfer system and merge/diverge sorting system with Intralox's Active Integrated Motion™ (AIM™) narrowing solution.



**Tote Handling Systems**  
We offer a wide range of tote handling solutions of all sizes to load product, from single to multistage.



**Fluid Removal Systems**  
Designed to remove water from the surface of the product before IQF infeed, our patented Fluid Removal System (FRS) technology reduces ice buildup.



**Fryer**

- + Robust, durable construction and materials for greater longevity
- + Specially designed kettles to eliminate dead spots, reduce fire hazards and increase oil shelf life
- + Wide range of throughput capacities
- + Custom hood lift mechanism and Clean-in-Place nozzles provide accessibility and cleanability

**Fryer Features**

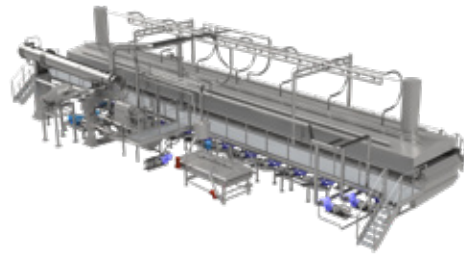


Custom designed fryers and fryer systems are based on customer requirements - there are no two alike. Demonstrating engineering ingenuity with safety and maintenance in mind, GEM designs, builds and installs single and two-stage fryers based on small to large throughput capacity.

At GEM, every fryer is designed using Computational Fluid Dynamics (CFD) to optimize oil flow inside the fryer, while maintaining minimum oil volumes. This ensures first in, first out, and eliminates eddies and dead areas inside the kettle.

**Specialty (Co-Product) Fryer**

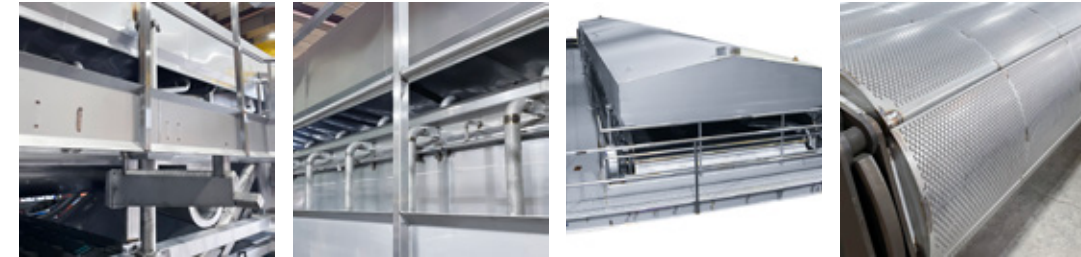
- + Low system oil volume
- + Specially designed to handle various product shapes and textures
- + Singulated layer of product to avoid overlap
- + Robust, durable construction and materials for greater longevity
- + Custom hood lift mechanism and Clean-in-Place nozzles provide accessibility and cleanability



**Blancher**

- + GEM manufactured circular hump belt provides superior product quality and texture including minimal product breakage
- + 12 foot wide belt blancher width - the widest in the industry
- + Robust, built-to-last construction
- + Capable of high production, low wear and tear
- + Easy to clean and maintain

**Blancher Features**

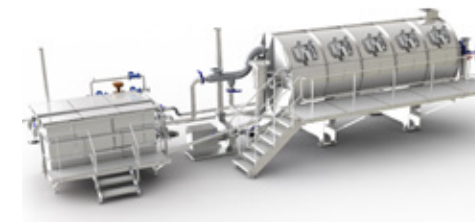


Our robust blancher construction combines both hot and cold water options – the most consistent in the industry. From 2 Zone Belt Blanchers to Multi-Zone Belt Blanchers, our custom designed blanchers are sized based on required output.

GEM belt blanchers are built to last. Circular hump belt panels are made of perforated stainless steel including custom Stellite pins and bushing for maximum life.

**Auger Blancher**

- + 304 SST fully welded design
- + Two stage Blanching – 1st stage and 2nd stage designed to reduce mechanical strain associated with long shafts. Also provides additional flexibility, controlled temperature and retention time in 2nd stage
- + Ferris wheel discharge is centered on the screw but independently driven
- + Precise control of auger flight dimensions and clearance flow to reduce product breakage
- + Water circulation follows axial principle, so that the water volume will stay at an equal temperature

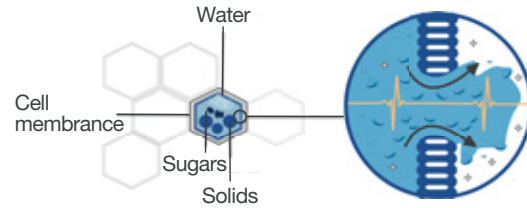


GEM rotary blanchers consists of an elongated, cylindrical perforated drum in a tank filled with heated water. It enables higher efficiency, processing more pounds of products per hour while taking up a smaller footprint.

## PEF Technology

### HOW PEF WORKS

Pulsed Electric Field (PEF) technology uses high-voltage, low-energy electric pulses to disrupt cell membranes in foods, opening pores in treated cells. PEF's low energy, non-thermal, and non-chemical nature means its deployment can lead to significant improvements in product quality, process efficiency, energy & water consumption, and ultimately, processors' bottom lines.



### APPLICATIONS

By adjusting treatment parameters, PEF technology's applications can range widely. Some applications include:

#### Drying

- Improve drying rates of fruits, vegetables, and herbs, decreasing drying times by 10-50%
- Improve product quality (color, nutrient retention, etc.)

#### Extraction

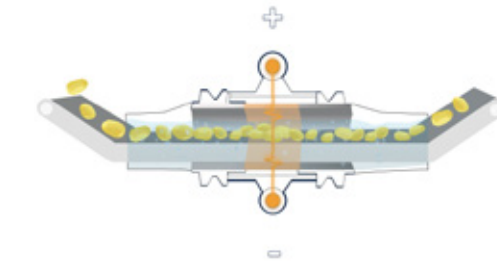
- Improve juice extraction yield by 5-40% for juices and 5-10% for olive oil
- Improve juice/oil quality (color, polyphenols, etc.)

#### Absorption

- Improve meat marination/brining
- Improve pickling of vegetables/fruits

### PEF EQUIPMENT

High-voltage pulses created by generator(s) are delivered to a treatment chamber where product is passed through sets of electrodes and treated. In solid systems, conveyor belts move products through the chamber, whereas liquid systems pump products through a pipe. FPS and OptiCept offer industry leading solid and liquid PEF systems that can handle any application.

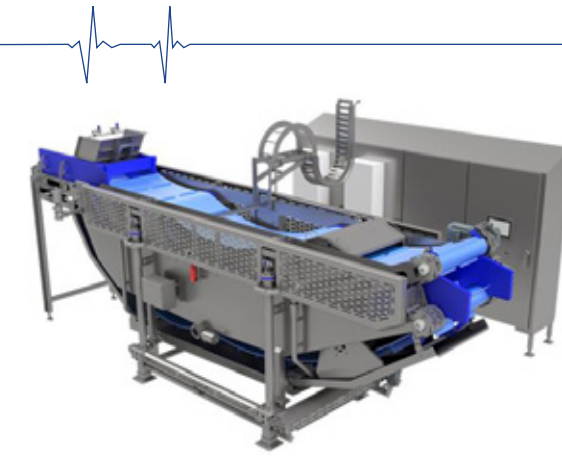


## FPS OptiCept PEF Solutions

Whether your application warrants a solid or liquid PEF solution, FPS and OptiCept have state-of-the-art PEF systems ready to solve your processing challenges.

### FPS OPTICEPT® S-SERIES (SOLIDS)

Through our collaboration with OptiCept Technologies, we've combined cutting edge PEF technology with decades of experience in hygienic food processing equipment design. The next generation FPS OptiCept® S-Series is the most efficient and hygienic PEF system for solid foods in the market, all while minimizing total cost of ownership.



#### The Most Hygienic PEF System

Jack system fully separates and lifts conveyor assembly out of tank for unrivaled accessibility and ease of cleaning

#### The Most Efficient PEF System

OptiCept's pulse technology and patented CEPT® treatment chamber maximizes treatment efficiency, making the S7 up to 50% more efficient than other PEF systems

#### The Lowest Cost of Ownership

Built in generator redundancy, easy-change electrodes, externally placed motors, and externally returning belts minimize downtime risk and maximize ease of maintenance

### OPTICEPT® L-SERIES (LIQUIDS)

OptiCept Technologies is the market leader in liquid PEF processing, with a strong foothold in the olive oil industry. The OptiCept® L-Series PEF system provides a versatile platform for treating liquids and other pumpable products, from olive paste, to juice, to small foods suspended in liquid.

#### Modular, Hygienic, and Efficient PEF System

Fully modular, stainless steel frame, all product-wetted components are designed to meet strict food-grade standards

#### Advanced PEF Generator and Booster Module

The CEPT v7 PEF generator, a high-powered, PLC-supervised unit that ensures precise treatment conditions

#### Built-In Safety and Monitoring Mechanisms

Safeguards ensure stable, safe, and high-performance operation, making the OPTICEPT® L7 a reliable and advanced solution for liquid PEF processing



## FPS + OptiCept Partnership

In 2023, OptiCept and FPS formed a strategic alliance to develop, research, produce, and commercialize PEF (Pulsed Electric Field) technology for the solid food processing segment. This partnership brings greater benefit to the sector looking for innovations that offer efficiency improvements while still retaining high quality products and competitiveness.

# Optimized Food Processing with Pulsed Electric Field Technology

Pulsed Electric Field (PEF) technology has already transformed a number of food processing sectors and is on its way to transforming more. From increasing yields, to improving product quality, to reducing water and power consumption, to increasing process efficiency, PEF can compliment or replace a range of processes.

# Industry Sector

## End-to-End Processing Solutions

Learn more at [fpsc corp.ca/industry-sector](https://fpsc corp.ca/industry-sector)

Ensuring food is processed with hygiene and safety in mind, we offer customers full End-to-End processing solutions. From raw to prepared foods, FPS covers a wide variety of industry sectors, from beginning to end.

	Potato		Dairy
	Meat		Seafood
	Poultry		Pet Food
	Fruit		Liquid
	Vegetable		Snacks
	Prepared Food		Nutraceuticals
	Bakery		Non-Consumables

# We Solve Food Processing's Toughest Challenges

## End-to-End Processing Solutions

By providing best-in-class turn-key food freezing and chilling equipment and complementary end-to-end solutions, we ensure our customers' products are managed through every step of the production process. Designed to seamlessly integrate and create full processing lines, from raw receiving to packaging, FPS are with you every step of the way.

If you are looking for a full complete line or to complement an existing line, FPS offers a "one stop shop" solution. Our experienced engineers, designers and project managers work together with manufacturing and installation to get your project up and running.

# END 2 END



# Service and Retrofit

## Improved Performance with Less Downtime and Lower Costs than Replacement

Our retrofit specialists are not only experts with our equipment, but also equipment from other suppliers. We offer comprehensive retrofit packages from systems evaluations to complete structure and enclosure rebuilds. With recent global attention on environmentally friendly practices and food safety concerns, your existing equipment can be evaluated and upgraded to energy efficient operation and meet current hygienic demands.

With constant changes in the market, we understand the importance of keeping up in terms of processing technologies, products and recipes. To ensure your existing equipment can match these new needs with major re-investment, we offer retrofit services to ensure the equipment is optimized for your demands.



Extend Your Run Time



Extend the Life of Your Equipment



Improve Hygiene & Meet Sanitary Design Principles



Increase Energy Efficiency & Cost Effective Production

## Retrofit Services



OEM Fully-Welded Freezer Enclosure



Clean-in-Place (CIP) Upgrade for Existing Freezers



Belt Replacements & Retrofits



Control Panel/ PLC/ VFD Retrofits

## FPS Remote Monitoring System (RMS)

The FPS Remote Monitoring System (RMS) is a web-based, universal platform that helps customers to track, analyze and report on their freezer's performance. Powered by Ignition by Inductive Automation®, the software is licensed by FPS, allowing clients unlimited tags, users and connections, without compromising confidential data.

### Key Benefits

- Improved OEE/ capacity/ throughput due to less downtime
- Improved customer independence helps reduce operational expenses
- Improved training/ maintenance features to support end customers
- Reduced number of service calls by providing more data insights for end customers
- 24/7 access to support technicians trained in freezer operations and controls



### WHO USES THE FPS RMS?

Maintenance personnel, plant managers, supervisors and executive management can all have access to the FPS RMS. The system provides customers with critical data-rich information, giving them the power to make decisions quickly based on reporting history and real-time trends.



We are a strong advocate of food safety - incorporating hygienic design in our equipment to ensure safe food production, thereby reducing the potential for food waste.



Energy efficiency in food processing can be achieved through robust construction, consistent temperature, less maintenance required, even cleanability.

From food waste reduction to energy efficiency, FPS is committed to people, communities and the environment.

## CORPORATE HEADQUARTERS

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MORE INFORMATION

