

EKİN ENDÜSTRİYEL

**FOOD GRADE
SYSTEMS
GENERAL CATALOGUE**

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EKIN ENDÜSTRİYEL
Isıtma-Soğutma San. Tic. Ltd. Şti.





Sustainable Innovation, Quality Standardization and Dynamism

Ekin Endüstriyel, which has entered Turkish heating sector by exporting of plated heat exchangers, is known with customer focused vision and dynamism. Ekin has expanded into new and upcoming investments. One of the main steps was gaining the identity of being a producer. Ekin has started the production of plate heat exchangers with the brand of "MIT". We have grown in the philosophy of quality, through initially adapting to ISO Quality Management.

MIT plate heat exchangers have become a solution for engineering problems in the world market and have grown through an expansion of franchises.

Engineering Approaches, Integrated Solutions

Ekin has expanded into the production of components, sales, and after-sales service by employing expert engineers. The factors that guided Ekin to success are their exceptional customer service to the needs and wants of consumers, modern facilities, and becoming partners to projects that involve high-end technology.

Ekin is an expert company which has a wide product range which includes plate heat exchangers, accumulation tanks, water heater tanks, installation, and its service group and submit competitive advantages to mechanical installation sector in Turkey and all around the world.



APPLICATION FIELDS



HEAT TRANSFER PRODUCTS

- Gasketed Plate Heat Exchangers • Brazed Heat Exchangers • Shell&Tube Heat Exchangers • Air Fan Oil Cooler • Economizers • Coils and Radiators



PRESSURE VESSELS

- Water Heater Tanks • Water Storage Tanks • Buffer Tanks • Expansion Tanks • Stainless Steel Process Tanks • Balance Tanks / Dirt Separators / Air Separators • Pressured Air Tanks • Neutralization Tanks • Air Tubes • Steel IBC Tanks with ADR



COMPLETE SYSTEMS UNITS

- Heat Stations • Steam Package Systems • Special Designed Systems • Dosing Systems • Substations • Thermoregulators



FOOD GRADE SYSTEMS

- Pasteurizers with plate heat exchangers • Hygienic Pasteurizers with Shell & Tube Heat Exchangers • Cheese and whey Systems • UHT – Sterilization Systems • CIP Systems • Hygienic Storage and Process Tanks • Homogenizers • Standartization Systems • Evaporators • Turn-key Projects



FLUID TRANSFER PRODUCTS

- Lobe Pumps • Hygienic Centrifuge Pumps • Turbo / Roots / Centrifuge Blowers • Drum Pumps • Acid Pumps • Dosing Pumps • Monopumps • Air operated Double Diaphragm Pumps (AODD)



VALVES

- Thermoplastic Valves • Plastomatic Valves



ENERGY SYSTEMS

- Solar Collectors • Water Heater Tanks for Solar

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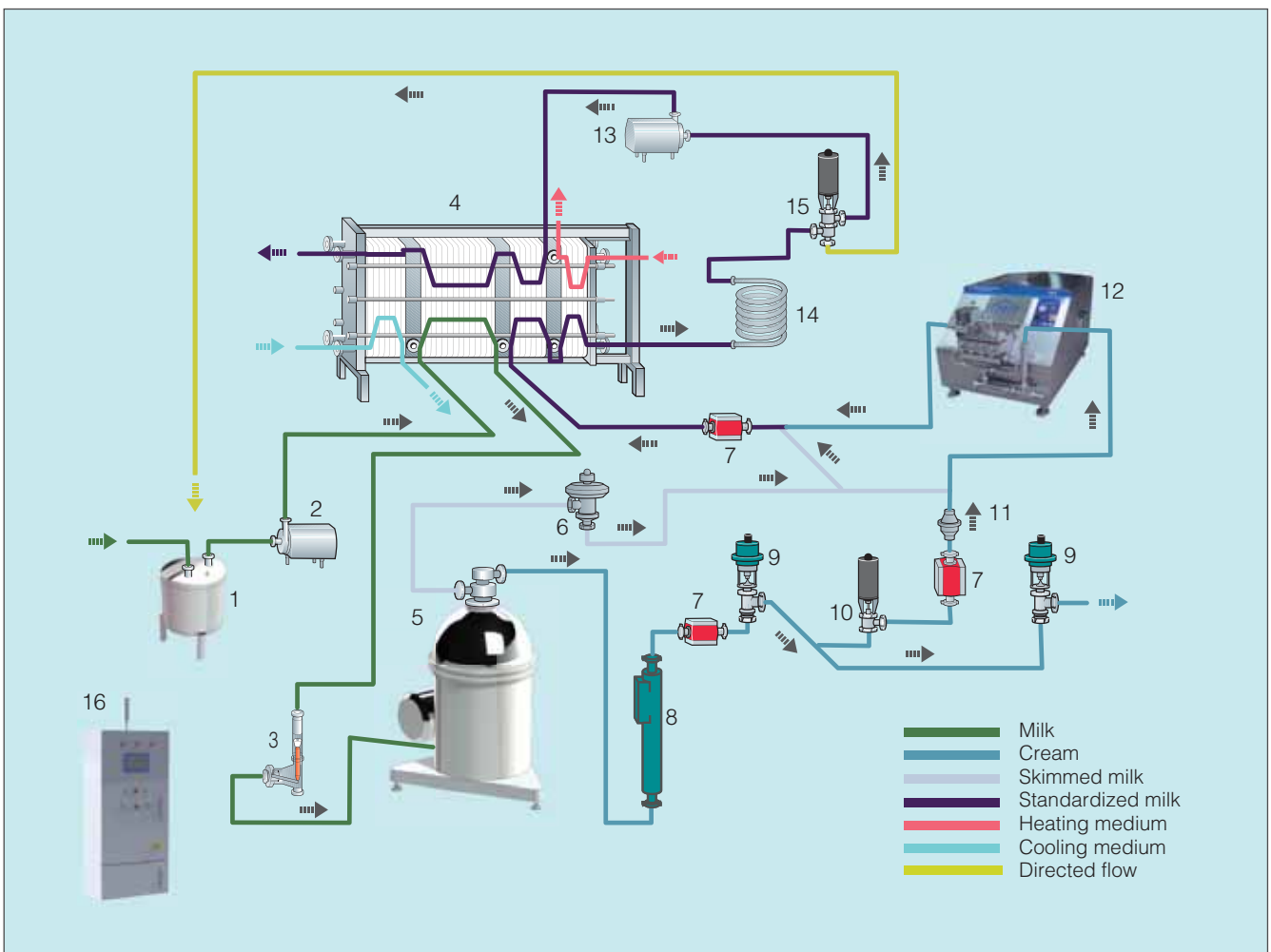
Stainless Steel Heat Exchangers For Food



PASTEURIZERS

Pasteurizer systems are used in the food industry for the purpose of purifying the prepared beverages from bacteria and microorganisms. It works with the principle of cooling the product to high temperature in a very short time and cooling it suddenly. The shelf life of the pasteurized product lasts up to 1 year. As Ekin, we produce low energy and high efficiency pasteurisation systems which are suitable for your production capacity.

Ekin, determines the most suitable pasteurizer technique for you, realizes the necessary engineering calculations, determines the necessary equipments for the system, makes the production, transports to the field and performs the installation procedures. In addition, it activates the system and periodically checks the system values after commissioning gives all kinds of maintenance service and spare parts guarantee.



| | | | | | | | |
|---|----------------------|---|----------------------|----|------------------|----|-----------------------|
| 1 | Balance Tank | 5 | Separator | 9 | Regulating Valve | 13 | Reinforcement Pump |
| 2 | Feeding Pump | 6 | Fixed Pressure Valve | 10 | Closing Valve | 14 | Holding Tube |
| 3 | Flow Controller | 7 | Flow Transmitter | 11 | Safety Valve | 15 | Flow Deflection Valve |
| 4 | Plate Heat Exchanger | 8 | Density Transmitter | 12 | Homogenizer | 16 | Process Control |

Working Principle of Pasteurizers

The processes that milk passes through the production line are shown. The milk enters the factory with the equilibrium tank (1) and pumped to the preheated plate heat exchanger (4) before proceeding to a separator (5) producing skim milk and cream.

Market type milk standardization takes place in the inline system. The slider / oil ratio in the separator is adjusted to the desired level and then kept at this level regardless of the flow and oil content of the incoming milk. The fat content of the slip is usually set at 35 to 40%, but it can also be adjusted at other levels for special production. Once the slider and oil ratio are adjusted, the regulator valve is always kept constant by means of the controller consisting of the flow transmitter (7) and the density transmitter (8). In this example, partial homogenization is used.

This system is preferred because the process can be carried out with a smaller homogenizer (12). In this way, less energy is consumed while homogenization is carried out.

After the standardization process, the slider flow is divided into two. The first one, which has enough oil content as a result of the processes, is sent to homogenizer, the other current slip operating line consisting of the remaining slider. The capacity of the homogenizer is carefully calculated and fixed at a specific flow rate. Since the fat content of the milk to be homogenized can be maximum 10% and the skimmed fat ratio is 40% on average, the slurry must be diluted with skim milk before the process.

In the partial homogenisation process, the homogenizer is also connected to the skim milk line; so you always have enough products to work properly. The relatively low slider stream is thus equilibrated with skim milk up to the nominal capacity. After homogenization, the cream with 10% fat is mixed with 3% skimmed milk powder before pasteurization. The milk with the standard oil content can now be pumped into the heating section of the heat exchanger to be pasteurized. The required waiting time is provided by a separate holding tube (14). During pasteurization, the temperature of the milk is continuously recorded.

The Booster Pump (13) raises the pressure of

the milk being treated so that the pasteurized product is not contaminated with raw milk as a result of any leakage in the plate heat exchanger.

Any drop in temperature of the pasteurized product is determined by the temperature transmitter. A signal activates the flow deflection valve (15) and flows back into the milk balance tank. After pasteurization, the milk is transferred to the cooling section in the heat exchanger. After cooling down with the raw milk which is continuously coming, it goes to the non-treated milk and then to the cooling section where it is cooled with ice water. It is then pumped into cold milk filling machines.

Standardization

The purpose of standardization is to deliver milk to a certain fat content. This rate varies significantly from one country to another. Common values are 1.5% for low fat milk and 3% for normal milk; however, there are low fat ratios of 0.1% and 0.5%. Oil is a very important economic factor. Therefore, the standardization of milk and cream should be carried out with great accuracy.

Pasteurization

With proper cooling, pasteurization is one of the most important processes in the processing of milk. With correct application, milk has a longer shelf life due to pasteurization. Temperature, pasteurization time, milk quality and shelf life information are very important factors that should be specified precisely. The pasteurization temperature for a milk of normal quality with HTST pasteurized is usually 72-75 °C and is maintained at this temperature for 15 to 20 seconds. The process of pasteurization may vary from country to country according to national legislation. A common requirement in all countries is that thermal processing guarantees the destruction of undesirable microorganisms and all pathogenic agents without damaging the product.

Homogenization

The aim of homogenization is to disintegrate the fat globules in the milk or distribute them homogeneously to reduce digestion. Homogenization may be complete or partial. Partial homogenization is a more economical solution. Thus, a smaller homogenizer may be used.

PASTEURIZERS FOR DAILY PRODUCTS



Processing Applications for Daily Products

We are a manufacturer of machining solutions, equipped to assist you in the processing of daily products. Whether you're producing milk for room temperature milk dispensing or a cold chain or fermented products or daily products, we're on your side to process this delicate product.

Cost - Effective

Considering the excessive price pressure in milk, the biggest challenge faced by producers is to keep total cost of ownership under control. Our products are designed to optimize the productivity of daily equipment and help you achieve the desired product quality at the lowest possible cost without sacrificing food safety. In the regions where large milk production is made, mega dairies are emerging in a way that provides unprecedented economies of scale.

Experience

In order to help our customers get the most from their milk, we are constantly increasing the efficiency and precision of our systems by combining our application experience with the latest technologies.

Cleaning

We are with you in the transition of the industry from mass production to continuous production with numerous advantages. The CIP system reduces on-site cleaning requirements and the footprint of production lines, while saving content and minimizing product losses. Automation is another important feature of modern daily farm, which increases productivity and offers valuable data for continuous improvement.

Environment

Reducing environmental impacts is important for the daily industry. It is also a growing phenomenon for consumers. In all equipment and solution development processes, we focus on minimizing electricity consumption and reducing product losses due to processing. To further reduce losses and provide filtration or separation processes for other product uses, we offer systems that allow recovery of proteins. We help recycling and improve the quality of waste water and reduce the environmental impact of daily products.

Target

Target trends and lifestyle also show a continuous variation. For example, "healthy" products have long been popular, but the healthy definition of the customer has changed over time. It was once synonymous with a low fat ratio, but later started to mean "reinforced" (eg calcium, minerals and Omega 3 reinforced), and recently the focus again changed. Nowadays, the word healthy is more about reducing lactose and adding protein. Our market intelligence experts follow the development of these global consumption patterns by analyzing and applying what they have learned to help you meet your evolving market needs.

UHT Milk Sterilizer

The sterilizer is a specially designed unit for resetting microbial load at high temperatures ($> 130\text{ }^{\circ}\text{C}$), especially for milk and dairy products. In addition to the systems that can be made with plate heat exchangers, the systems with tubular heat exchangers are preferred because of their high working tempo and long life.

Particularly, in these processes carried out at the above temperatures from the boiling point, adjusting the pressure and temperature controls between the product and service water streams requires careful and careful operation. There is also an alternative process method for direct steam injection.



Complying with your production needs today and in the future; we are at your side to provide you with the most appropriate solution that will make you more innovative, more effective and more competitive. In addition, we believe that this most appropriate solution comes from our extensive knowledge of food production in closed partnership with you and the application of our complete range of innovative technologies.

Pasteurized and ESL Milk

Nowadays, the most known and applied heat treatment in drinking milk production technology is pasteurization and UHT technology. A short-lived but fresh product is obtained by pasteurization. With UHT, a product with a long-lasting but sensory taste is obtained. In this context, ESL technology is a new method developed to provide a longer-lasting and sensory product to consumers than pasteurized milk. This method; microfiltration, baktofigration, stressed electrical field, high pressure applications such as the process may also contain. The milk packaged under hygienic conditions with this method has a longer shelf life than the pasteurized milk as long as it is stored at the refrigerator temperature.



With this technology, a product that can be kept for 45-60 days and sensitively closer to pasteurized milk is obtained.

Cream

It is the pasteurizer used for pasteurization of cream. Cream is a delicious daily product consisting of a high creamy layer of milk remaining when the light oil rises to the surface. In industrial cream production, the process is accelerated using separators or centrifuges.

Cream products are unique in creating new flavors, strengthening other flavors and providing a soft consistency for both cold and hot dishes.

It is a special product that requires precise and accurate processing.



The most important stage of production is the separation of cream from raw milk. Ekin understands this process very well for you and we can provide you with advanced equipments to extract the required sensitive oil content. In addition, our machines are designed with hermetic systems, which enable to remove insoluble air from the product to ensure precise heating and pumping.

Flavored and Formulated Milk

It is the drinking milk obtained by the pasteurization process of the pathogenic microorganisms without destroying the natural and biological properties of raw milk completely, by the destruction of most of the other microorganisms, and immediately after pasteurization, to a temperature not exceeding 6 °C in a short time.

In order to obtain different products, pasteurized milk is produced in different units by using aroma recipes in the desired aroma (cocoa, strawberry, banana etc.) to produce healthy milk.



An ideal way of laying value on such products is through some specific challenges, such as taste, durability and consistency. However, there are other important considerations; such as the addition of calcium or protein to the milk, or preventing the Omega 3 from giving fish a taste of the milk, by dissolving or separating a cocoa powder particle. You can try recipes at our product development centers and find the ideal process for your product.

Fermented Milk

Fermented carbohydrates in anaerobic conditions by various microorganisms to break down into smallmolecule components. Fermented daily products are daily products with different consistencies and flavors obtained from different fermentations, in particular lactic acid fermentation, using a variety of starter cultures.

It is rich in fat, vitamins and minerals. As a result of the fermented, it can be used as buttermilk, kefir, curd cheese and sour cream. Products are composed.



The most important point that determines the nutritional value of foods is the composition of the nutrients they contain and their compatibility with the organism system and their digestibility. Nutrients in fermented daily products are highly nutritious, easy to digest, because they are pre-fermented by starter bacteria. We design systems that have high digestibility and partial degradation of protein and fat.

Concentrated and Condensed Milk

The products in this small but important sub-category are constantly sold in the markets where consumers are accustomed to aromas. For example, condensed milk is a common food item in India and is used for food and coffee in South America, parts of Africa, Asia, Spain and Italy.

The products are traditionally packaged in tins and are either sterilized in bulk or preserved by adding sugar. Today, we help customers successfully reproduce the condensed milk and flavored condensed milk aromas used by a continuous process.



In order to achieve the desired result in concentrated and condensed milk, we offer both technology and knowledge to make recommendations to the customers about the most suitable equipment and production method.

Milk Powder

Milk powder is a durable and nutritionally high milk product obtained by pulverizing the dry matter formed by evaporating and condensing milk water. Water ratio varies between 1.5-4%. Milk related problems include short shelf life, long transport distance and storage costs. It is usually a better option to pre-dust it. Milk powder is a useful format thanks to the flexibility of processing with a wide variety of products. Generally, the powder is locally recombined and used instead of liquid milk when there is no local milk or if it is not cost-effective. Turning liquid milk into powder is a great way to increase shelf life and reduced transport costs make milk transporting long distances efficient.



Thanks to the improved energy saving, evaporators and dryers, Ekin is at your side with a good team of experts to serve the growing milk powder industry. Our solutions are designed to meet the efficient and economic production needs of manufacturers as well as to achieve economies of scale.

OTHER DAILY PRODUCTS PASTEURIZATION

This category contains small volume products containing milk-based or at least certain amounts of milk. Typical examples are; coffee and tea cream, buttermilk and lactic acid drinks. This includes creams other than daily products.

Thanks to our food expertise, we stand by our valued customers to help them develop the best processing methods for a particular product. We have references that can be used as a basis for your trouble-free and customized line solution.



We believe that the best solution to make you more innovative, more effective and more competitive is the solution that meets your specific production needs today and in the future. In addition, we believe that this most appropriate solution comes from our extensive knowledge of food production in closed partnership with you and the implementation of our complete range of innovative technologies

Recombined Milk

In addition to UHT for efficient milk production, we have developed a portfolio of exceptional solutions for recombinant milk. Our unparalleled expertise gives you the more simple and intelligent line configurations (solutions that balance your budget with your performance goals), so you never pay more than you need, you always get the value that you pay for (the lowest possible total cost of ownership).

Thanks to technology, we offer you exceptional production, efficiency and flexibility, as well as stable product quality and minimized environmental impact.



Regardless of what you need to produce recombinant milk, Ekin technology offers you the lowest total cost of ownership, stable product quality, maximum flexibility, reduced environmental impact and guaranteed performance.

BEVERAGE PASTEURIZERS



Beverage Processing Applications

We are a manufacturer of machining solutions, equipped to assist you in beverage processing applications. Whether you are distributing beverages at room temperature or producing carbonated and non-carbonated beverages or alcohol products for the cold chain, we are on your side to process this delicate product.

Innovative Ideas

Are you looking for next-generation new premium lemonades? Do you want to benefit from the opportunities of growing markets abroad, or would you like to add an energy drink or brewed lemonade to your portfolio? From the development of innovative ideas to the best natural ingredients and the reliable delivery of material systems, Ekin is your experienced and inspiring partner to optimize your production processes.

Right Choice

- Years of experience in worldwide markets, extensive expertise in the food and beverage industry.
- Short development times.
- Extensive portfolio of application-specific natural ingredients.
- All-in-one material systems: Ready-to-fill compounds.
- Comprehensive service solutions: Innovation Services, Quality & Food Safety Solutions, Supply Chain Services, Technical Services "Productivity" is a goal that is constantly changing in this huge, dynamic sector. It has emerged to provide unprecedented scale economy in large beverage production regions.

Cost-Effective

Our products are designed to optimize the efficiency of beverage products equipment and help you achieve the desired product quality at the lowest possible cost without sacrificing food safety.

"Productivity" is a goal that is constantly changing in this huge, dynamic sector. It has emerged to provide unprecedented scale economy in large beverage production regions.

Experience

We are constantly increasing the efficiency and sensitivity of our systems by combining our application experience with the latest technologies to help customers get the most out of their drinks.

Cleaning

We are with you in the transition of the industry from mass production to continuous production with numerous advantages. The CIP system reduces on-site cleaning requirements and the space footprint of production lines, while saving content and minimizing product losses. Automation is another important feature that increases the efficiency of the modern plant and offers valuable data for continuous improvement.

Environment

Reducing environmental impacts is important for the beverage industry. It is also a growing phenomenon for consumers. In all equipment and solution development processes, we focus on minimizing electricity consumption and reducing product losses due to processing.



Fruit Juice Pasteurizers

It is a system produced for pasteurization of products such as fruit juice, nectar, low acid, isotonic and pulp drinks. Optionally, the deaerator may be added to remove dissolved oxygen in the product. Also, homogenizer which can be used in pulp products will be an option increasing the product quality. The system can be designed as fully automatic, semi-automatic or manual system. Pasteurizers are completely hygienic and manufactured according to food technology.

Our high precision blending equipment keeps product losses at a negligible level and adds the right amount of water.



With the increasing importance given to health and fitness, consumers expect brands to be honest and transparent in this regard. To be the leading brands, to attract the attention of modern consumers and to trigger the imagination, our password is "to develop, be the first to design and to be the first".

Carbonated Soft Drinks

Given the high content costs and the low margins of the final products, the main challenge in carbonated soft drinks is to get the blend exactly right. You need to precisely mix and precisely control the pre-mixing and sugar content. Our material systems can significantly simplify your production processes. Ready to fill compounds contain all the ingredients of your drinks with the ideal composition. You do not need to change your production facilities and raw materials are used efficiently.

Our best-practice carbonated soft drink solution has the advantage of high blending accuracy and accuracy.



Our best-practice solution for pasteurized carbonated beverages eliminates the need for preservatives and thus helps you meet the demand for more natural products. It also has the advantage of high blending accuracy and accuracy. While providing the right quality at all times, you can quickly switch between products with negligible losses.

Non-Carbonated Soft Drinks

The key to success in carbonated beverages lies in the pre-mixing area. It is important to get the mixture exactly right and add the contents in the correct order.

When you combine the pasteurisation unit with our continuous-in-line blending system, you can not only achieve the perfect blend, but also reduce the product losses to about 100 liters. This is 0.5 per thousand of the final product volume of a complete production cycle. Ekin proven nectar and noncarbonated beverage lines provide some great advantages. Starting from the pre-mix area, we offer a selection of different mixers adapted to your specific product ingredients.



This ensures the lowest possible product losses with a blending system in combination with our pasteurisation unit. It ends with an aseptic tank where your product can be transferred safely to the filler.

Pulpy Drinks

Drinks containing small or tiny particles are extremely popular. These products can be blurry, dark, soft or large-particle with different difficulty sequences.

For example; when adding fruit pieces, it is very important that the particles are whole and evenly distributed.

The particles can help you safely pasteurize the transport liquid without overcooking and we can make the most of your expensive raw materials.



Soy

It is used in the production of many products such as soy, milk equivalent products, mixed drinks with traditional soy drinks, fruit juice and soy and soy knead (for people sensitive to lactose). The biggest challenge faced by manufacturers is to get the right taste. From the traditional strong bean-flavored taste in different parts of Asia to non-bean-flavored taste and generally to the non-bean-flavored milky aroma that adapts more to the Western taste, consumer preferences throughout the world vary greatly. Our experts are ready to help you get the right taste profile.



Our experts' knowledge of heat transfer technology in low acid products provides a safe end product and our processing equipment is designed to maximize earnings.

Tea

Water then tea is the most widely consumed drink in the world. It has long been supported because it has various health benefits. There are also numerous varieties. Basically, you can add all other flavored content types, starting with one of six different types of main.

The main challenge is to reduce raw content costs and get the best yield from the leaves. It is also important to remember that tea is a low-acid product that must be heat treated properly.



Sterilizers for heat treatment of your product; separators to remove leaves and expel tea; mixers for adding sugar and aroma; Ekin is your biggest supporter for you to produce blending equipment, ie safe and exquisite tea drinks.

Coconut Milk

Thanks to the beneficial properties of coconut health, this segment has seen remarkable growth in recent years. However, this is one of the most difficult raw materials to work with. Coconut is a scarce source and after crushing, the liquid in it quickly becomes pink and gets a bad taste. Fast processing is extremely important to avoid product waste.

Our experts are highly experienced in the production of coconut products. They can help you design a process to preserve the aroma of coconut water in your hands and to help you convert the remaining ingredients into other products, such as coconut milk or cream.



Ekin coconut milk lines provide the highest level of taste and nutritional control to ensure product quality.

Syrup

Syrup pasteurizer is a fully automatic system for mixing the syrups, fruit concentrates, water and acidity regulators in the right proportions according to the prescription. The product will be ready for pasteurization in final syrup tanks.

The system consists of a control panel, a sugar thawing unit, a concentrate unit and a final product tank, and a valve assembly that connects them to lines.



Ekin, which introduces itself in terms of country by fruit juice and syrup plant projects, is also increasing its fruit juice / fruity beverage / isotonic beverage / energy drinks etc. at international level. and offers the process solutions for the production of demands according to the latest technology.

Alcohol

It is a flow-proof pasteurizer designed for pasteurization of beverages, beer, cider or similar carbonated beverages before filling into bottles or bottles. The design and construction of the units are carried out according to the requirements of the food processing industry.

The design can be cleaned with CIP system (using alkaline solution and disinfectants), the units can also be disinfected with hot water. Making cleaner production in the alcoholic beverages industry prevents or minimizes the negative environmental impacts that can occur during the product life up to the final use of the raw material into a product.



As Ekin, we provide right and exact solutions by projecting according to the requested demands.

ICE CREAM PASTEURIZERS



Ice Cream Processing Applications

We are a manufacturer of machining solutions, equipped to assist you in ice cream processing applications. We are at your side for the precision processing of cold chain.

Smart Solutions

As Ekin family, we are working on new product solutions for you and we benefit from the unique diversity of the latest technologies. We are taking steps to turn new trends and ideas into promising innovations for your company.

From Idea to Production

Our material systems can significantly simplify your production processes. You do not need to change your production facilities and raw materials are used efficiently. With our integrated services, we support you from the first product idea to production.

Cleaning

We are with you in the transition of the industry from mass production to continuous production with numerous advantages. The CIP system reduces on-site cleaning requirements and the footprint of production lines, while saving content and minimizing product losses.

Custom Content for Your Application

Ekin, with its wide portfolio of natural ingredients and wide application, is moving. In this way, is developing content that perfectly matches your product. The spectrum spreads from fruity and dark aromas, fruit purees and fruit pieces to crispy crumbs, bubbles, and much more.

Productivity Equals Quality

Whether you're looking for a great advantage or a high-quality snack, naturally, you'll want to offer your consumers the most attractive product at the best price. While 80% of the value of the products lies in the contents, both the precise dosing and the lowest amount of waste are the main factors in the equation.

All of our ice cream production equipment is designed to optimize productivity to help you achieve the best quality level at the lowest possible cost. Well-designed lines with improved temperature control ensure a consistently high quality product and guarantee renewability.

Cost Reducing

Our products are designed to help you optimize the efficiency of ice cream products equipment and reach the desired product quality at the lowest possible cost without sacrificing food safety.

Ekin will provide you with a suitable system for you if you want to give your ice cream an intense vanilla, hazelnut taste, an attractive color or what features you want.

All-in-one preparations for flavors, colors, flavors and purees contain all the ingredients you need for your ice cream, which are accurately coordinated and adapted to your production processes.



Open up the door to new markets and target groups by introducing your own alternatives to new concepts such as vegetarian, reduced fat or reduced sugar alternatives, frozen yogurt with various overcoats, or ice cream. Ekin is developing the right product solutions for you, including alternative food categories and beverage industry.

CHEESE AND WHEY PASTEURIZERS



Cheese Processing Applications

We are a manufacturer of cheese processing solutions to help you with cheese processing applications. We are at your side in this precision production process for all kinds of cheese you produce.

Cost Reducing

Our products are designed to help you optimize the productivity of cheese products equipment and reach the desired product quality at the lowest possible cost without sacrificing food safety.

Experience

To help our customers get the most out of their cheeses, we are constantly increasing the efficiency and precision of our systems by combining our application experience with the latest technologies.

Cleaning

We are with you in the transition of the industry from mass production to continuous production with numerous advantages. The CIP system reduces on-site cleaning requirements and the footprint of production lines, while saving content and minimizing product losses.

Quality and Safety

Ekin offers a complete range of equipment for the production of both cheese and whey, with the know-how to make the most of your raw ingredients.

Reliability

Designed and manufactured with a focus on hygiene, these machines are naturally clean, allowing manufacturers to run longer production cycles between cleaning stops. This is just one of the many ways we contribute to your plant's efficiency and safety.

Technology

The use of milk whey content is now considered to be of utmost importance for long-term competitiveness. Therefore, we offer a range of technologies for the extraction of whey extracts and liquid and powder ingredients derived from whey.

Performance

Designed for high volume production, Ekin tried and tested lines meet the economic need of large customers. These lines come with performance guarantees for added convenience.

Customized Products

Mass production may be at a higher level than ever before, but there is a counter-tendency to each trend. In the cheese world, these are farm varieties. Special cheeses, which are based on classical recipes and are historically linked to certain regions, are becoming increasingly popular. In the production of smaller volumes or special products, Ekin offers different liter and volume line equipment.

Successful production requires maintaining milk quality and eliminating negative particles during sensitive processes to ensure high quality and efficiency. Ekin provides the application of gentle and effective heat and pumping, which is essential to achieve optimum quality and yield of components.

Cheese producers should be confident that their facilities are flexible enough to adapt to changing customer preferences and that they can benefit from raw materials in the best possible way and at the most appropriate cost. To meet customer demand, manufacturers need to produce large quantities of quality products while meeting strict legal regulation requirements.



Ekin offers a wide range of hygienic equipment for the preparation of cheese for processing raw milk. Our equipment maintains product integrity while providing full traceability as well as the speed required to increase product throughput. Ekin hygienic equipments give cheese producers a complete peace of mind.

EGG PASTEURIZERS

The egg pasteurizer is used for pasteurization of egg liquid products (egg white, egg yolk, whole egg). Pasteurization stops the vital activity of pathogenic bacteria *Escherichia coli*, forms such as brucellosis and heat resistant bacteria. Advantages of egg pasteurization machine compared to other machines are; no need to get hot water boiler, no need to buy a homogenizer, may be listed as having a precise temperature control.

It is developed for the production of high quality egg products, 100% egg liquid mixed or can pasteurize the yolk and white separately.



With its compact design, it can even fit into small areas. It is capable of pasteurization at high temperatures without requiring long-term cleaning.

CIP SYSTEMS

The CIP unit is designed to be used not only in the daily industry, but also in soft drinks, carbonated beverages and ready-to-serve food industry.

The main feature of all models is the intra-system circulation of water and washing chemicals. These systems are fully automated; they have a conductivity meter device for chemical saving. Chemical solution tanks that are part of the system are recovered chemically.



CIP systems can be designed in different capacities and specifications as required. 7,000 l / h-50,000 l / h capacity, as well as more than one chemical variant can be supported. Also, thermal sanitation or chemical disinfection options may be offered.

HYGIENIC STORAGE AND PROCESS TANKS



Continuously Developing

We contribute to the world observe livestock machinery industry in Turkey.

Cost Reducing

Considering the excessive price pressure in milk, the biggest challenge faced by producers is to keep total cost of ownership under control. Our products are designed to optimize the efficiency of hygienic storage and process tank products equipment and help you achieve the desired product quality at the lowest possible cost without sacrificing food safety.

Experience

In order to help our customers get the most out of their milk, we are constantly increasing the efficiency and precision of our systems by combining our application experience with the latest technologie.

Cleaning

We are with you in the transition of the industry from mass production to continuous production with numerous advantages. The CIP system reduces on-site cleaning requirements and the footprint of production lines, while saving content and minimizing product losses. Automation is another important feature of increasing the efficiency of modern daily and offering valuable data for continuous improvement.

Quality

We produce quality, fast and reliable products that are compatible with nature, environment and human health and will serve our customers for many years.

Quality Certificate

Our products are manufactured according to TSE 13732 standard.

Reliability

We never forget the importance of after-sales services and try to protect the trust of the company from the first customer to the end customer.

We Are A Big Family!

Every newly established enterprise serves our country and we see ourselves as a solution partner for all your problems.

Solution Oriented

With our vision, we are ready to serve you in every field from turn-key projects to single machine groups. With our exploration and design consultancy services, we inform you about what to do for the products you intend to produce and continue to be with you not only before sales but also after sales.

Milk Cooling Tank

After milking, we are on your side with our expert team to help maintain the structure, nutritional values and milk quality of the milk being cooled.

The milk cooling tank is preferred when choosing the tank. Usually stainless steel is used. 304 quality stainless steel is the most widely used and popular material. The milk of the manufacturers or cooperatives using the milk cooling tank can be sold at higher prices. The nutritional value and quality is largely maintained, so that healthy individuals are made up of individuals.



The milk cooling tank must be in a milk enterprise. It is important for both the economic and the produced milk to be kept in milk for a long time.

Agitated Storage Tanks

Mixing tanks, also known as blending tanks or mixer tanks, provide a homogeneous mixture of different materials as liquid in the best possible quality. The mixer boilers, which are very large as the reactors, are specially designed and produced for customer needs.

With special knife and wing designs of Ekin, it is possible to mix efficiently at very high speeds and prevent the material from sticking to the mixer walls with special scrapers.



Our mixing boilers are used in paint, food, medicine, petrochemical, construction and many other sectors.

Heating - Cooling - Mixing Tanks

We design, manufacture and assemble the heating, cooling reactor and mixing tanks of the pipe, which are needed by the chemical and food sectors. In line with the process requirements, carbon steel, stainless steel or special alloy steel materials are manufactured according to international standards ASME / ANSI and EN / DIN norms.

Heating, cooling and mixing tanks are used for the mixing and storage of milk, sugar, beverages, food, other elements and various drugs. Energy saving, corrosion resistance, strong production capacity and easy cleaning are indispensable features of the product.



Ekin expert staff provides you the best solution by projecting all your requests and demands.

FACILITY INSTALLATION SERVICES (TURN-KEY SOLUTIONS)

All process design, equipment selection and installation can be done according to customer requirements.

Turnkey plant consists of milk purchasing, raw milk storage, pasteurizer, pasteurized milk storage, sterilizer (UHT), aseptic storage and CIP unit with variable capacity and other product-specific options.



PASTEURIZER DESIGNS

Ekin MIT pasteurizers are designed according to the demands and expectations of our customers. Equipment prepared according to requests and data, are drawn by technical artists and presented to our customers.



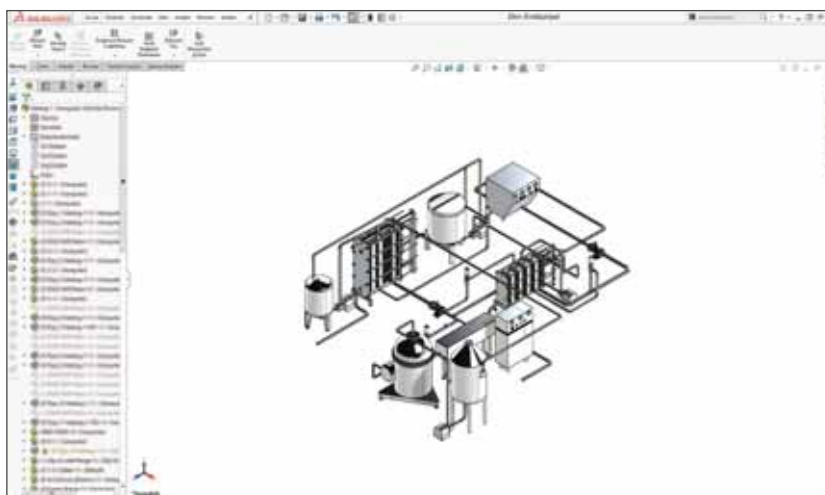
Milk Pasteurizer



Electric Pasteurizer



Egg Pasteurizer



Technical Drawing Software

HOMOGENIZERS

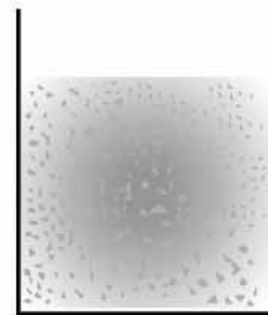
It is applied in order to keep the emulsion form of milk for long time. With this application, the oil particles that are emulsified in milk are divided into smaller pieces. In this way, the fats are prevented from forming on the upper surface of the milk and forming a cream layer by clustering.



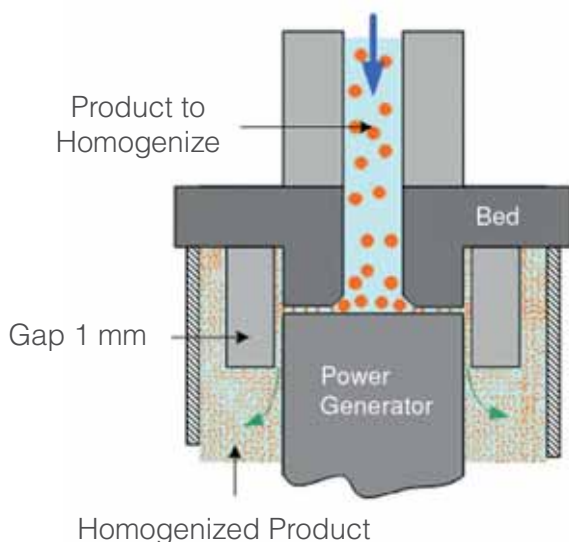
Raw Milk



Raw Milk
After 1 Hour



Homogenized Milk



The homogenization process is carried out by means of devices called homogenizers. Dividing the fat globules into diameters smaller than 1 μl occurs when the homogenizer passes through the part known as the homogenization head or homogenization head.



Homogenization methods can be done in full and partial.

Full Homogenization

Whole milk is passed through homogenizer. A good homogenization efficiency is achieved by this method. But the need for time and energy is high.

Partial Homogenization

Milk is separated from the cream, the separated cream is again mixed with skim milk, a mixture containing 12-20% oil is obtained homogenized. Cream is separated from milk by 12-20% fat. First, homogenize (50-700 $^{\circ}\text{C}$ / 150-200 kg/cm^2 under pressure). It is then mixed with skim milk and adjusted to the desired oil ratio according to the product type.

Factors Affecting Homogenization

The homogenization temperature is 60-75 °C ideal temperature. The homogenization pressure is 100-200 kg/cm² at 65 °C for pasteurized milk and 150-250 kg/cm² at 65 °C for UHT milk.

Benefits of MIT Homogenizers

- It ensures that the milk fat is distributed evenly in the whole mass.
- Provides partial increase in milk viscosity.
- Milk will appear whiter as milk reflects light.
- Milk's taste increases.
- Easy digestion of milk fat.
- In short, the quality of milk increases with MIT homogenizers.



MIT HOMOGENIZER TECHNICAL INFORMATION

| Features | MIT-HJ1T/HJ1C 1.000 lt | MIT-HJ2T/HJ2C 2.000 lt | MIT-HJ3T/HJ3C 3.000 lt | MIT-HJ5T/HJ5C 5.000 lt |
|---------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Product | Milk | Milk | Milk | Milk |
| Viscosity | Up to 200 CP | Up to 200 CP | Up to 200 CP | Up to 200 CP |
| Max. Particle Size | Up to 500 microns | Up to 500 microns | Up to 500 microns | Up to 500 microns |
| Operating Temperature | 90 °C | 90 °C | 90 °C | 90 °C |
| Capacity | 1.000 lt/h | 2.000 lt/h | 3.000 lt/h | 5.000 lt/h |
| Homogenization Stage | Single or double level | Single or double level | Single or double level | Single or double level |
| Max. Working Pressure | 250 bar | 250 bar | 250 bar | 250 bar |
| Maks. Counter Pressure | 10 bar | 10 bar | 10 bar | 10 bar |
| Min. Prod. Feed. Pressure | 2 bar | 2 bar | 2 bar | 2 bar |
| Stroke Number | 330 pcs/min. | 330 pcs/min. | 330 pcs/min. | 750 pcs/min. |
| Motor Power | 11 kW | 15 kW | 22 kW | 37 kW |
| Motor Brand | GAMAK | GAMAK | GAMAK | GAMAK |
| Electric Consumption | 11 kW | 15 kW | 22 kW | 37 kW |
| Electric Supply | 3 hp/ 380V /50 Hz | 3 hp/ 380V /50 Hz | 3 hp/ 380V /50 Hz | 3 hp/ 380V /50 Hz |
| Auxiliary Circuit | 220V DC | 220V DC | 220V DC | 220V DC |
| Sheet Metal Thickness | 1,5 mm | 1,5 mm | 1,5 mm | 1,5 mm |
| Outlet Diameter of Valve | DN 40 | DN 40 | DN 40 | DN 40 |
| Dimensions | 800x1000x1100 mm | 1300x1100x1170 mm | 1300x1100x1170 mm | 1430x1190x1370 mm |
| Leg Size | 5-16 cm adjustable legs | 5-16 cm adjustable legs | 5-16 cm adjustable legs | 5-16 cm adjustable legs |
| Weight | 650 kg | 750 kg | 850 kg | 1400 kg |

STAINLESS STEEL HEAT EXCHANGERS FOR FOOD GRADE

Plate heat exchangers for food differ from other heat exchangers in terms of hygiene; its bodies and all surfaces that come into contact with food are produced as stainless. In addition, the gaskets have FDA (food conformity) certificate.



Usage Areas

- Milk Heating Cooling
- Pasteurizers
- Juice Pasteurization
- Cream Cooling
- Brine Heating Cooling
- Whey Processing







Ekin is aware that the progress in its sector is possible through continuous development and learning.

Ekin Academy, established with this awareness, aims to provide high-quality and sustainable development with its modern education methods, to provide successful employees and to provide value to the society through social responsibility projects.

Training and development programs that will make a direct contribution to the results of our employees' work processes and which will make a difference in their personal development are prepared by Ekin Academy.

For our business partners and customers, our training modules prepared by our expert staff provide training support for pre-sales and post-sales issues such as commissioning, operation, maintenance and repair of our products.

In cooperation with universities within the scope of corporate social responsibility projects, we are experiencing the happiness of adding value to the society by allowing the engineer candidate, who aims to take place in the fields where Ekin is active, to meet with the sector and to experience the theoretical knowledge acquired in the fields of application.

In-Company Trainings

Ekin Academy conducts technical, leadership, strategy development, sales and training and development programs for different tasks in the fields of heat transfer, pressure vessels, package systems, food systems and liquid transfer.



Out-of-Company Trainings

We are realizing conferences and training activities to our business partners, professional groups and institutions where we carry out social responsibility projects in various locations of Turkey.



SALES TEAM

At Ekin, we produce a proactive solution by our engineering staff who are specialized in their field. Our team, which works with the aim of unconditional customer satisfaction, works selflessly in order to gain customer loyalty by raising the bar of success in products, services and processes.

We are happy to share our accumulated knowledge with our valued customers. Ekin will continue to be the best solution partner for you in all applications with all kinds of heating and cooling applications.



Customer Satisfaction

Customer rights are protected in all circumstances.



Privacy Policy

Aware of the importance of protecting personal information, personal information is not shared with third parties.



Information Security

The requirements of ISO 27001 information security management system are fulfilled at Ekin.



Ethical Values

In all our business relations, our principle of mutual benefit by adhering to laws and ethics is our principle.

CERTIFICATES



| WELDING PROCEDURE QUALIFICATION RECORD (PQR) (Section IX, ASME Boiler and Pressure Vessel Code) | | TUV NORD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---------|--|-----------|---------------|---------|-------|-----------|-----------------|--------------------|-------------|-----------------------|--------------------|-----------------|--------------------|-------------|-----------------------|--------------------|-------|---------|-------|------|-----------|---|------|----------|---|-------|---------|-------|------|-----------|---|------|----------|---|-------|---------|-------|------|----------|---|------|----------|---|-------|--------|-------|-----|-----------|
| CERTIFICATE 09-702-01-C-10-2017-211402991 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Procedure Qualification Record No.: wPQR-19-888-03 | | Address: DES Sarayı Sitesi 107. Sok. B14 Blok No:2-4-6-8 Ümraniye/İST | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Company Name: EKİN Endüstriyel Isıtma Soğutma San. Tic. Ltd. Şti. | | Type(s): Manual | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Welding Process(es): GTAW | | Joint(s): GMAW-492 Groove Bevel of Test Coupon | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BASE METALS (QW-403) Material Spec: 316 (ASTM A312-72-2) / 316L (ASTM A312-72-2) Type or Grade, or UNS Number: 316 / 316L P. No. for Test: 4/1 / 5 / M/1 Thickness of Test Coupon: N/A Diameter of Test Coupon: N/A Max. Pass Thickness(≤ 13 mm): No pass over 13mm Other: | | POSTWELD HEAT TREATMENT (QW-407) Temperature: - Time: - Other: - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FILLER METALS (QW-406) SFA Specification: ER 308 L AWS Classification: ER 308 L Trade Name: - Filler Metal P-No.: - Size of Filler Metal: - Filler Metal Product Form: - Supplemental Filler Metal: - Weld Metal Thickness: - Flux Type: - Flux Trade Name: - Other: - | | GAS (QW-408) Shielding: GTAW / FCAW Shielding: FCAW Tailing: - Backing: - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PREHEAT (QW-406) Preheat Temperature(Min.): Min. 10° Preheat Temperature(Max.): Max. 200° Other: | | ELECTRICAL CHARACTERISTICS (QW-405) Current: DC Polarity: EN Amperage: 95-110 Volts: 10-12 Tungsten Electrode Size: 2 Heat Input: 0.61-1.75 kJ/mm Mode of Metal Transfer for GMAW (FCAW): N/A Other: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| POSITION (QW-405) Position of Groove: 1G Weld Progression (Up/H, Down/H): N/A Other: | | TECHNIQUE (QW-410) Travel Speed(mm): See below table String or Weave Bead: String Bead Oscillation: N/A Multi/ Single Pass (per side): Multi Pass Single or Multiple Electrodes: Single Initial and Interspass Cleaning: Grinding and Brushing Method of Back-Gouging: Grinding Other(QW-410.11 / QW-410.64): | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th rowspan="2">Weld Layers</th> <th rowspan="2">Process</th> <th rowspan="2">Class</th> <th rowspan="2">Dia. (mm)</th> <th rowspan="2">Type / Polarity</th> <th rowspan="2">Amperage Range (A)</th> <th rowspan="2">Voltage (V)</th> <th rowspan="2">Travel Speed (mm/min)</th> <th rowspan="2">Heat Input (kJ/cm)</th> </tr> <tr> <th>Actual Values</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>GTAW</td> <td>ER 308 L</td> <td>2</td> <td>DC EN</td> <td>205-110</td> <td>11-12</td> <td>1.87</td> <td>0.61-0.71</td> </tr> <tr> <td>2</td> <td>GTAW</td> <td>ER 308 L</td> <td>2</td> <td>DC EN</td> <td>205-110</td> <td>11-12</td> <td>1.76</td> <td>0.51-0.95</td> </tr> <tr> <td>3</td> <td>GTAW</td> <td>ER 308 L</td> <td>2</td> <td>DC EN</td> <td>205-110</td> <td>11-12</td> <td>0.77</td> <td>1.5-1.71</td> </tr> <tr> <td>4</td> <td>GTAW</td> <td>ER 308 L</td> <td>2</td> <td>DC EN</td> <td>95-300</td> <td>30-31</td> <td>0.8</td> <td>1.15-1.37</td> </tr> </tbody> </table> | | | | Weld Layers | Process | Class | Dia. (mm) | Type / Polarity | Amperage Range (A) | Voltage (V) | Travel Speed (mm/min) | Heat Input (kJ/cm) | Actual Values | 1 | GTAW | ER 308 L | 2 | DC EN | 205-110 | 11-12 | 1.87 | 0.61-0.71 | 2 | GTAW | ER 308 L | 2 | DC EN | 205-110 | 11-12 | 1.76 | 0.51-0.95 | 3 | GTAW | ER 308 L | 2 | DC EN | 205-110 | 11-12 | 0.77 | 1.5-1.71 | 4 | GTAW | ER 308 L | 2 | DC EN | 95-300 | 30-31 | 0.8 | 1.15-1.37 |
| Weld Layers | Process | Class | Dia. (mm) | | | | | | | | | | Type / Polarity | Amperage Range (A) | Voltage (V) | Travel Speed (mm/min) | Heat Input (kJ/cm) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | Actual Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | GTAW | ER 308 L | 2 | DC EN | 205-110 | 11-12 | 1.87 | 0.61-0.71 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | GTAW | ER 308 L | 2 | DC EN | 205-110 | 11-12 | 1.76 | 0.51-0.95 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | GTAW | ER 308 L | 2 | DC EN | 205-110 | 11-12 | 0.77 | 1.5-1.71 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | GTAW | ER 308 L | 2 | DC EN | 95-300 | 30-31 | 0.8 | 1.15-1.37 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |





PROFESSIONAL SYSTEM SOLUTION CENTER

From our MIT professional system solution center, you can get help with problems with your pumps, heat exchangers and your system. Our solution center consisting of our expert engineers will be happy to help you.

- Domestic hot water installations.
- Central and district heating systems.
- Milk, yogurt, buttermilk heating, cooling and pasteurization systems.
- Industrial cooling and heating systems.
- Oil cooling systems.
- Energy recovery systems.
- Pool heating systems.
- Steam installations.



It is vital for your system to be designed and implemented correctly in the first installation in order to be able to operate at the desired capacity, smoothness and long life. For this reason, you can get first-hand

the technical support you need during the installation phase of your system and the problems that may arise in the business; You can reach us **24 hours +90 (216) 232 24 12 in 7 days.**



+90 850 811 04 18

We would like to reiterate that we will be happy to share our knowledge accumulated over many years with our valued customers in order for your system to work correctly and performance.

Ekin will continue to be the best solution partner for you in all applications with all kinds of heating and cooling applications.

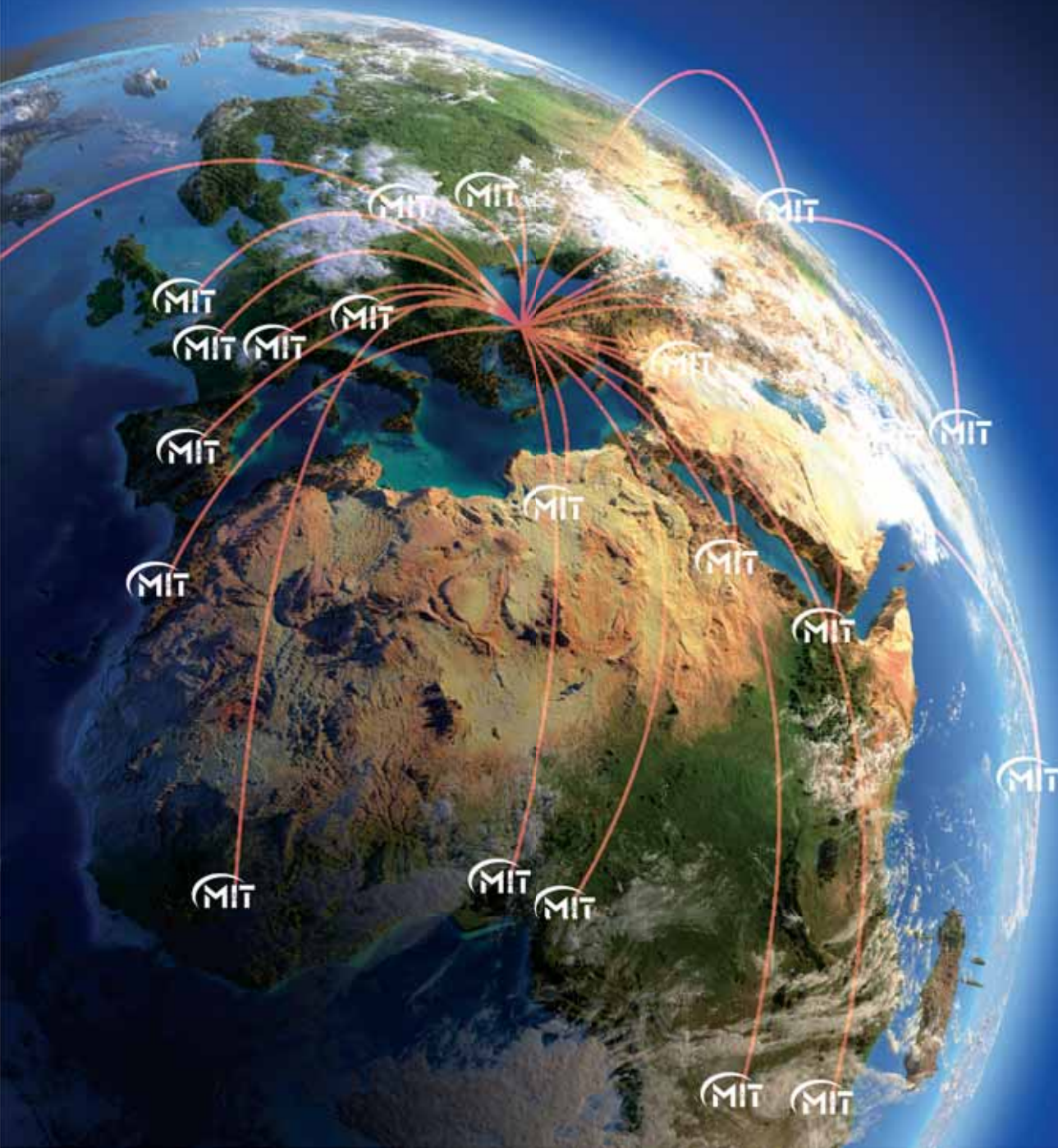


/ekinendustriyel

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Our products are produced with Turkish engineering technology in **135 countries** in the world today...





EKİN ENDÜSTRİYEL

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