Dairy Applications
Equipment and Solutions for Dairy Processing

GEA engineering for a better world

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Who we are and what we offer

GEA is one of the largest suppliers of process technologies for the global dairy and food industries, and for a wide range of other industrial sectors. We focus on developing world-leading solutions and components for sophisticated production processes which meet the needs of the diverse industries that we serve and help to drive innovation. Our worldwide customers turn to GEA as their engineering and technology partner of choice.

GEA’s two business areas, Equipment and Solutions, offer engineering and development, product management and sales, supply chain services and expertise, together with specialist technology centers for each market. Our business structure ensures that customers can obtain world-leading equipment, solutions and services, backed by some of the best professional support in the industry, all from one source. GEA’s global networks ensure fast delivery and guarantee the best service worldwide. Our technology helps to speed innovation and time to market for our customers’ products.

GEA’s expertise covers project management, plant installation, commissioning and after sales service. Our in-house test centers, state-of-the-art laboratory facilities, pilot plants and test equipment are available for research, product development and process optimization trials. By working with GEA, our customers partner with a dedicated team of experts – from inception and design, to construction and deployment, through the entire lifecycle of the process plant. Our dedicated regional dairy application hubs for North America, Latin America, India, China, Asia-Pacific, Europe, the Middle East and Africa provide all necessary process application, project management and sales support. Wherever our customers are in the world, GEA will be with them.

Specialists in processing ‘white gold’

From farm to table – dairy processing

There are an estimated 270 million dairy cows around the world, in herds that range in size from just a single animal that produces milk for one family to thousands of animals in huge commercial farms. Few of us think about the technologies that ensure the safe, sustainable processing of milk and the huge range of fresh and powdered milk-based products that we rely on to feed and nourish an expanding global population. GEA is leading the way in the development and delivery of technologies for processing this versatile staple food and its derivatives – from milk reception to finished products.

For decades the dairy industry worldwide has relied on GEA’s expertise. From the design and construction of large-scale milk and milk product processing facilities, to the provision of solutions and individual pieces of equipment, GEA technology keeps our customers efficient, competitive and innovative.

Backed by years of experience, know-how and technological expertise, GEA develops and supplies world-class precision engineering that allows the dairy and related industries to meet product demand, while controlling costs, improving efficiency and protecting the environment.

From fresh milk to premium dairy products

We design, engineer and supply complete tailor-made production plants, fully integrated processing lines and individual unit operations for the treatment of raw milk and for manufacturing, process cooling, drying, filling, packaging and bagging milk-based and powdered products. From butter or ice cream to yogurt and cheese, infant formula, milk powder, whey and its derivatives, we design and construct complete solutions for dairy products. Our customers can rest assured that all GEA dairy processing technology is engineered to meet the strictest hygiene, food safety and quality standards, and to maximize efficiency and product quality while reducing the use of resources and raw materials.
Applications

**Market Milk Products**

A global variety of liquid dairy products

GEA offers industry-leading technologies and systems for processing a wide range of liquid milk and milk-derived products including pasteurized/fresh milk, extended shelf-life products and ultra-heat treated milk, flavored milk, milk mix drinks, cream and whipped cream, condensed and sweetened milk.

Our range of processing components and complete process lines have been developed to ensure that every stage of milk processing, from milk reception and clarification, heat-based pasteurization and homogenization, through to final product processing and storage, meets the most stringent safety requirements without losing valuable nutrients in the milk.

**Indulge in taste and texture**

GEA offers solutions for the production of milk fat products including butter, ghee and anhydrous milk fat (AMF). The key element is turning a fat in water emulsion into a water in fat emulsion, done by a continuous butter making machine or production of AMF by a homogenizer and separators.

The design of our equipment and plants is backed by decades of expertise in every stage of milk fat processing, from raw milk reception, to buffer tanks, pasteurization, homogenization, ripening tanks, butter churning, AMF separation, heating, cooling, storage and filling. Whether the final product is for spreading on bread, cooking or use as an ingredient in the food industry, GEA technologies ensure that they will exhibit the best possible quality, taste and texture.

**Technologies for every stage**

Cheese making is a highly skilled sector of the dairy industry that relies on precise processing technologies and the ability to fine-tune all processing conditions and variables. GEA offers technologies needed to process a diverse range of products including fresh, cream, soft, white, semi-hard, hard, processed and pasta filata cheese.

GEA works with customers to design and install complete cheese plants, and provide tailored technologies and solutions for milk reception, bacteria removal and pasteurization, separation, standardization, homogenization, curd making, draining, forming, molding, pressing, brining, filtration, CIP, heat treatment, cooling, ripening, automation, slicing and packing.

**From cultured products to delicate desserts**

GEA offers efficient solutions and complete processing lines for the production of yogurt and other fermented products and dairy-based desserts, including set and stirred yogurt, strained/Greek/ concentrated yogurt, drinking yogurt, sour milk drinks, buttermilk, sour cream, and rice puddings.

We offer technologies for the reception, cooling, storage, milk separation, cream handling, in-line milk standardization and automated mixing of fresh or powdered milk and other ingredients, as well as for pasteurization or ultra-heat treatment and homogenization. Our incubation tanks ensure optimum conditions for yogurt cultures, and we offer efficient and robust centrifugation or membrane filtration systems for Greek-style and strained yogurts.

**Taking the hard work out of frozen favorites**

GEA supplies state-of-the-art equipment for processing every type of traditional ice cream/milk, sherbet, sorbet and water ices, frozen yogurts and dessert ice.

We offer solutions for every process step of ice cream production, from liquid through to freezing. GEA’s technologies for the reception, storage and mixing of milk powder, fats and sugar are complemented by pasteurizers, homogenizers, and fat and chocolate melters. Our refrigeration solutions ensure that products are maintained at the correct temperature during both the ice cream production and cold storage. Product aging tanks from GEA feature our valve system for automated filling and emptying, and we supply dedicated recycling technologies to minimize product waste.
Applications

Nutritional Formula

An important source of nutrients
GEA is one of the world’s largest supplier of complete, integrated nutritional formula plants for processing the highest quality products.

Our detailed know-how spans infant milk formula, follow-on/follow-up formula, growing-up milk and dietary formula. High growth markets, such as that for infant formula, are driving the need for advanced, efficient production facilities that will meet increasing demand. GEA is committed to providing state-of-the-art plants and equipment for every stage of production, from the reception, storage and blending of dry or liquid ingredients, to homogenization, evaporation, spray drying and packing of the finished product.

Milk Powders

From raw milk to packed powder
Milk powder processing plants that have been designed and equipped by GEA are operating around the world to process millions of liters of milk each day into dry milk products.

We offer the latest in dairy processing technologies for processing the highest quality whole and skim milk powders, fat filled milk powder, and dairy based coffee and tea whitener. Our technologies ensure the most efficient operation, reduced energy and resource consumption. We supply the total solution, from process design and development, engineering and equipment, to delivery, installation and commissioning, of the milk powder plant.

Dairy Ingredients

Plants for the processing of all types of whey and whey derivatives
As a co-product of cheese and yogurt production, whey and whey derivatives contain many of the valuable components that are found in milk. In liquid or powdered form, they represent important nutritional supplements which are processed as key ingredients in many food products for human and especially infant nutrition.

For dairy ingredients manufacturers, GEA offers complete solutions for instant dried whey products including whey powder, whey protein concentrates and isolates, microparticulated whey, casein, caseinates, lactose, calcium phosphate and cheese powders.

Applied Equipment, Technology & Solution

Milk Reception & Handling
- Flow Meters
- Samplers
- Cooler
- Heater
- Storage Tanks
- CIP Systems

Homogenization & Flow Components
- High Pressure Homogenizers
- High Pressure Pumps
- Hygienic Valves
- Aseptic Valves
- Cleaning Technology
- Hygienic Pumps

Heat Treatment & Pasteurization
- High Temperature Short Time Heating (HTST)
- Highest Temperature Short Time (HHST)
- Ultra High Temperature Process (UHT)
- Pasteurizer (with integrated Skimming Separator)

Centrifugal Separation & Butter Making
- Separators (Clarifiers, Bacterial Removal Clarifiers, Skimmers, Fresh Cheese Centrifuges, AMF Separators)
- Decanters (Casein, Lactose)
- Milk Standardization Units
- Continuous Butter Making Machines
**Applied Equipment, Technology & Solution**

**Liquid Processing**
- Aseptic Tanks
- Batch/Inline Mixer
- Flow Meters
- Deaerator Systems

**Filtration & Concentration**
- Microfiltration
- Ultrafiltration
- Nanofiltration
- Reverse Osmosis
- Dialfiltration
- Microparticulation

**Evaporation**
- Falling Film Evaporator
- Vapor Recompression – Thermal and Mechanical

**Powder Handling & Packaging**
- Transportation & Storage
- Dosing & Feeding
- Weighing & Batching
- Pneumatic Conveying
- Bag, Box & Drum Filling
- Automatic Sealing
- Palletizing & Conveying

**Cheese Molding & Brining**
- Cheese Making
- Cheese Presses & Vats
- Maturation
- Cooking & Stretching
- Curd Machines, Draining, Filling & Forming
- Static & Dynamic Brining

**Process Automation**
- Analytical, In-line Control & Measurement Devices
- Data Capture Systems
- Dairy Process Automation & MES Solutions (incl. Reporting, Recipe Handling and Track&Trace)

**Liquid Filling & Packaging**
- Aseptic Filling
- Extended Shelf Life (ESL) Filling
- IBC Filling
- Blow Molding
- Palletizing & Conveying

**Specialized Equipment & Solutions**
- Culture preparation
- Fruit Mix & Fruiting Stations
- Vegetable Fat Storage & Dosing Systems
- Inoculation Systems
- Crystallization

**Drying**
- Spray & Fluidized Bed Dryers
- Powder Agglomerators
- Inline Powder Quality Sampling
- Process Control Systems

**Process Refrigeration & Storage**
- Compressors
- Heat Pumps (transferring waste heat into usable process heat)
- Chiller
- Spiral, Tunnel or Carton Freezer

**Cheese Slicing & Packaging**
- Slicing Systems
- Pre-scanner Systems
- Weighing Systems
- Slicing Loader
- Conveyor and Pneumatic Folding Devices
- Thermoformer Packaging

**Service**
- Farm Services
- Commissioning & Installation
- Corrective, Predictive & Preventive Maintenance
- Modernization & Optimization
- Upgrades & Performance
- Spare Parts
- Training
GEA Group is a global engineering company with multi-billion euro sales and operations in more than 50 countries. Founded in 1881, the company is one of the largest providers of innovative equipment and process technology. GEA Group is listed in the STOXX® Europe 600 Index.

We live our values.
Excellence • Passion • Integrity • Responsibility • GEA-versity