



Innovation  
At The Core  
Quality In  
Every Detail

Process

Innovation

Process Innovation & Network Automation  
[www.pinaengineering.com](http://www.pinaengineering.com)

**PINA**  
engineering pvt. ltd.

Network

Automation

**Pina Engineering Pvt. Ltd.**  
CIN U28299GJ2025PTC166600

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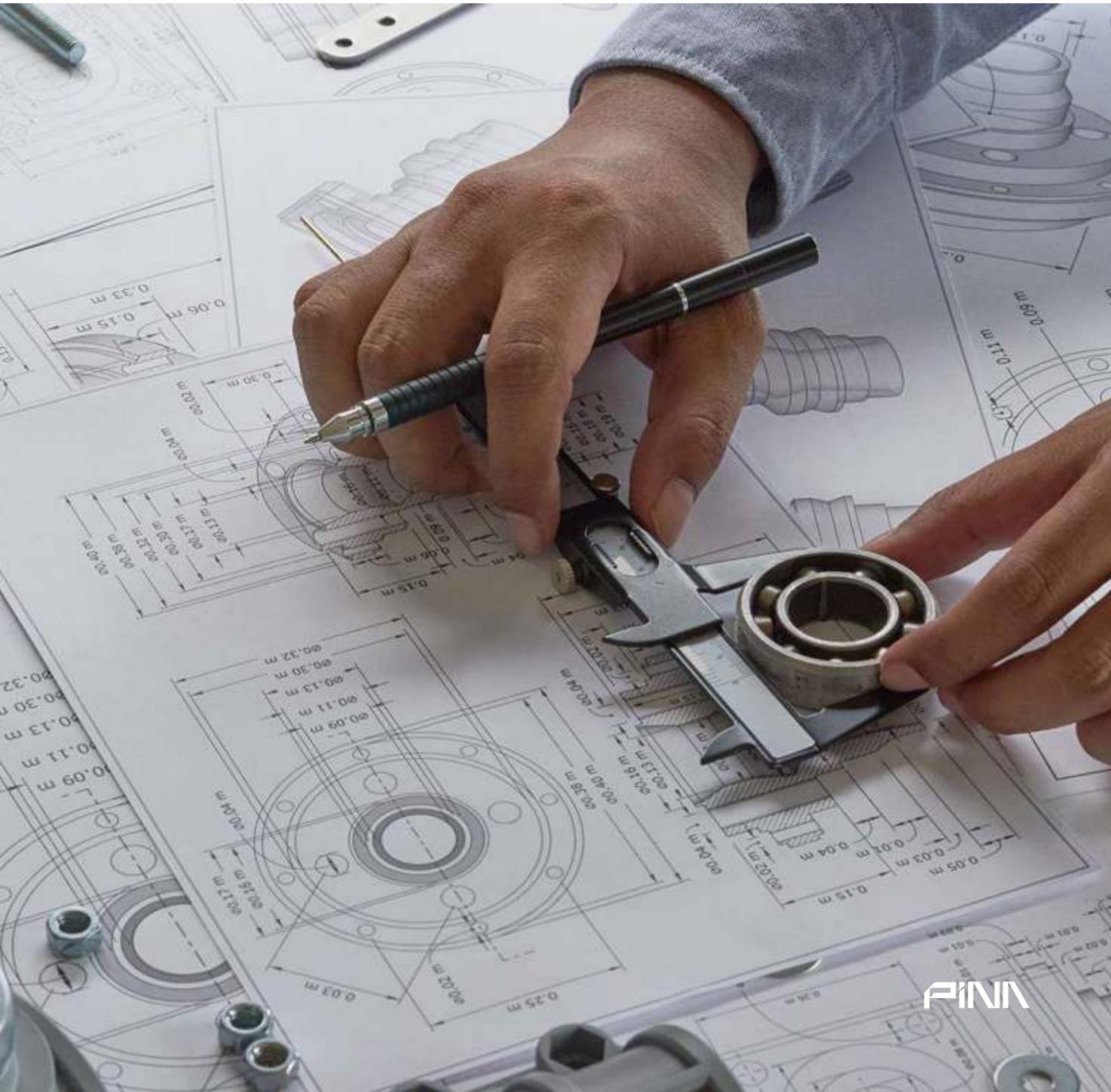
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## Welcome to PINA

*Your Process Innovation and Network Automation Experts*

We are a leading engineering company specializing in process innovation and automation solutions across the Food, Pharma, Biotech, and Aerospace industries. Our expertise in these high-precision sectors enables us to deliver custom-engineered machines and systems that drive maximum efficiency, ensure uncompromised quality, and unlock sustainable growth. With every project, we help our clients achieve higher productivity, reliability, and profitability through innovation-driven solutions.

## ABOUT US | CORE PHILOSOPHY



At Pina Engineering Private Limited, we believe that innovation and precision are the true cornerstones of progress.

Founded in 2025 and headquartered at Sama-Savli, Vadodara, we are a next-generation manufacturing company dedicated to building robust, reliable, and state-of-the-art equipment for the industries of tomorrow. Our advanced manufacturing facility, powered by cutting-edge technology and a passionate workforce, is where ideas are transformed into high-performing, future-ready solutions.

With over a decade of domain expertise, we draw insights from the Food, Pharmaceutical, Biotech, and Aerospace sectors, enabling us to understand complex challenges and engineer equipment that delivers meaningful impact. At the core of Pina Engineering is our in-house design lab and innovation-first mindset. This foundation allows us to create novel process solutions and precision-driven equipment tailored to the unique requirements of each client.

Backed by a team of expert engineers, designers, and technicians, we blend technical excellence with industry foresight, ensuring that every solution is not only reliable but also transformative. More than machinery, we deliver performance, value, and trust.



We believe innovation and excellence are the true keys to success. Every challenge is an opportunity we approach with a can-do attitude, working in close collaboration with our clients to craft unique and effective solutions. Our commitment is to create a better world through innovation, technology, and collaboration — delivering safe, reliable, and future-ready solutions across the Food, Pharmaceutical, Biotech, and Aerospace industries.



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## PROCESS INNOVATION SOLUTIONS

## NETWORKING AUTOMATION SOLUTIONS



## process innovation solutions

We understand that every manufacturing process is unique. That's why we offer custom process innovation solutions tailored to the specific needs of each client. Our team, equipped with state-of-the-art tools, advanced software, and precision engineering capabilities, develops custom-designed machines and systems that streamline operations, automate complex processes, reduce waste, and maximize efficiency. Our solutions include:

- Design and fabrication of custom machines that can optimize the manufacturing process
- Automation of existing processes
- Upgrades to existing machinery
- Integration of the latest technology for increased efficiency
- Industrial 4.0
- Collecting data to increase the effectiveness of the process



## networking automation solutions

Our Networking Automation Solutions:

We also specialize in providing networking automation solution that can help our clients to streamline their manufacturing processes, achieve maximum efficiency and reduce downtime. Our solutions include:

- Control systems design and implementation
- Networking automation for real-time monitoring and control
- Integration of IoT (Internet of Things) technology for enhanced efficiency

At PINA, we are committed to delivering the best quality service and solution to our clients. Contact us today to see how we can help your business achieve its full potential.



## RETORT PROCESS SYSTEMS

### Area of Operation:

Pina Engineering operates globally, serving the food processing industry across various sectors and regions. Our advanced Retort Machine is designed to cater to the diverse needs of food manufacturers, including but not limited to:

**Canned Goods:** Our Retort Machine ensures the safe and efficient processing of canned food products, preserving their quality and extending their shelf life.

**Glass Jars:** With precise temperature and pressure control, our machine provides optimal sterilization for food items packed in glass jars, maintaining their taste, texture, and nutritional value.

**Flexible Pouches:** Our Retort Machine accommodates a wide range of flexible pouches, allowing for the processing and preservation of products like sauces, soups, and ready-to-eat meals.

**Other Packaging Formats:** Our versatile machine is adaptable to various food packaging formats, empowering food manufacturers to process and preserve fruits, vegetables, meats, and more.

## RETORT PROCESS SYSTEMS

Retort machine  
Filling machine  
Pouch packaging machine

Our range of premium batch retorts is designed for an optimal sterilization, pasteurization and cooking of packaged food. We design a wide range of sterilization retort models that share the same technological platform and are suitable for future upgrading. They are engineered to meet the highest food industry performances standards in terms of package integrity and respect of the organoleptic properties of the products.

### Applications:

Food Processing  
Catering and Food Service

Ready-to-Eat Meals  
Food Export





# DRYING PROCESS SYSTEMS

## Area of Operation:

Pina Engineering operates globally, serving the food industry across various sectors and regions. Our Freeze Dryer/Lyophilizer is designed to cater to the diverse needs of food manufacturers, including but not limited to:

**Fruits and Vegetables:** Preserve the natural flavors, colors, and nutritional content of fruits and vegetables through the gentle freeze-drying process.

**Dairy and Dairy Products:** Freeze-dry dairy products like yogurt, cheese, and milk to create lightweight and shelf-stable options with preserved taste and nutrients.

**Meats and Seafood:** Extend the shelf life of meats and seafood while maintaining their taste, texture, and tenderness.

**Ready-to-Eat Meals:** Create long-lasting, lightweight, and nutritious freeze-dried meals suitable for camping, emergency preparedness, and convenience.

# DRYING PROCESS SYSTEMS

- Lyophilizer | Freeze Dryer
- Vacuum Dryer
- Nucleation On Demand
- Blast Freezer
- Monorail Material Transfer System.

Our range of premium lyophilizer and freeze dryers are designed for optimal output, consistent textures and unmatched rehydration quality. We design a wide range of freeze dryer models that share the same technological platform from lab size models to industrial systems and are suitable for future upgrading and system integration . They are engineered to meet the highest food industry performances and safety standards.

## Applications:

Food Processing  
Biotechnology

Pharmaceuticals  
Nutraceuticals and Supplements



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# HEATING COOLING SYSTEMS

## Technical Characteristics and Advantages:

Pina Engineering is a trusted manufacturer of refrigerated heating circulators, and our YMGD series boasts impressive features and advantages:

**Wide Working Temperature Range:** Our system offers simultaneous cooling and heating functions, with a temperature control range from -70 °C to 300 °C. This versatility allows for precise control in various temperature-sensitive processes.

**Dual LED Display Controller:** Equipped with two LED display controllers, our system provides real-time monitoring of both the set temperature and the actual value.

**Efficient and Simple Liquid Filling:** Our system streamlines the liquid filling process, ensuring efficiency and ease of use. The simplified liquid filling mechanism saves time and enhances productivity in laboratory and industrial settings.

**Fast Cooling and Continuous Temperature Control:** Our system ensures rapid cooling even at high temperatures, enabling temperature control from -70 °C to 300 °C continuously. This capability is essential for demanding applications that require precise and consistent temperature regulation.

**Closed Cycle System for Safety:** Pina Engineering's heating cooling system features a closed liquid circulation system, eliminating the risks associated with oil mist or water vapor. This design ensures a safe working environment

and extends the lifetime of the heat transfer fluid.

**Reliable Performance:** Our system utilizes high-quality components, including a Copeland brand compressor & bitzer from the United States. This choice guarantees stable performance, reliability, and longevity, meeting the high standards of industrial and laboratory applications.

**Enhanced Safety Features:** Equipped with self-diagnostic capabilities, our system includes safety functions such as freezer overload protection, high-pressure switch, overload relays, and thermal protection devices.

**Single Thermal Medium:** The Pina Engineering Heating Cooling System employs the same thermal medium throughout the entire heating and cooling process. This design simplifies operation and maintenance, providing a seamless and efficient temperature control solution.

**High Lift Design:** Our system incorporates a high lift design, allowing for long-distance transmission of the heat conducting medium. This feature enables flexible and adaptable temperature control in various setups and configurations

# HEATING COOLING SYSTEMS

Introducing the Pina Engineering Heating Cooling System, a cutting-edge solution that revolutionizes temperature control in various industries. With advanced technology and exceptional performance, our system offers precise and efficient heating and cooling capabilities for a wide range of applications.

**Applications:** Food & Beverage | Chemical Processing | Laboratory Research  
Material Testing | Quality Control



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# CRYOGENIC PROCESS SYSTEMS

## Technical Characteristics and Advantages:

Pina Engineering specializes in manufacturing liquid nitrogen cryogenics processing equipment and storage tanks, offering a host of features and advantages:

**Extreme Cold Performance:** Our equipment and storage tanks are designed to withstand and maintain extremely low temperatures, ensuring optimal cryogenic processing and storage conditions.

**Robust Construction:** Built with precision and durability in mind, our equipment and tanks are constructed using high-quality materials and advanced manufacturing techniques, guaranteeing reliability and longevity.

**Temperature Control and Stability:** Our cryogenics processing equipment incorporates advanced temperature control systems, enabling precise regulation of the freezing and chilling process for various applications.

**Efficient Cryogenic Processing:** With Pina Engineering equipment, you can achieve rapid and efficient cryogenic processing, preserving the quality, flavor, and nutritional value of

products in industries such as food processing, pharmaceuticals, and biotechnology.

**Large Storage Capacities:** Our storage tanks offer ample space for storing significant volumes of liquid nitrogen, ensuring a constant and reliable supply for continuous production and processes.

**Safety Features:** Pina Engineering places the utmost importance on safety. Our equipment and tanks are equipped with safety mechanisms such as pressure relief valves, temperature sensors, and advanced monitoring systems to ensure secure and trouble-free operation.

**Customization Options:** We understand that every industry and application has unique requirements. That's why we offer customization options for our cryogenics equipment and storage tanks, tailoring solutions to meet specific needs.

<b>Applications:</b>	<b>Food &amp; Beverage</b>	<b>Biotechnology</b>	<b>Research &amp; Development</b>
	<b>Pharmaceuticals</b>	<b>Medical &amp; Healthcare</b>	<b>Chemical &amp; Petrochemical</b>

## Unleash the Power of Cold:

Embrace the future of cryogenic processing and storage with Pina Engineering Liquid Nitrogen Cryogenics Processing Equipment and Storage Tanks. Revolutionize your processes, preserve product quality, and unlock new possibilities in various industries. Contact us today to embark on a journey of advanced cryogenics technology with Pina Engineering.

# CRYOGENIC PROCESS SYSTEMS

- Immersion Freezer
- Tunnel Freezer
- Batch Freezer
- IQF Freezer
- Specialized Storage Tank

Introducing the Pina Engineering Liquid Nitrogen Cryogenics Processing Equipment and Storage Tanks, a state-of-the-art solution that harnesses the power of extreme cold for a wide range of applications. With cutting-edge technology and uncompromising quality, our equipment and tanks provide reliable and efficient cryogenic processing and storage capabilities.



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## SCRAPED SURFACE HEAT EXCHANGER

### Key Features:

**Efficient Heat Transfer:** The system uses a continuous scraping mechanism to prevent product build-up on the heat transfer surface, ensuring efficient heat exchange even with viscous or sticky materials.

**Gentle Processing:** Ideal for heat-sensitive products, the scraped surface design prevents burning or degradation, maintaining the quality and texture of the product.

**High Viscosity Handling:** Capable of processing high-viscosity products like creams, pastes, gels, and other thick materials, while maintaining consistent product flow and heat distribution.

**Customizable Design:** Available in multiple sizes and configurations, allowing for scalability and customization based on the specific needs of your production process.

**CIP (Clean-in-Place) Capable:** The exchanger is designed for easy cleaning and maintenance, supporting CIP systems to reduce downtime and operational costs.

## SCRAPED SURFACE HEAT EXCHANGER

### Applications:

**Food and Beverage:** Ideal for heating and cooling viscous food products such as sauces, jams, creams, dairy products, and confections, without compromising texture or flavor.

**Pharmaceuticals:** Used for processing high-viscosity gels, ointments, and creams, maintaining the desired consistency and ensuring sterile production environments.

**Cosmetics and Personal Care:** Perfect for producing lotions, creams, and other skincare products that require precise temperature control and consistency.

**Chemical Processing:** Suitable for handling polymers, resins, and other chemical products that need controlled temperature processing without fouling the heat exchange surfaces.

### Technical Specifications:

**Temperature Range:** Capable of both high-temperature heating and low-temperature cooling applications, depending on the product's requirements.

**Scraping Mechanism:** Features a motor-driven scraping mechanism that continuously removes product from the heat transfer surface for optimal performance.

**Material Construction:** Built from corrosion-resistant stainless steel, ensuring durability and compliance with hygiene and safety standards.

**Capacity:** Available in various sizes to accommodate small-scale production or large industrial operations.

Introducing the Scraped Surface Heat Exchanger by Pina Engineering, an innovative solution designed to handle the most challenging heat transfer processes in industries like food, pharmaceuticals, chemicals, and cosmetics. Our scraped surface heat exchanger is engineered to efficiently manage viscous products, heat-sensitive materials, and those prone to fouling, ensuring uniform heating or cooling while maintaining product integrity.



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# CHOCOLATE PROCESS SYSTEMS

## Technical Characteristics and Advantages:

Pina Engineering specializes in manufacturing chocolate machinery and equipment, offering a host of features and advantages:

**Customized Production Lines:** Our chocolate machinery processing plant is tailored to meet the specific needs and requirements of each client. We offer customized production lines, ensuring the seamless integration of different processes for a complete chocolate manufacturing solution.

**Versatile Production Capabilities:** Pina Engineering machinery allows for the production of various chocolate products, including bars, truffles, pralines, filled chocolates, and more. Our versatile equipment adapts to different recipes and formulations, offering endless possibilities for creative chocolate creations.

**Efficient and Precise Processing:** Our machinery boasts advanced technology that enables efficient and precise processing of cocoa beans and other ingredients. From roasting and grinding to refining and conching, our equipment ensures consistent quality and texture throughout the chocolate-making process.

**Automation and Integration:** We leverage automation and intelligent integration in our machinery to streamline production processes, improve efficiency, and reduce manual labor. This ensures consistent quality, increased productivity, and cost-effectiveness in chocolate manufacturing.

**Temperature Control Systems:** We understand the importance of precise temperature control in chocolate production. Our machinery incorporates cutting-edge temperature control systems, enabling optimal heat management during the different stages of chocolate processing, such as tempering and molding.

**Quality Assurance and Hygiene Standards:** Pina Engineering upholds the highest quality assurance and hygiene standards in our machinery design. Our equipment is crafted with materials that meet food-grade requirements, facilitating easy cleaning and maintenance to ensure food safety and compliance with industry regulations.

# CHOCOLATE PROCESS SYSTEMS

Enrober | Conche  
Ball mill | Panning machine  
Sugar grinder | Winder  
Tempering machine  
Melting tank | Cooling tunnel  
Melenger | Roaster

Introducing the Pina Engineering Chocolate Machinery Processing Plant, a comprehensive and advanced solution designed to revolutionize the chocolate manufacturing industry. With our state-of-the-art machinery and equipment, we provide end-to-end solutions for chocolate production, ensuring the creation of delectable and high-quality chocolate products.

**Applications:** Artisanal and Craft Chocolate

Confectionery Manufacturing

Industrial Chocolate Manufacturing

## Craft Delightful Chocolate Experiences:

Embrace the future of chocolate manufacturing with the Pina Engineering Chocolate Machinery Processing Plant. Revolutionize your production processes, unleash your creativity, and create irresistible chocolate products that captivate the taste buds of chocolate enthusiasts worldwide. Contact us today to embark on a journey of chocolate craftsmanship and success with Pina Engineering.



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# SNACKS PROCESS SYSTEMS

## Technical Characteristics and Advantages:

The Pina Engineering Whole Snacks Processing Plant boasts a range of technical characteristics and advantages:

**Versatile Processing Capabilities:** Our plant is equipped with a wide array of processing equipment, allowing for the production of various snacks such as chips, extruded snacks, nuts, popcorn, and more. From raw material preparation to final packaging, we have you covered.

**Efficient Raw Material Handling:** Our plant includes advanced systems for raw material handling, such as sorting, washing, drying, and blending. These systems ensure consistent quality and cleanliness of ingredients, contributing to the production of high-quality snacks.

**Advanced Automation:** Our processing plant features state-of-the-art automation systems, ensuring precise control, optimal production efficiency, and consistent product quality. Automated processes minimize human intervention, reduce errors, and increase overall productivity.

**Superior Processing Equipment:** We provide a wide range of cutting-edge processing equipment, including fryers, ovens, extruders, seasoning machines, and packaging systems. Our equipment is designed for efficiency, precision, and durability, resulting in consistent and flavorful snacks.

**Customizable Production Lines:** We understand that each snack manufacturer has unique requirements. Our processing plant offers customizable production lines, allowing you to tailor the equipment layout, capacities, and processes to meet your specific needs.

**Quality Control and Monitoring:** Our processing plant incorporates advanced quality control and monitoring systems to ensure that snacks meet the highest standards. These systems allow for real-time monitoring of critical parameters, such as temperature, moisture, and production speed, ensuring consistent product quality and adherence to specifications.

# SNACKS PROCESS SYSTEMS

- Sheeting Machine
- Dough Mixer
- Conveying Oven
- Vacuum Frying | Continuous Fryer
- Extruder
- Washing Line
- Electroporation
- Blancher
- Slicing Machine

Introducing the Pina Engineering Whole Snacks Processing Plant, a comprehensive solution designed to revolutionize snack production and meet the growing demands of the snack industry. With cutting-edge technology and a focus on efficiency, our processing plant offers a complete range of equipment and systems to streamline snack manufacturing from start to finish

<b>Applications:</b>	Potato Chips & Crisps	Nuts & Seeds	Healthy Snacks
	Extruded Snacks	Popcorn	Dehydration

## Innovate Snack Production:

Embrace the future of snack manufacturing with the Pina Engineering Whole Snacks Processing Plant. Revolutionize your processes, expand your product portfolio, and meet consumer demands with efficiency and quality. Contact us today to embark on a journey of snack innovation with Pina Engineering.



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# ICE CREAM PROCESS SYSTEMS

## Technical Characteristics and Advantages:

The Pina Engineering Ice Cream Plant showcases a range of technical characteristics and advantages

**Versatile Production Capabilities:** Our plant is equipped with a diverse range of equipment to produce various types of ice cream, including gelato, sorbet, soft serve, and artisanal creations. From mix preparation to final packaging, our plant covers every step of the production process.

**Advanced Automation:** Our ice cream plant incorporates state-of-the-art automation systems, ensuring precise control, optimal production efficiency, and consistent product quality. Automated processes minimize human intervention, reduce errors, and increase overall productivity.

**Customizable Production Lines:** We understand that each ice cream manufacturer has unique requirements. Our processing plant offers customizable production lines, allowing you to tailor the equipment layout, capacities, and processes to meet your specific needs and production volumes.

**Efficient Mix Preparation:** Our plant includes advanced systems for mix preparation, ensuring accurate blending, pasteurization, homogenization, and aging of the ice cream mix. These systems contribute to the creation of a smooth, creamy, and consistent ice cream base.

**Superior Freezing and Churning Equipment:** We provide a wide range of cutting-edge freezing and churning equipment, such as batch freezers, continuous ice cream

freezers, and ice cream churns. These machines offer precise temperature control, rapid freezing, and optimal air incorporation, resulting in superior texture and flavor.

**Flavor and Ingredient Incorporation:** Our plant features equipment for adding flavors, inclusions, and variegates to the ice cream mix. This allows for the creation of a diverse range of flavors and textures, enhancing the overall sensory experience of the finished ice cream product.

**Packaging and Decoration Solutions:** Pina Engineering offers advanced packaging and decoration solutions, including filling machines, packaging materials, and automated decorating systems. These features enable efficient packaging, labeling, and branding of your ice cream products, enhancing their shelf appeal.

**Quality Control and Monitoring:** Our ice cream plant incorporates advanced quality control and monitoring systems to ensure that every batch of ice cream meets the highest standards. These systems allow for real-time monitoring of critical parameters, such as temperature, overrun, and product consistency, ensuring consistent quality and adherence to specifications.

**Energy Efficiency and Sustainability:** Pina Engineering is committed to sustainability. Our ice cream plant incorporates energy-efficient technologies and optimized processes to minimize waste, reduce energy consumption, and promote eco-friendly ice cream production.

# ICE CREAM PROCESS SYSTEMS

- Continuous freezer
- Batch Freezer
- Gelato machine
- Candy plant
- Homogenizer
- Pasteurizer
- Ageing tank
- Ball ice cream machine
- Specialised machine

Introducing the Pina Engineering Ice Cream Plant, a comprehensive solution designed to transform the ice cream production process and deliver delectable frozen treats. With cutting-edge technology and a focus on quality and efficiency, our ice cream plant offers a complete range of equipment and systems to streamline the production of ice cream from start to finish.

- |                      |                              |   |                                |
|----------------------|------------------------------|---|--------------------------------|
| <b>Applications:</b> | <b>Industrial Production</b> | <b>Soft Serve &amp; Frozen Desserts</b> | <b>Custom &amp; speciality</b> |
|                      | <b>Artisanal Ice Cream</b>   | <b>Novelty Ice Cream Products</b>       |                                |

## Craft Delicious Frozen Delights:

Embrace the future of ice cream production with the Pina Engineering Ice Cream Plant. Streamline your processes, expand your product portfolio, and delight customers with exceptional frozen treats. Contact us today to embark on a journey of ice cream innovation with Pina Engineering.



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# SPICE PROCESS SYSTEMS

## Technical Characteristics and Advantages:

The Pina Engineering Spice Plant Processing boasts a range of technical characteristics and advantages:

**Versatile Processing Capabilities:** Our plant is equipped with a diverse range of equipment to process various spices, including grinding, blending, roasting, and packaging. From raw material handling to final packaging, our plant covers every step of the spice processing process.

**Advanced Automation:** Our spice processing plant incorporates state-of-the-art automation systems, ensuring precise control, optimal production efficiency, and consistent product quality. Automated processes minimize human intervention, reduce errors, and increase overall productivity.

**Customizable Production Lines:** We understand that each spice manufacturer has unique requirements. Our processing plant offers customizable production lines, allowing you to tailor the equipment layout, capacities, and processes to meet your specific needs and production volumes.

**Efficient Raw Material Handling:** Our plant includes advanced systems for raw material handling, such as cleaning, sorting, and drying. These systems ensure the purity, cleanliness, and quality of spices, contributing to the production of high-quality spice products.

**Superior Grinding and Blending Equipment:** We provide a wide range of cutting-edge grinding and blending equipment, including hammer mills, pin mills, and spice blenders. These machines offer precise particle size

reduction, uniform blending, and optimal flavor retention, resulting in consistent and flavorful spice powders.

**Roasting and Flavor Enhancement:** Our plant features specialized roasting equipment for spices, allowing for controlled roasting processes to enhance flavor, aroma, and color. This enables the production of customized spice blends with rich and authentic taste profiles.

**Packaging and Labeling Solutions:** Pina Engineering offers advanced packaging and labeling solutions, including filling machines, packaging materials, and automated labeling systems. These features enable efficient packaging, accurate weight control, and clear branding of your spice products, enhancing their shelf appeal.

**Quality Control and Monitoring:** Our spice processing plant incorporates advanced quality control and monitoring systems to ensure that every batch of spices meets the highest standards. These systems allow for real-time monitoring of critical parameters, such as moisture content, particle size, and spice blend consistency, ensuring consistent quality and adherence to specifications.

**Energy Efficiency and Sustainability:** Pina Engineering is committed to sustainability. Our spice processing plant incorporates energy-efficient technologies and optimized processes to minimize waste, reduce energy consumption, and promote sustainable spice production.

# SPICE PROCESS SYSTEMS

- Ribbon Blender
- Mixing Unit
- Sieving Machine
- Hammer Mill
- Pin Mill
- Cryomilling
- Coarse Grinder
- Packaging Unit

Introducing the Pina Engineering Spice Plant Processing, a comprehensive solution designed to transform the spice processing industry and bring out the vibrant flavors and aromas of a wide range of spices. With cutting-edge technology and a focus on efficiency, our processing plant offers a complete range of equipment and systems to streamline spice manufacturing from start to finish.

**Applications:** Spice Powder Production  
Custom Spice Blends

**Ethnic & Speciality Spices**  
**Organic & Natural Spices**

## Unleash the Aromas of Flavorful Spices:

Embrace the future of spice processing with the Pina Engineering Spice Plant Processing. Streamline your processes, enhance flavor profiles, and meet the demands of the spice industry with efficiency and quality. Contact us today to embark on a journey of spice innovation with Pina Engineering.



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## SPICE STEAM STERILIZER

### Key Features:

**High-Temperature Sterilization:** The system utilizes controlled steam heat to sterilize spices, ensuring food safety without compromising the integrity of the spice's natural characteristics.

**Customizable Settings:** Designed to handle various types of spices, from delicate herbs to robust seasonings, with customizable temperature and pressure settings.

**Energy Efficiency:** Equipped with energy-saving features that minimize steam and energy consumption, making it an environmentally conscious choice for manufacturers.

**Automated Controls:** State-of-the-art automation for easy operation, with real-time monitoring to

ensure consistent processing and quality control.

**Uniform Treatment:** Ensures even distribution of steam, resulting in uniform sterilization and enhanced shelf life of the spices.

### Technical Specifications:

#### Sterilization Range:

Capable of reaching high temperatures for different sterilization needs.

#### Capacity:

Designed to handle both small-scale and large industrial quantities.

#### Durable Construction:

Built from high-quality stainless steel, ensuring longevity and resistance to corrosion..

## SPICE STEAM STERILIZER

Introducing the Spice Steam Sterilizer by Pina Engineering, a cutting-edge solution designed to meet the stringent safety and quality standards of the spice processing industry. Our sterilizer effectively eliminates pathogens and microbial contaminants from spices while preserving their essential flavors, colors, and aromas. Built with advanced technology and precision engineering, this machine ensures optimal performance for a wide range of spice products.

### Applications:

Spice Powder Production | Whole Spice Sterilization

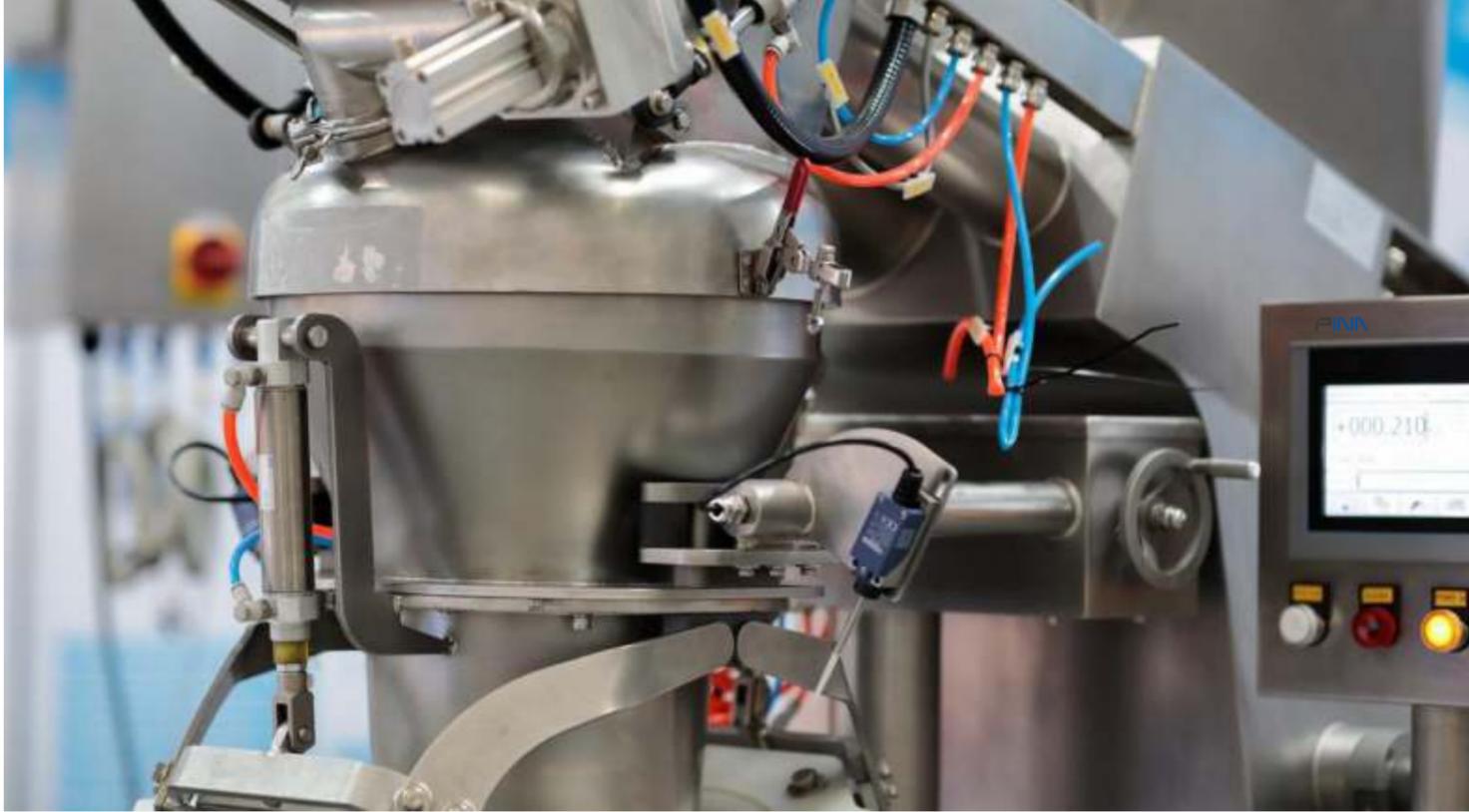
Ethnic and Specialty Spice Markets | Organic and Natural Spice Products

### Benefits:

**Extended Shelf Life:** Enhances the preservation of spices, reducing spoilage and maintaining product quality over time.

**Compliance with International Standards:** Meets global safety and hygiene standards, making it suitable for export markets.

**Enhanced Flavor and Quality:** Retains the aromatic properties of spices while ensuring they are free from harmful microbes.



# CHEESE PROCESS SYSTEMS

## Key Equipment and Systems:

**Process Cheese Kettle:** Our plant includes a state-of-the-art process cheese kettle, providing precise control over the cheese melting and blending process. This equipment ensures uniform texture, consistent meltability, and optimal flavor development.

**Filling System:** We offer advanced filling systems that enable efficient and accurate filling of processed cheese into various packaging formats, including tubs, cups, and pouches. These systems ensure efficient production and consistent portioning of cheese products.

**Stretcher Machine:** Our cheese processing plant features a high-performance stretcher machine, which allows for the stretching and molding of cheese curds. This equipment ensures the development of desired cheese textures, such as mozzarella, for a variety of applications.

**Forming Machine:** Pina Engineering provides reliable forming machines that shape cheese into desired forms, such as blocks, loaves, or slices. These machines maintain consistent

dimensions, ensuring uniformity and convenience for further processing or packaging.

**Dicer:** Our plant is equipped with a cutting-edge dicer, which precisely cuts cheese into uniform cubes or shreds. This equipment enables the production of cheese with specific sizes and shapes, ideal for applications like salads, sandwiches, or toppings.

**Enzymatically Modified Cheese (EMC) Machine:** We offer advanced EMC machines designed for the production of enzymatically modified cheese. These machines facilitate the controlled modification of cheese properties, such as texture, functionality, and flavor, allowing for the creation of innovative cheese products.

**Cold Storage Solutions:** Pina Engineering provides reliable and efficient cold storage solutions, including refrigeration systems and cold rooms, to maintain the freshness, flavor, and quality of cheese products during storage and distribution.

# CHEESE PROCESS SYSTEMS

Cheese Kettle With  
Direct Steam Injection System  
Filling Machine  
Mozzarella Cheese Stretcher  
Moulding Machine  
Dicer  
EMC Machine  
Cold Storage

Introducing the Pina Engineering Cheese Processing Plant, a comprehensive solution designed to revolutionize the cheese processing industry and deliver high-quality cheese products to consumers worldwide. Our plant incorporates cutting-edge equipment and systems to streamline every step of the cheese manufacturing process, ensuring efficiency, consistency, and exceptional taste.

<b>Applications:</b>	Processed Cheese	Speciality Cheese Products	Vegan Cheese
	Natural Cheese	Enzymatically Modified Cheese	Analogues

## Craft Quality Cheese Products:

Experience the future of cheese processing with the Pina Engineering Cheese Processing Plant. Streamline your processes, enhance flavor profiles, and deliver exceptional cheese products to consumers.



**Pina Engineering Pvt. Ltd.**  
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# DAIRY PROCESS SYSTEMS

## Key Equipment and Systems:

**Milk Reception and Storage:** Our dairy processing plant includes efficient milk reception systems equipped with state-of-the-art sensors to ensure accurate measurement and quality assessment of incoming milk. We also provide storage solutions that maintain optimal conditions for milk freshness and preservation.

**Pasteurization and Homogenization:** We offer advanced pasteurization systems to ensure the safety and longevity of dairy products. Our homogenization equipment guarantees consistent texture and prevents cream separation, resulting in smooth and uniform dairy products.

**Separator and Clarification:** Pina Engineering provides reliable separators and clarification equipment to remove impurities and separate cream from milk. These machines ensure high-quality dairy products with the desired fat content.

**Yogurt and Fermented Products:** We provide specialized equipment for the production of yogurt and other fermented dairy products. Our systems maintain precise temperature and incubation conditions, ensuring optimal fermentation and achieving desired taste and texture.

**Butter and Ghee Production:** Pina Engineering offers advanced equipment for butter and ghee production. Our churners, cream separators, and clarification systems ensure efficient separation of butterfat from cream and the production of high-quality butter and ghee.

**Powdered Dairy Products:** Pina Engineering provides advanced equipment for the production of powdered dairy products such as milk powder and whey powder. Our spray dryers and powder handling systems ensure efficient drying and packaging of powdered dairy products while preserving their nutritional properties.

# DAIRY PROCESS SYSTEMS

BMC  
Cream Separator  
Homogenizer | Pasteuriser  
Heat Exchanger  
Storage Silo  
Processing Tank  
Cooking Kettle  
Retort | Spray Dryer  
Packaging Machine | Filling Machine

Introducing the Pina Engineering Dairy Processing Plant, a comprehensive solution designed to revolutionize the dairy processing industry and deliver high-quality dairy products to consumers worldwide. Our plant incorporates advanced equipment and systems to streamline the entire dairy processing process, ensuring efficiency, consistency, and exceptional taste.

<b>Applications:</b>	<b>Fluid Milk Processing</b>	<b>Cheese Production</b>	<b>Ghee &amp; Butter Production</b>
	<b>Powdered Dairy Products</b>	<b>Ice Cream Production</b>	<b>Yogurt &amp; Fermented Product</b>



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# GRANOLA BAR PROCESS SYSTEMS

## Key Equipment and Systems:

**Mixing and Blending:** Our granola bar processing line includes high-capacity mixers and blenders designed to uniformly combine various ingredients, such as oats, nuts, dried fruits, sweeteners, and binders. These machines ensure consistent texture and flavor distribution throughout the granola bars.

**Forming and Compacting:** We offer state-of-the-art forming and compacting machines that shape the blended mixture into granola bars of desired dimensions and thickness. These machines guarantee precise portioning and uniform density, resulting in visually appealing and structurally sound bars.

**Baking and Toasting:** Pina Engineering provides advanced baking and toasting ovens specifically designed for granola bar production. Our ovens ensure even heat distribution and controlled baking conditions, resulting in perfectly baked bars with the desired crunchiness and flavor development.

**Coating and Enrobing:** Our processing line includes coating and enrobing machines that allow for the application of various coatings, such as chocolate, yogurt, or caramel, onto the granola bars. These machines create an enticing outer layer and enhance the taste and appearance of the bars.

**Cooling and Packaging:** We offer efficient cooling systems that rapidly cool down the freshly baked granola bars, ensuring their structural integrity and preserving their freshness. Our packaging machines provide reliable and automated solutions for packaging the granola bars, ensuring proper sealing and labeling.

# GRANOLA BAR PROCESS SYSTEMS

- Roasting machine
- Peeling machine
- Cutting machine
- Sugar cooking machine
- Mixer machine
- Press cutter with feeding machine
- Enrober machine with cooling tunnel
- Packaging machine

Introducing the Pina Engineering Granola Bar Processing Line, a comprehensive solution designed to revolutionize the granola bar manufacturing industry and deliver high-quality granola bars to consumers worldwide. Our processing line incorporates advanced equipment and systems to streamline every step of the production process, ensuring efficiency, consistency, and exceptional taste.

## Applications:

Commercial Production

Snacks Bar

Artisanal & Niche Products

Protein Bar

## Craft Quality Granola Bars:

Experience the future of granola bar production with the Pina Engineering Granola Bar Processing Line. Streamline your processes, enhance flavor profiles, and deliver exceptional granola bars to consumers. Contact us today to embark on a journey of granola bar innovation with Pina Engineering.



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# CONFECTIONARY PROCESS SYSTEMS

## Key Equipment and Systems:

**Mixing and Blending:** Our confectionery plant includes high-capacity mixers and blenders designed to uniformly combine various ingredients, such as sugar, syrups, flavorings, and colors. These machines ensure consistent texture and flavor distribution throughout the confectionery products.

**Cooking and Boiling:** We offer state-of-the-art cooking and boiling systems that precisely control temperature and cooking times for confectionery items such as caramel, toffee, and fudge. These systems ensure optimal texture and flavor development.

**Molding and Forming:** Pina Engineering provides advanced molding and forming machines for creating a variety of confectionery shapes, including bars, drops, balls, and molded figures. These machines offer precise control over size, shape, and detailing, resulting in visually appealing confectionery products.

**Enrobing and Coating:** Our confectionery plant includes enrobing and coating machines that allow for the application of chocolate, candy coatings, or glazes onto confectionery items. These machines create an enticing outer layer, enhance the taste, and improve the shelf life of the products.

**Cooling and Packaging:** We offer efficient cooling systems that rapidly cool down freshly made confectionery items, ensuring their structural integrity and preservation of flavor. Our packaging machines provide reliable and automated solutions for packaging the confectionery products, ensuring proper sealing and labeling.

### Applications:

Chocolates & Truffles

Caramels & Toffees

Gummies & Jellies

Hard Candies & Lollipops

### Craft Sweet Delights:

Experience the future of confectionery production with the Pina Engineering Confectionery Plant. Streamline your processes, enhance flavor profiles, and deliver exceptional confectionery products to consumers. Contact us today to embark on a journey of confectionery innovation with Pina Engineering.

# CONFECTIONARY PROCESS SYSTEMS

High-capacity Mixers And Blenders  
Cooking And Boiling Systems  
Molding And Forming Machines  
Enrobing And Coating Machines  
Cooling Systems  
Packaging Machines  
Tempering Machines  
Depositing Machines  
Caramel And Toffee Cookers  
Hard Candy And Lollipop Molding Machines  
Coating Machines

Introducing the Pina Engineering Confectionery Plant, a comprehensive solution designed to revolutionize the confectionery industry and deliver high-quality sweet delights to consumers worldwide. Our plant incorporates advanced equipment and systems to streamline every step of the confectionery production process, ensuring efficiency, consistency, and exceptional taste.



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## POST HARVEST PROCESS SYSTEMS

### Key Equipment and Systems:

**Ethylene Ripening and Ethylene Absorber:** We provide ethylene ripening systems that facilitate controlled ripening of fruits, enhancing their flavor, aroma, and color. Additionally, our ethylene absorber systems help regulate ethylene levels, preventing over-ripening and prolonging the shelf life of fruits and vegetables.

**Wax Coating:** Our post-harvest processing line includes wax coating machines that apply a thin, protective layer of natural or synthetic wax to fruits and vegetables. This coating helps maintain moisture, slows down respiration, and provides a barrier against microbial growth, preserving the quality and freshness of the produce.

**UV Treatment:** We offer UV treatment systems that utilize ultraviolet light to eliminate surface pathogens and reduce microbial contamination on fruits and vegetables. This non-chemical treatment method effectively extends shelf life and enhances food safety, ensuring high-quality produce for consumers.

**Cut Fruit Shelf Life Extension:** Pina Engineering provides innovative solutions for extending the shelf life of cut fruits. Our processing line includes specialized equipment and treatments that maintain freshness, prevent browning, and preserve the taste and texture of cut fruit, enabling longer shelf life and reducing waste.

## POST HARVEST PROCESS SYSTEMS

### Applications:

**Fresh Produce Distribution:** Our processing line is ideal for post-harvest handling and treatment of a wide range of fruits and vegetables, ensuring extended shelf life during storage and transportation. This benefits wholesalers, distributors, and retailers by reducing losses and maintaining product quality.

**Supermarkets and Retail Chains:** By utilizing our post-harvest processing line, supermarkets and retail chains can enhance the shelf life and visual appeal of fresh produce, offering customers high-quality fruits and vegetables with extended freshness. This leads to increased customer satisfaction and reduced waste.

**Food Service and Catering:** Our line enables food service providers, caterers, and restaurants to maintain the quality and freshness of cut fruits, salad ingredients, and prepped vegetables for longer periods. This results in improved menu options, reduced food waste, and increased operational efficiency.

**Export and Import:** For international trade, our post-harvest processing line ensures that fruits and vegetables maintain their quality and appearance during long-distance shipping. This extends the market reach of producers and promotes trade by delivering fresh produce to global markets.

Introducing the Pina Engineering Post Harvest Processing Line, a comprehensive solution designed to preserve the freshness and extend the shelf life of harvested fruits and vegetables. Our processing line incorporates advanced equipment and systems to optimize post-harvest handling, ensuring minimal spoilage, improved quality, and increased marketability of produce.



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## TUBULAR HEAT EXCHANGER SYSTEMS

### Key Equipment and Systems:

#### Single Tube Heat Exchanger:

Designed for heating and cooling fluids with minimal particulates, ensuring effective heat transfer and low pressure drop.

Ideal for liquid products, such as milk, juice, or clean fluids, requiring gentle heating or cooling processes.

#### Multi-Tube Heat Exchanger:

Features multiple tubes within a single shell, allowing for high heat transfer rates and the handling of viscous or particulate-laden fluids. Suitable for applications where large volumes

need to be processed efficiently, such as sauces, purees, or soups.

#### Corrugated Tube Heat Exchanger:

Enhanced surface area with corrugated tubes improves turbulence and heat transfer efficiency while reducing fouling.

Perfect for processes requiring high thermal efficiency and minimal maintenance, such as dairy, condiments, and high-viscosity fluids.

#### Shell-and-Tube Heat Exchanger:

Comprising an array of tubes within a cylindrical shell, this system facilitates efficient heat exchange between two fluids.

## TUBULAR HEAT EXCHANGER SYSTEMS

Introducing the Pina Engineering Tubular Heat Exchanger Systems, a robust and efficient solution designed to optimize heat transfer processes in a wide range of industries. Engineered for durability, hygiene, and performance, our tubular heat exchangers provide precise temperature control, ensuring high efficiency and reliability in heating, cooling, and pasteurization applications.

### Applications:

**Food & Beverage:** Ideal for heating or cooling viscous products, such as sauces, dairy, soups, and beverages, while maintaining product quality.

**Pharmaceuticals:** Used for sterile heat transfer processes in liquid and semi-liquid formulations, ensuring precise temperature control and hygiene.

**Chemical Processing:** Efficiently handle the transfer of heat in various chemical processes, including those involving corrosive or viscous fluids.

**Cosmetics:** Suitable for temperature-sensitive applications, ensuring product consistency and quality in creams, lotions, and gels.

### Key Safety and Quality Features:

**Automated Temperature Control:** Integrated systems provide real-time monitoring and automatic adjustments to maintain precise temperature control.

**Hygienic Design:** Sanitary construction materials and easy-clean designs ensure that our heat exchangers meet strict hygiene requirements, especially in food and pharmaceutical applications.

**Pressure Relief Systems:** Safety valves and pressure monitoring systems protect the equipment and operators from overpressure scenarios, ensuring safe and reliable operation.



## BIOREACTOR AND FERMENTER SYSTEMS

### Key Equipment and Systems:

#### Scalable Production Capabilities:

Pina Engineering offers bioreactor and fermenter systems that cater to both laboratory-scale research and industrial-scale production. Whether you're working with small batches or full-scale commercial production, our systems are customizable to meet your needs.

#### Advanced Automation and Monitoring:

Our bioreactor and fermenter systems are equipped with state-of-the-art control systems for precise monitoring and regulation of critical parameters, such as:

**Temperature Control:** Ensure optimal growth conditions with automated heating and cooling systems.

**pH and Dissolved Oxygen Regulation:** Maintain precise pH and oxygen levels for improved cell or microbial growth.

**Nutrient and Feed Control:** Optimize fermentation and bioproduction with automated feeding systems, ensuring consistent yields.

#### Customizable Design for Specific Needs:

We understand that every fermentation and

bioproduction process is unique. Pina Engineering offers fully customizable bioreactor and fermenter systems, allowing you to tailor the design, capacities, and control systems to your specific application requirements.

#### Enhanced Efficiency and Productivity:

Our bioreactors and fermenters are engineered to maximize efficiency and minimize downtime, ensuring seamless operation across all stages of the production process. The systems feature:

**High Precision Stirring and Agitation:** Achieve uniform mixing and aeration for optimized microbial or cell culture growth.

**Automated Sterilization:** Integrated CIP (Clean-in-Place) and SIP (Sterilization-in-Place) systems ensure sterile conditions, reducing contamination risks and improving overall productivity.

**Data Integration for Process Optimization:** Our systems are equipped with real-time data collection and analysis tools, allowing you to continuously monitor and optimize your bioprocesses for maximum yield and quality.

## BIOREACTOR AND FERMENTER SYSTEMS

Introducing the Pina Engineering Bioreactor and Fermenter Systems, a cutting-edge solution designed to revolutionize the biotechnology and pharmaceutical industries. With advanced technology, superior control systems, and scalability, our bioreactors and fermenters provide precise, reliable, and efficient solutions for microbial and cell culture applications.

### Applications:

**Pharmaceuticals and Vaccines:** Our systems ensure the high-quality production of vaccines, antibodies, and other pharmaceutical products through optimized microbial and cell culture conditions.

**Biotechnology:** Suitable for fermentation processes in biotech labs, our bioreactors ensure consistent, reproducible results for enzyme and protein production.

**Food and Beverage:** From yeast propagation in brewing to probiotic fermentation in dairy, our systems offer unmatched precision and reliability in the food and beverage industry.

#### Energy Efficiency and Sustainability:

Pina Engineering is committed to sustainability. Our bioreactors and fermenters incorporate energy-efficient designs that reduce resource consumption and waste. With optimized heat exchange and automated control, our systems help minimize environmental impact while maximizing productivity.



## BUNG PROCESSOR STERILIZER SYSTEM

Our Bung Processor Sterilizer is engineered to provide reliable, efficient, and consistent sterilization of rubber components used in pharmaceutical packaging. Designed for seamless integration into sterile production environments, this system offers a robust sterilization process, ensuring that bungs and seals are free from contaminants and suitable for aseptic packaging operations.

### Key Features:

**Precise Temperature and Pressure Control:** Our sterilizer uses advanced control systems to maintain exact temperatures and pressures, ensuring the complete sterilization of rubber bungs without compromising their integrity or function.

**Uniform Sterilization Process:** Equipped with a highly efficient steam distribution system, the sterilizer guarantees even heat penetration, ensuring consistent results across all batches. **Automated Sterilization Cycles:** With fully programmable cycles, the system allows for customized sterilization programs tailored to specific material and process requirements. This ensures flexibility and precision in processing different sizes and types of bungs.

**Rapid Cooling and Drying:** The sterilizer incorporates a rapid cooling system that

minimizes processing time while maintaining sterility. It also includes an efficient drying mechanism, preventing moisture retention on rubber components.

### Efficiency & Compliance

**Pharmaceutical-Grade Sterility:** Compliant with the latest pharmaceutical and medical industry standards, including cGMP (current Good Manufacturing Practices), ensuring safety, hygiene, and quality.

**Energy Efficiency:** The system is designed to reduce energy consumption through optimized steam use and heat recovery systems, contributing to sustainable and cost-effective operations.

**User-Friendly Interface:** A digital control panel allows operators to monitor, adjust, and automate cycles with ease, ensuring reliable operation and minimizing human error.

### Applications:

**Pharmaceutical Packaging:** Ideal for the sterilization of rubber stoppers, seals, and bungs used in vials, bottles, and ampoules for medicines, vaccines, and injectable solutions.

**Medical Device Manufacturing:** Suitable for the sterilization of rubber components used in a variety of medical devices and instruments.

### Customization and Scalability:

**Tailored Solutions:** Our sterilizer can be customized to meet the specific needs of your production line, offering flexibility in batch sizes, sterilization cycles, and operational parameters.

**Modular Design:** The system is designed for scalability, allowing manufacturers to expand their production capacity by adding additional sterilization chambers as needed.

## BUNG PROCESSOR STERILIZER SYSTEM

Introducing the Bung Processor Sterilizer, a state-of-the-art solution designed to ensure the optimal sterilization and safety of pharmaceutical-grade rubber stoppers, seals, and bungs. With cutting-edge sterilization technology and an emphasis on precision, this system meets the stringent demands of the pharmaceutical and medical industries, ensuring the highest standards of product safety and sterility.



## CIP | SIP SYSTEMS

### Key Features:

**Automated Cleaning and Sterilization:** Our CIP/SIP systems offer fully automated cleaning and sterilization processes, ensuring consistent and repeatable results while minimizing human intervention.

**Customizable and Flexible:** Designed to meet the unique requirements of different industries, the system can be customized to handle various tank sizes, piping configurations, and equipment needs.

**Energy and Resource Efficiency:** Optimized to reduce water, detergent, and steam usage, making the process more sustainable while minimizing operating costs.

**Real-Time Monitoring and Control:** Equipped with advanced control systems to monitor key parameters like flow rate, temperature, and pressure during the cleaning and sterilization cycles, ensuring compliance with hygiene standards.

**Compliance with Regulatory Standards:** Fully compliant with cGMP, FDA, and other global sanitary standards, ensuring your process equipment meets stringent hygiene requirements.

## CIP | SIP SYSTEMS

Introducing the CIP (Clean-in-Place) / SIP (Sterilize-in-Place) Systems by Pina Engineering, a comprehensive and automated solution designed to ensure optimal hygiene and sterilization for pharmaceutical, biotechnology, food, and beverage industries. Our CIP/SIP systems are built to meet the highest sanitary standards, ensuring thorough cleaning and sterilization of process equipment without the need for disassembly, improving efficiency and reducing downtime.

### Applications:

**Automated Cleaning and Sterilization:** Our CIP/SIP systems offer fully automated cleaning and sterilization processes, ensuring consistent and repeatable results while minimizing human intervention.

**Customizable and Flexible:** Designed to meet the unique requirements of different industries, the system can be customized to handle various tank sizes, piping configurations, and equipment needs.

**Energy and Resource Efficiency:** Optimized to reduce water, detergent, and steam usage, making the process more sustainable while minimizing operating costs.

### Technical Specifications:

**Cleaning Cycles:** Includes customizable cleaning cycles for different equipment types, such as pre-rinse, detergent wash, final rinse, and sanitization.

**Sterilization Options:** Provides steam sterilization at high temperatures, ensuring the complete elimination of microorganisms in process equipment.

**Temperature and Pressure Control:** The system features precise temperature and pressure control to guarantee effective cleaning and sterilization without damaging equipment.

**Modular Design:** Available in both mobile and stationary units, the system can be integrated into new or existing process lines, offering scalability to meet the needs of small and large facilities.

**Material Construction:** Constructed from high-grade stainless steel to ensure durability, corrosion



# HVAC INDUSTRIAL PROCESSING SOLUTIONS

# HVAC INDUSTRIAL PROCESSING SOLUTIONS

**Design and Fabrication of Custom HVAC Systems:** Tailored solutions for managing heating, ventilation, and air conditioning in industrial settings.

**Process Cooling and Heating Systems:** Temperature regulation systems that ensure consistency for sensitive processes like food preservation, chemical processing, and pharmaceutical production.

**Energy-efficient Ventilation Systems:** Advanced air distribution systems designed to improve air quality while minimizing energy consumption.

**Industrial Heat Exchangers:** High-performance heat exchangers for efficient energy transfer, reducing operational costs.

**Smart HVAC Automation:** Integration of IoT technology and real-time monitoring for remote management, predictive maintenance, and efficiency optimization.

**Retrofit and Upgrade Services:** Modernization of existing systems to improve efficiency, reduce energy costs, and meet new regulatory

standardsSpecialized HVAC Solutions for Industrial Processing

**Specialized HVAC Solutions for Industrial Processing**  
Our HVAC systems are engineered to meet the highest standards of performance in diverse industrial sectors, including:

**Food and Beverage:** Ensuring precise temperature and humidity control for food processing, packaging, and storage.

**Pharmaceuticals and Biotechnology:** Maintaining critical climate conditions for product safety and regulatory compliance.

**Chemical Processing:** Providing robust systems for managing extreme temperatures and harsh environments.

**Manufacturing:** Optimizing air quality and climate control for large-scale manufacturing facilities..

We understand that every industrial processing environment has unique climate control needs, which is why we offer custom HVAC solutions to meet specific requirements. Our team is equipped with advanced tools and expertise to develop systems that ensure efficient temperature control, enhanced air quality, and process stability. Our services include:

**Applications:**  
Food & Beverage | Pharmaceuticals And Biotechnology | Chemical Processing



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## OINTMENT PROCESSING PLANT

At Pina Engineering, we offer comprehensive solutions tailored to the unique requirements of ointment production. Our highly advanced systems are designed to provide maximum efficiency, reduce waste, and ensure product consistency across batches.

### Key Equipment and Systems:

#### Vacuum Homogenizer Mixer:

Ensures thorough mixing and homogenization of ointment formulations.

Guarantees a smooth, consistent texture and even distribution of active ingredients.

#### Ointment Filling Machine:

High-precision filling system designed to accurately fill tubes, jars, or containers with minimal waste.

Adjustable filling volumes to accommodate different product lines.

#### Automatic Tube Sealer:

Ensures reliable and efficient sealing of ointment-

filled tubes for safe packaging.

Compatible with both plastic and metal tubes, offering flexibility in packaging options.

#### Cooling and Heating Systems:

Advanced temperature control systems ensure that ointments are processed at the optimal temperature, preventing ingredient degradation.

Rapid cooling ensures product stability and prolongs shelf life.

#### Emulsification Systems:

Ensures uniform mixing of water and oil phases for emulsified ointments, guaranteeing product quality and effectiveness. operation and

## OINTMENT PROCESSING PLANT

Introducing the Pina Engineering Ointment Processing Plant, a state-of-the-art solution designed to streamline the manufacturing of high-quality ointments and creams. With cutting-edge technology and a focus on precision and consistency, our processing systems ensure efficient production, maintaining the integrity and quality of pharmaceutical and cosmetic formulations.

### Applications:

**Pharmaceutical Ointments:** Formulate and produce medical-grade ointments with precise ingredient control, ensuring efficacy and stability.

**Cosmetic Creams:** Efficiently produce a wide range of cosmetic products, from moisturizing creams to specialized skincare treatments.

**Veterinary Ointments:** Produce animal care formulations with optimal texture and application characteristics.

### Features:

**Automated Batch Control:** Full automation allows for precise control over every step of the process, from ingredient mixing to final packaging.

**Real-time Monitoring:** Integrated monitoring systems provide real-time feedback, ensuring quality and consistency throughout the manufacturing process.

**Scalability:** Our systems are designed to scale, allowing for small batch production as well as full industrial-scale manufacturing.

**GMP Compliant:** All our equipment is manufactured in compliance with Good Manufacturing Practice (GMP) standards, ensuring safe and hygienic production.



## PIGGING SYSTEMS

### Key Features:

**Efficient Product Recovery:** Our pigging system allows for the recovery of up to 99% of residual product in the pipeline, significantly reducing waste and increasing profitability.

**Hygienic Design:** Built to meet the highest sanitary standards, ensuring that the system can be used in industries such as food and beverage, pharmaceuticals, and cosmetics without risk of contamination.

**Minimized Downtime:** With quick and effective cleaning between product changes, the system reduces production downtime, allowing for a smoother and more efficient workflow.

**Automated Control:** Equipped with automated pig launching, receiving, and cleaning processes, ensuring seamless integration into existing production lines with minimal human intervention.

**Customizable and Scalable:** Designed to be flexible and scalable, the system can be tailored to suit various pipeline sizes and production capacities, from small operations to large-scale industrial facilities.

## PIGGING SYSTEMS

### Applications:

**Food and Beverage Industry:** Ideal for the recovery of liquids such as sauces, syrups, and dairy products from pipelines, reducing waste and contamination risks.

**Pharmaceuticals:** Ensures the complete transfer of liquids in sterile environments, minimizing cross-contamination and ensuring compliance with regulatory standards.

**Cosmetics and Personal Care:** Efficiently recovers viscous products such as creams, lotions, and gels, while reducing cleaning time and costs.

**Chemical Processing:** Suitable for the recovery of valuable chemicals and solvents, ensuring product integrity and reducing the need for harsh cleaning agents.

### Technical Specifications:

**Material Compatibility:** Suitable for a wide range of products, from low-viscosity liquids to high-viscosity creams and pastes.

**Automated Pigging Process:** Features a fully automated pigging system with real-time monitoring for product recovery and cleaning operations.

**Modular Design:** Available in various sizes and configurations to fit different pipeline systems and production needs.

**Easy Integration:** Can be integrated into new or existing production lines with minimal disruption, offering flexible solutions for various industries.

Introducing the Pigging System by Pina Engineering, a state-of-the-art solution designed to optimize product recovery, reduce waste, and streamline cleaning processes in a variety of industries. Our pigging technology uses advanced, hygienic methods to recover valuable product from pipelines, while minimizing contamination, downtime, and the use of cleaning agents.



## POWDER PROCESSING SYSTEMS

## POWDER PROCESSING SYSTEMS

At Pina Engineering, we specialize in providing customized powder handling and mixing solutions that cater to the specific needs of your production processes. Our systems ensure the safe, hygienic, and efficient transfer and blending of powders, minimizing dust exposure, waste, and cross-contamination.

### Key Equipment and Systems:

#### Sack Discharge Systems:

Designed for the easy and dust-free emptying of powder from sacks, these systems ensure that raw materials are handled safely and efficiently. Features dust extraction systems that maintain a clean working environment and minimize product loss.

Ergonomically designed to reduce manual handling and improve operator safety.

#### Pneumatic Transfer Systems (PTS):

Our pneumatic transfer systems allow for the safe, enclosed transfer of powders from one process to another, ensuring product integrity.

Ideal for conveying powders over long distances while maintaining a hygienic, contamination-free environment.

Minimizes manual intervention, reduces the risk of contamination, and improves overall plant efficiency.

#### Bag Filling Machines:

High-speed automatic bag filling systems that accurately measure and fill powder into bags or sacks.

Designed for both small-scale and large-scale operations, these systems ensure precise filling,

reducing waste and increasing operational efficiency.

Compatible with various bag types, including valve bags, open-mouth bags, and FIBCs (Flexible Intermediate Bulk Containers).

#### Vertical and Horizontal Mixers:

**Vertical Mixers:** Efficiently mix powder blends in a compact, space-saving design. These mixers are ideal for achieving homogenous mixtures of light powders or fine particles.

**Horizontal Mixers:** Equipped with robust paddles or ribbon blades, these mixers ensure uniform mixing of heavier powders and bulk materials.

Both mixer types feature advanced automation for precise mixing times, ensuring consistent batch quality.

#### Big Bag Discharge Systems:

Optimized for handling large quantities of powders, these systems ensure smooth discharge from big bags or bulk bags with minimal dust generation.

Fully enclosed systems prevent product loss and protect operators from dust exposure.

Available with integrated weighing systems for accurate material handling and tracking.

### Applications:

**Food and Beverage Industry:** Ideal for the recovery of liquids such as sauces, syrups, and dairy products from pipelines, reducing waste and contamination risks.

**Pharmaceuticals:** Ensures the complete transfer of liquids in sterile environments, minimizing cross-contamination and ensuring compliance with regulatory standards.

**Cosmetics and Personal Care:** Efficiently recovers viscous products such as creams, lotions, and gels, while reducing cleaning time and costs.

**Chemical Processing:** Suitable for the recovery of valuable chemicals and solvents, ensuring product integrity and reducing the need for harsh cleaning agents.



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## PURE STEAM GENERATOR SYSTEMS

### Key Equipment and Systems:

#### Steam-to-Steam Pure Steam Generator:

-Utilizes plant steam to produce high-quality pure steam, ensuring efficient transfer of heat without contamination.

-Built with high-grade stainless steel for excellent resistance to corrosion and to meet pharmaceutical-grade standards.

#### Electric Pure Steam Generator:

-Powered by electricity, this system offers a clean and compact solution for pure steam generation without relying on external steam sources. Ideal for smaller operations or facilities with space limitations, ensuring efficient and rapid steam production.

#### Multiple-Effect Pure Steam Generator:

-Employs a multi-stage evaporation process to maximize energy efficiency and reduce operating costs, making it ideal for large-scale operations. -Capable of producing large volumes of high-purity steam while maintaining minimal energy consumption.

### Features:

**High Purity:** Generates pure steam that is free from contaminants, pyrogens, and non-condensable gases, ensuring compliance with international standards (e.g., USP, EP).

**Automated Controls:** Advanced control systems allow for automated operation, with real-time monitoring of critical parameters such as pressure, temperature, and conductivity.

**Compact Design:** Space-saving designs allow for easy installation in tight production environments without sacrificing capacity or performance.

**Energy-Efficient Operation:** Our systems are optimized for energy efficiency, reducing fuel consumption while delivering continuous, high-quality steam output.

## PURE STEAM GENERATOR SYSTEMS

Pina Engineering's Pure Steam Generator Systems incorporate the latest advancements in steam generation technology, delivering consistent, high-purity steam with exceptional energy efficiency. Our systems are designed for ease of operation, ensuring reliable steam production for critical applications

### Quality Control And Safety

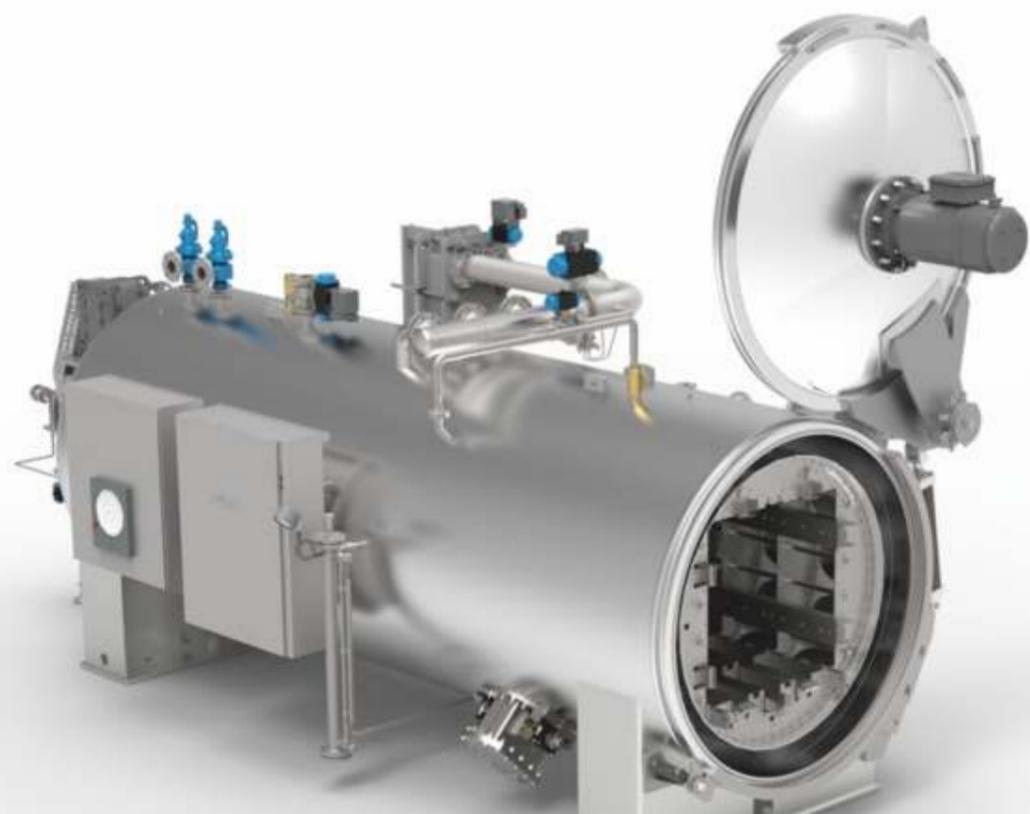
Automated Sterilization | GMP and cGMP Compliant | Built-in Safety Systems

### Steam Generation Capabilities:

**Sterilization:** Produce pure steam for sterilizing equipment, piping systems, and product containers, ensuring a pyrogen-free environment.

**Humidification:** Use pure steam for controlled humidification in critical environments, preventing contamination from foreign particles or microorganisms.

**Energy Recovery:** Efficiently recover energy from steam processes, lowering operational costs and improving the sustainability of your plant.



## ROTARY STERILIZER

### Key Features:

**Continuous Rotary Motion:** The rotary action ensures even heat distribution across all surfaces of the product, resulting in uniform sterilization. This is ideal for liquid and semi-liquid products where temperature consistency is critical.

**Precise Temperature Control:** Equipped with advanced temperature monitoring and control systems, the sterilizer maintains optimal sterilization conditions, ensuring complete microbial elimination while preserving product quality.

**Customizable Sterilization Cycles:** Offers flexible settings to accommodate various sterilization needs, including different temperatures, pressures, and cycle times depending on the product type and packaging format.

**Energy-Efficient Design:** Engineered to minimize energy consumption while maintaining high sterilization performance, reducing operational costs without compromising efficiency.

**Automated Operation:** The system is fully automated, featuring real-time monitoring, data logging, and programmable control for easy operation and consistent sterilization results.

## ROTARY STERILIZER

### Applications:

**Pharmaceutical Industry:** Ideal for the sterilization of liquid pharmaceuticals, suspensions, and other packaged drugs, ensuring sterile and safe end products.

**Food and Beverage:** Used for sterilizing a wide range of packaged food items such as sauces, soups, baby food, and dairy products, extending their shelf life while preserving taste and nutritional value.

**Cosmetics and Personal Care:** Ensures sterile production of liquid and semi-solid cosmetics, such as lotions and creams, packaged in various formats.

**Medical Devices:** Suitable for sterilizing medical supplies and devices packaged in flexible or semi-rigid containers, ensuring compliance with safety and regulatory standards.

### Technical Specifications:

**Temperature Range:** Capable of achieving high sterilization temperatures for complete microbial destruction, adjustable to suit different product requirements.

**Rotation Speed:** Customizable rotation speed to optimize heat transfer based on product viscosity and packaging type.

**Chamber Capacity:** Available in various chamber sizes, designed to accommodate small batches or large-scale production needs.

**Monitoring and Control:** Real-time monitoring of critical parameters like temperature, pressure, and rotation speed, with automatic adjustments to maintain optimal conditions.

**Construction:** Built with high-grade stainless steel for durability, corrosion resistance, and easy cleaning, meeting the highest sanitary and safety standards.

Introducing the Rotary Sterilizer by Pina Engineering, a cutting-edge solution designed to meet the stringent sterilization demands of the pharmaceutical, food, and beverage industries. Our rotary sterilizer provides continuous and uniform sterilization of packaged products by combining precise temperature control with rotary agitation, ensuring thorough treatment while maintaining product integrity.



## PHARMA STERILIZER

### Key Features:

**Advanced Sterilization Technology:** Our pharma sterilizers use cutting-edge technology such as steam, dry heat, or a combination of both, to ensure complete and consistent sterilization.

**Precise Control Systems:** Equipped with automated control panels that monitor and adjust temperature, pressure, and cycle duration in real-time to ensure consistent sterilization results.

**Flexible Configurations:** Available in various sizes and configurations, including chamber types and

shelf arrangements, to suit different sterilization needs—from small-scale labs to large pharmaceutical manufacturing plants.

**Energy Efficiency:** Designed with energy-saving features to minimize utility consumption without compromising performance, reducing operational costs while ensuring regulatory compliance.

**CIP/SIP (Clean-in-Place/Sterilize-in-Place)**

**Integration:** Fully compatible with CIP/SIP systems, allowing easy cleaning and sterilization of the sterilizer itself, thus ensuring optimal hygiene and minimal downtime.

## PHARMA STERILIZER

### Applications:

**Pharmaceutical Manufacturing:** Sterilization of production equipment, containers, and packaging materials used in the production of sterile drugs and biologics.

**Laboratory and Research Facilities:** Sterilization of glassware, tools, and instruments used in scientific research, ensuring a contaminant-free environment.

**Healthcare and Medical Devices:** Sterilization of surgical instruments, medical devices, and other healthcare equipment, ensuring patient safety and compliance with medical standards.

**Biotechnology:** Sterilization of culture media, fermenters, and other critical equipment used in the production of vaccines and biologics.

### Technical Specifications:

**Temperature Range:** Capable of operating at high temperatures for steam sterilization and precise dry heat sterilization, ensuring flexibility for different materials and applications.

**Chamber Size:** Available in various chamber sizes, from small bench-top models to large industrial sterilizers, tailored to the scale of your operation.

**Monitoring System:** Real-time monitoring of key parameters such as temperature, pressure, and cycle time, with automatic data logging for easy documentation and compliance verification.

**Sterilization Cycles:** Customizable cycles for different sterilization needs, including pre-vacuum, gravity, and liquid cycles.

Introducing the Pharma Sterilizers by Pina Engineering, an advanced solution designed to meet the stringent sterilization requirements of the pharmaceutical, biotechnology, and healthcare industries. Our sterilizers ensure reliable, effective, and safe sterilization of equipment, glassware, and medical devices, adhering to international standards and regulatory guidelines for critical environments.



## WATER FOR INJECTION (WFI)

### Key Features:

**Multi-Effect Distillation:** Our system uses multi-effect distillation to produce water with the highest purity levels, free from pyrogens, endotoxins, and other contaminants.

**Continuous Water Production:** Designed for efficient, uninterrupted production of water for injection, ensuring a constant supply for critical applications in pharmaceutical manufacturing.

**Energy Efficient:** The system is optimized for low energy consumption while delivering high output, reducing operational costs without compromising quality.

**Advanced Control Systems:** Equipped with automated controls and real-time monitoring, ensuring precise operation and consistent water quality.

**Compact and Scalable Design:** Modular design allows for scalability, catering to both small-scale laboratories and large industrial facilities. Widely used for industrial heating and cooling, particularly in processes where one fluid is heated while the other is cooled.

## WATER FOR INJECTION (WFI)

Introducing the Water for Injection (WFI) System by Pina Engineering, an advanced solution designed to meet the highest standards of purity and quality in pharmaceutical and biotechnology industries. Our WFI system produces ultra-pure water through a combination of distillation and advanced filtration technologies, ensuring compliance with global regulatory requirements, including USP and EU pharmacopeia standards.

### Applications:

**Pharmaceutical Manufacturing:** Essential for the preparation of sterile products such as injectables, vaccines, and intravenous solutions.

**Biotechnology:** Used in the production of biologics, where contamination-free water is critical.

**Medical Devices:** Supports the production of medical devices that require sterile processing environments.

**Laboratory and Research:** Provides ultra-pure water for critical research processes and experimental applications.

### Technical Specifications

**Purity Level:** Produces water that meets or exceeds USP and EP standards for WFI, with low conductivity and microbial levels.

**Production Capacity:** Customizable to meet the specific needs of different facilities, from small laboratories to large-scale manufacturing plants.

**Monitoring System:** Includes real-time monitoring of critical parameters like conductivity, pH, and temperature to ensure compliance at all times.



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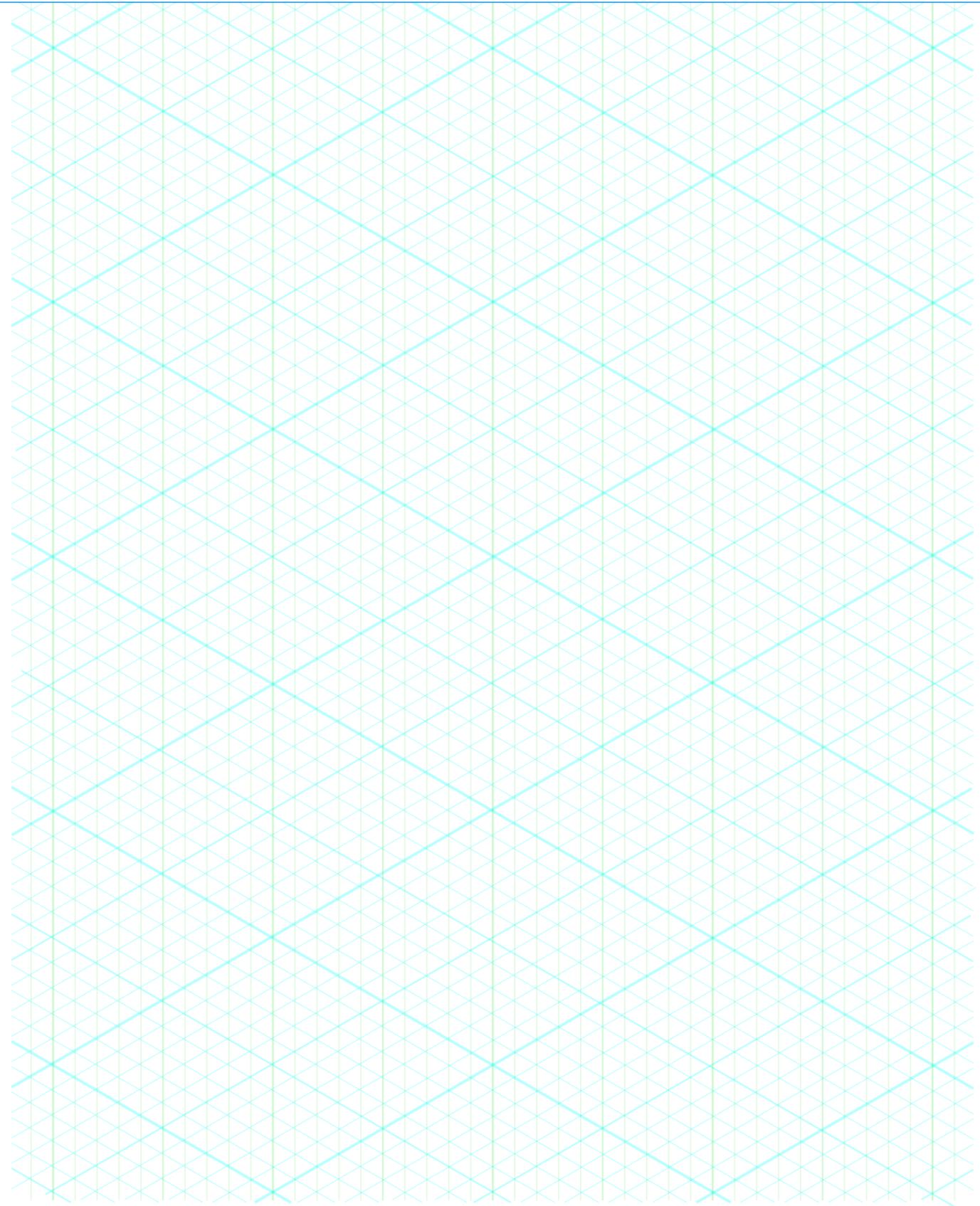
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**Partner with Pina Engineering:**

When you choose Pina Engineering, you partner with excellence. We offer comprehensive support, from conceptualising, manufacturing, installation and training to ongoing maintenance and technical assistance. Our commitment to your success is unwavering, empowering you to thrive in the ever advancing industrial environment.

**Pina Engineering Pvt. Ltd.**  
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