



GEA marination equipment for meat, poultry and fish

Add value, create new products
and increase your profits



TEST YOUR IDEAS BEFORE YOU INVEST

If you want to try creative ideas or new recipes either before or after you invest in a machine or marination line, we can help you explore the options at our Technology Centre. Together with our application specialists, you can test and fine-tune the brine-preparation, injection, tenderizing, tumbling, massaging and defrosting process steps for an optimum balance of cost and quality.

Juicy, tasty and easy-to-prepare products

Today's consumers are looking for juicy, tasty and easy-to-prepare products. Marination is an excellent way to turn an ordinary cut of meat, poultry or fish into the basis of a succulent meal. Marination not only adds value to cheaper cuts, it also helps you to create new products with a unique flavor, texture and appearance, and to prepare traditional quality products such as ham. In short, marination is the key to variety in food production. And here's where GEA comes in. Marination equipment from GEA makes variety more affordable.

Lifecycle performance

Your business needs are our starting points – from consistency, hygiene and safety to sustainability, variety and cost of ownership. Our machines deliver high yield, are easy to operate and clean, and have long operational lives. With GEA, you also have access to training, maintenance programs, equipment and software upgrades, performance benchmarking, expert diagnostics, applications support, and line- or factory-integration services.

Single operations or complete process

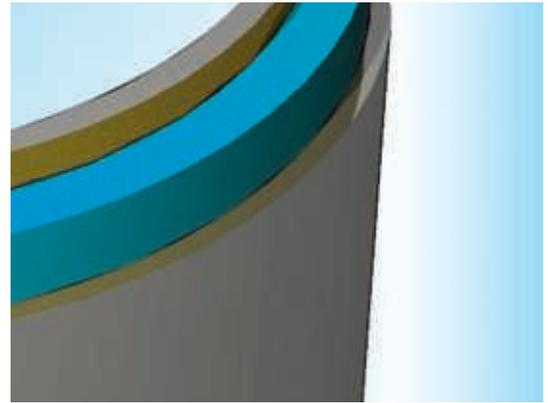
Whether you need a single machine to boost existing line performance or a complete solution to expand capacity, we can help. Built for accurately controlled and cost-effective marination of meat, poultry, fish and other food products, our equipment ensures that you satisfy your customers. The brine plants, injectors, tenderizers, tumblers and massagers are easily integrated into your line and factory.





Improved yields thanks to accurate temperature control and cooling

Assure maximum yield with accurate temperature control of your brine or marinade mix and optimum cooling with our optional cooling jacket that allows the passage of glycol, ammonia or freon refrigerant.



Ergonomic machine loading is safer and more efficient

By paying careful attention to the way you use brine preparation equipment, we have been able to refine the design and produce a solution that is both safer and more efficient to work with. The ergonomically located hopper facilitates low-level loading of ingredients, making it easier and safer for operators.



Making a stir with brine preparation

The starting point for successful marination is a homogeneously mixed brine or marinade. Carefully formulated brine that is mixed and stored under tightly controlled conditions will enhance the value, consistency and safety of your end product. Our brine preparation systems not only meet the most stringent process-related criteria, but also incorporate time- and labor-saving features that bring down the cost of ownership.

Maintaining high product quality

To give you more control over the consistency of your brines and marinades, we developed an advanced mixing system. For you this means perfectly homogeneous mixes even with ingredients that are difficult to combine. Accurate temperature control and optimum cooling assure high mix quality and improved yield, while continuous stirring during storage keeps your mix completely sediment free. What's more, our maintenancefriendly approach to machine cleaning, with all drive components located beneath the machine well away from the mixing zone, helps increase your productivity and maintain food safety.

More process flexibility

With GEA you have the flexibility to meet all your production requirements – from light brines to heavy marinades. Based on modular units, the system can also evolve with your developing needs, enabling you to add processing capacity without major re-investment. You can easily expand capability by adding storage tanks, exchanging pump sizes, mixing venturi to accommodate different viscosity brines and marinades. You can also specify PLC control for a fully automated process, providing even greater recipe consistency.

Brine-preparation equipment

GEA ScanBrine	Perfect mixing from light brines up to heavy marinades, modular design, minimum cost of ownership, optimum yield for the end product.
GEA Mixing and storage tanks	Modular add-on units for mixing and storing brines and marinades, easy to increase capacity, easy cleaning.



Injecting for a perfect taste and bite

Whether you produce red meat, pork, poultry or fish products, brine injection can increase profits and give you more opportunities to develop a variety of products that appeal to trend-sensitive or quality-demanding consumers. GEA brine injectors ensure even distribution throughout the product, and can be easily configured for a range of products – giving you extra production flexibility.

Optimize performance and efficiency

Featuring advanced needle heads with needles adjustable for injection depth and optimally designed needle patterns, GEA injection systems ensure perfect brine distribution (standard deviation) and accurate brine delivery for all your products. Designed to enhance your productivity by maximizing uptime, the injectors also feature inline filters to keep needle heads and needles free of particles. What's more, with their robust, compact designs, the systems can easily be slotted into your processing line for fast product change-overs.

Injectors for every application

Whatever your needs you'll find a GEA injection system to meet them. Our range covers multi-purpose designs for injecting and marinating products such as pork, beef joints, poultry and fish, as well as systems designed for low-profile fish and for small meat parts such as boneless poultry, beef steaks and pork fillets. The broad choice of filter options includes continuous filtering of excess brine and self-cleaning inline filters, which require no cleaning during food production.

Injecting equipment

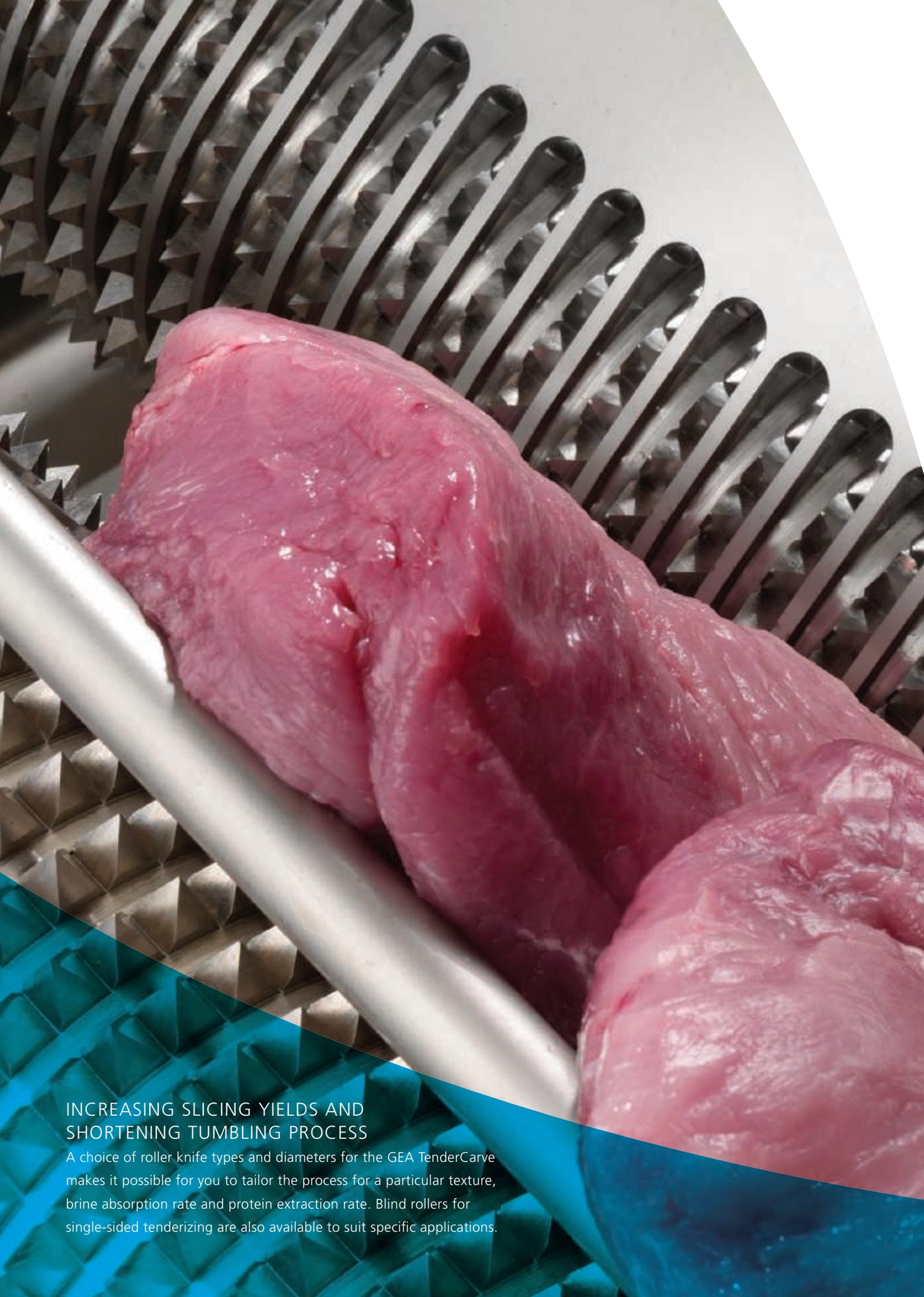
GEA ValueJector	Multifunctional basic injector, competitive price (up to 230 mm product depth) with high injection levels.
GEA MultiJector 2mm GEA MultiJector 3/4mm	Multi-purpose brine injector (up to 140 mm product depth for 2mm and up to 230 mm product depth for 3/4mm) that does not compromise on the accuracy or performance you can get from an application-specific machine.
GEA AccuJector	Accurate low-profile product injector (up to 85 mm product depth), specially designed for fish and small meat parts, easy to re-locate, close needle pattern, easy cleaning and inspection.
GEA YieldJector	Heavy-duty injector (up to 100 mm product depth), very dense needle pattern and high injection accuracy, easy to exchange needles.
GEA SuperChill	Stand-alone brine chiller to cool thin and viscous liquids.
GEA OptiFlex needles	Accurate dosing for all types of brines and all types of meat, poultry and fish.





PRODUCT VARIETY GUARANTEED BY PROCESS AND EQUIPMENT VERSATILITY

To maximize flexibility in creating your product range, the GEA injectors can be fitted with special needles for injecting a huge range of meat types. The brine flow per needle is also fully controllable, so brine is omogeneously distributed throughout the meat.



INCREASING SLICING YIELDS AND SHORTENING TUMBLING PROCESS

A choice of roller knife types and diameters for the GEA TenderCarve makes it possible for you to tailor the process for a particular texture, brine absorption rate and protein extraction rate. Blind rollers for single-sided tenderizing are also available to suit specific applications.

Speed up the journey to the eating experience

An even color, a pleasing mouth feel, perfect texture and excellent taste. These are the benefits of marination that add value to your products, and tenderizing helps achieve perfect results. Tenderizing also promotes binding, increases yield and improves color in ham production. GEA has two tenderizing solutions – one based on rotating knife rollers, the other combining injection needles with tenderizing ('steaker') knives.

Upgrading product quality

By cutting the meat's surface and muscle tissues, tenderizing increases surface area, and speeds up brine absorption. It also speeds up protein activation during tumbling or massaging, which in turn increases binding between muscle pieces in processed meats such as hams. This reduces the likelihood of the muscle pieces separating during slicing. The systems also improve the tenderness of the meat by cutting through tough sinewy tissues.

A choice of tenderizing techniques

Tenderizing by means of knife rollers cuts into the muscle piece from one or two sides. By increasing the depth of the cuts, the surface area is significantly increased, thus improving brine absorption and speeding up the curing process. Our tenderizing technique using steaker knives (on an injector machine) puncture holes through the muscle to increase the surface area and improve the texture. Unlike knife rollers, this technique does not alter the basic shape of the muscle.

Tenderizing equipment

GEA TenderCarve	Rotating knife rollers increase outside surface area and shorten curing time, easy operation, low maintenance costs, high capacity.
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The touch that adds value

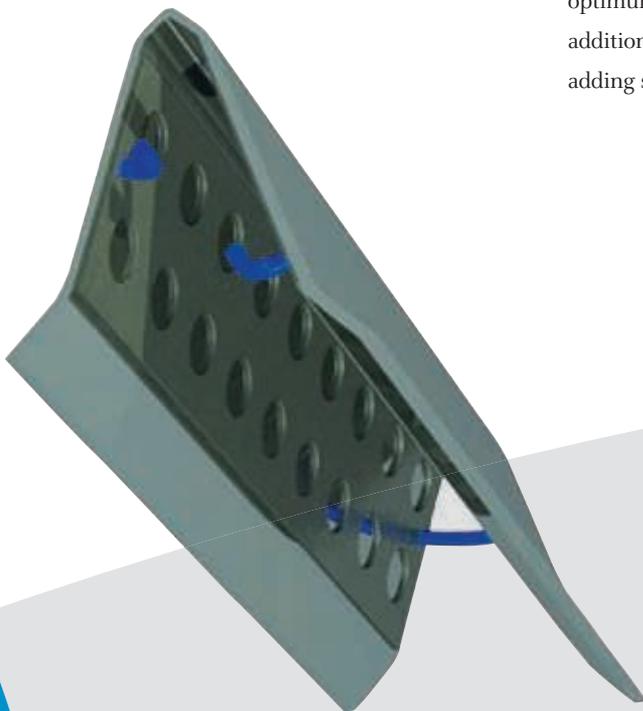
Tumbling or massaging optimizes product quality and the consistency of the marination process. It ensures even brine distribution and softens the structure of the meat to extract maximum value from your product. GEA tumbling and massaging solutions combine high performance with short processing times, adding to your potential profitability.

Achieve quality and consistency

Massaging/tumbling helps you obtain maximum advantage from your marination process by speeding up the reaction between the meat proteins and the added brine or marinade. Massaging is a gentle process ideal for sensitive products that preserves the original texture. Tumbling is more aggressive process, used for larger and tougher muscles.

The ultimate in ease-of-use and flexibility

GEA massager/tumblers offer you greater ease of use through features like fast, efficient filling with vacuum assistance, easy discharging, and easy cleaning and inspection with no hidden corners and food traps. Massaging and tumbling are performed under a vacuum to prevent oxidation, avoid foam forming, and improve protein extraction, yield and color. Drum angle and temperature during massaging and tumbling are adjustable for optimum results. The machines also enable you to perform additional functions during massaging and tumbling such as adding spicy surface marinades, or dry ingredients.



HEAT AND CHILL TECHNOLOGY

Heat and chill technology using a glycol-based heat exchanger system speeds up the brine absorption process, and therefore reduces the overall tumbling time. It is available as an option on the GEA ScanMidi and GEA ScanMini.



Tumbling and massaging systems

GEA ScanMidi Massaging, tumbling, cooling, coating, rinsing of pork, beef, poultry and fish, controlled process, short process time.

GEA ScanMini In-line mixing and tumbling of pork, beef and poultry, 180° tilting for maximum operational flexibility.

GEA RotoDrum Inline tumbler to remove excess brine and stimulate protein extraction.

Faster defrosting

The GEA ScanMidi's steam defrosting process is very efficient, reducing defrosting times from the 12 to 48 hours of conventional techniques to between 4 and 9 hours (depending on the product size). For you, this also means greater flexibility to respond to your customers' needs as it allows you to remove frozen products from stock later.

Carry out three processes on one machine

The GEA ScanMidi defrosts poultry, pork or beef blocks in a vacuum tumbler using direct steam heat and indirect heating via the carriers and jacket. After defrosting, the meat can be massaged or marinated in the same machine, reducing handling and helping to speed up processing time.



Add economy and flexibility with fast defrosting

By using frozen meat, you can combine the advantages of lower raw material costs with increased operational flexibility. But using frozen raw materials for your processed meat and poultry products requires an efficient industrial defrosting system that doesn't take all day to do the job. GEA not only has one of the fastest defrosting systems available today, it also increase yield by eliminating purge (drip loss).

Benefit from the global frozen meat market

You can cut the ever-increasing cost of your raw materials by buying frozen meat on the global market. This allows you to buy where prices are lowest at any given time. And your frozen meat is easier to stock, has a longer shelf life, and allows you to respond quickly to the changing demands of your customers.

Steam-based defrosting

Cut traditional defrosting times in half with the GEA steam-based defrosting solution, which enables you to take frozen meat from storage much later than with conventional defrosting techniques. The system operates under vacuum thus eliminating the risk of protein coagulation on the meat surface. What's more, the closed, steam-based process gives well-controlled, very homogeneous defrosting from -18 to +2 °C, resulting in better retention of meat juices and no weight loss on thawing. The system has been independently verified by TNO (Institute of Applied Scientific Research in the Netherlands, www.tno.nl), who reported that under normal operating conditions food safety risks of the GEA steam-based defrosting process are negligible.

Defrosting system

GEA ColdSteam T	Controlled defrosting process that significantly reduces defrosting time and improves logistics and yield, operating in a closed environment it also improves hygiene.
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Complete marination lines from a single source

Productivity, efficiency and return on investment are driven by automation. An automated GEA marination line solution brings you benefits in terms of lower labor costs, greater product consistency and higher uptime. Our machines can be tuned and balanced to deliver continuous operation in a batch production environment. We will advise on the best configuration for your production requirements or type of marinated product.

Optimize yield and performance

An integrated line solution brings you more control over process and recipe management, thus enabling consistent product quality. Balanced performance facilitates higher capacity, and lowers energy costs. With the support of our Technology Center to test and refine solutions, you can optimize yield and performance. GEA equipment meets very high hygiene requirements, and is reliable, easy to clean and operator friendly - factors that bring down the cost of ownership.

Optimizing marination line performance

The combination of continuous/flow processes like injecting and tenderizing in combination with batch-wise processes like tumbling and massaging makes a marination line relatively complex. We can optimally link the individual processes to maximize efficiency, as well as provide the hoppers, conveyors, trolleys, loaders and other equipment to build the line.



Your partner for Food Processing & Packaging solutions

GEA performance-focused equipment and solutions for preparation, marination, processing, slicing and packaging are developed to help you reduce operational costs, increase processing efficiency, and respond quickly to new opportunities.



Contributing to your success

The total GEA Food Processing & Packaging range - the most extensive available today - extends from stand-alone equipment to complete production lines. Depending on your requirements, we can plan, develop and build a complete new line, or simply enhance your existing capabilities. You can even try out new ideas, test recipes and refine processes at our Technology Center.

A global heritage

To ensure you get the best out of your equipment, we provide comprehensive customer support through a global network of sales and service offices, so you get local knowledge in your native language. You also tap into the creative thinking and technical know-how of an international organization that comprises many specialized activities with long and successful track records in their respective fields.



We live our values.

Excellence • Passion • Integrity • Responsibility • GEA-versity

GEA is a global technology company with multi-billion euro sales operations in more than 50 countries. Founded in 1881 the company is one of the largest providers of innovative equipment and process technology. GEA is listed in the STOXX® Europe 600 Index. In addition, the company is included in selected MSCI Global Sustainability Indexes.

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