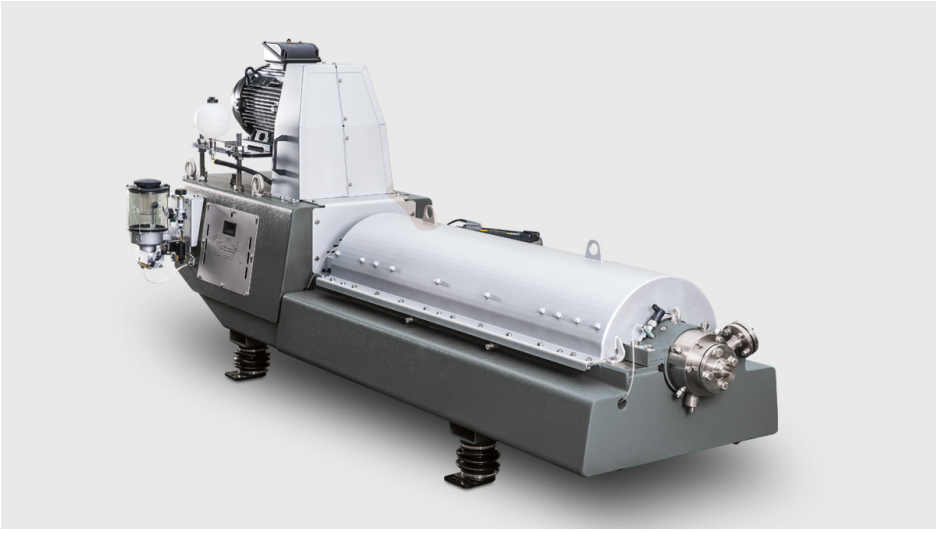
ЦЕНТРИФУГИ И ОБОРУДОВАНИЕ РАЗДЕЛЕНИЯ СЕПАРАТОРЫ

Технические характеристики



Dewatering Decanter crudMaster

For chemical and mineral products

This deep-pond 3-phase decanter centrifuge has been customized for clear clarification, liquid separation and solids dewatering in chemical and mineral processing applications. The solid-wall bowl has a cylindrical section for efficient clarification of the liquids and a conical section for drying the solids. Due to the centrifugal forces, the solids are flung onto the inner bowl shell and are transported by the scroll to the solids discharge. On decanter type crudMaster series, the heavy or light liquid phase is discharged under pressure by use of a centripetal pump while the other liquid phase is discharged by drain tubes. CIP-compatability of the decanter can be assured. The housing consists of a frame with supporting feet, protective plates and catchers for the discharged phases.

GEA summationdrive
Drive with intelligent kinematics for high differential speeds and torques which enables processing of high solid capacities
Full torque up to the maximum differential speed; this allows processing of high solid capacities
High efficiency of the drive as the variable speed motor feeds in energy instead of braking
Automatic adaptation of the differential speed by means of frequency-controlled motor
Good accessibility to all drive parts
Changing the differential speed without replacing the complete gear
All product-contacting parts are made of stainless steel

Features & Benefits
All product-contacting parts are made of high-alloyed duplex steels, super duplex steels or Hastelloy C276. Depending on the application, the gaskets are made of NBR, FKM, FFKM, EPDM
Chemical cleaning after separation possible
Explosion-protected centrifuges available: · Gas-tight decanters from GEA comply with the test criteria of the strict European ATEX standard or other EX regulations · The oxygen atmosphere in the separator is displaced with inert gas and the excess pressure is maintained during operation to assure inert gas blanketing.
Available for temperatures up to 130 °C.

GEA CutMaster:
The reference in cutting

GEA CutMaster: also available in vacuum execution

The GEA CutMaster cuts, mixes and emulsifi es all diff erent kind of sausage products from coarse to very fi ne. It is also suitable for wide range of poultry, fi sh confectionary or vegetarian products, processed cheese and many basic products in the food processing industry. Optionally, products can be cooked or cooled. All processes take place within the GEA CutMaster and are, therefore, independent from peripheral equipment.

GEA CutMaster

Multifunctional cutter

The GEA CutMaster provides high yield, high effi ciency particle reduction and mixing and emulsifying capabilities. It handles many diff erent types of fi ne and coarse sausages in very short processing times with a high fi lling level (95%). The GEA CutMaster is also available in vacuum execution. Optionally, products can be cooked or cooled. All processes take place in the CutMaster and is, therefore, independent from peripheral equipment.

GEA CleanSkimmer for whey skimming

New range of skimming centrifuges in special design

The heart of a whey processing line is usually a skimming separator for the removal of fat from whey. These centrifuges can only process a limited amount of cheese fines and must be complemented by an upstream clarifying separator to maintain a good skimming performance.

When feed conditions vary regularly, the new GEA CleanSkimmer gets into the game, which is not only suitable for whey, but is also the first choice for milk with an increased non-milk solids content. This specially designed centrifuge is capable of satisfactory skimming efficiency even at increased cheese fines loads without the need of a clarifying separator upfront.

GEA's new "workhorse" thus not only facilitates the processing of whey, but also the skimming of milk with a higher content of non-milk solids content.

Increased fat recovery even at higher cheese fines loads

For cheese manufacturers, processing residual whey is no longer an option but a mandatory task if they not only want to avoid high disposal costs but also strive to complete their portfolio with high-value products such as whey protein isolates.

And there are many good reasons for removing the remaining fat from the whey as completely as possible.

High fat recovery means

- more additional value stream
- better, low-fat protein concentrate or isolate
- longer operating time and better performance of downstream equipment, such as membrane filtration

Especially when different types of whey need to be processed and when a higher cheese fines concentration may only be expected from time to time, the investment of a premium clarifier and skimmer combination might be difficult to justify.

In this case, the newly designed GEA CleanSkimmer is just the perfect match, delivering satisfactory skimming results while being tolerant against increased solids

Designed for stable skimming efficiency

A special bowl design prevents solids with a concentration of up to 0.2 % vol. from clogging the centrifuge. The GEA CleanSkimmer can thus be operated at a reasonable discharge frequency while maintaining a stable skimming efficiency of up to 0.06 % fat in skim whey/milk.

Product portfolio

Type	Capacity
GEA CleanSkimmer 100	up to 15,000 l/h
GEA CleanSkimmer 140	up to 20,000 l/h
GEA CleanSkimmer 180	up to 25,000 l/h
GEA CleanSkimmer 230	up to 30,000 l/h
GEA CleanSkimmer 350	up to 35,000 l/h
GEA CleanSkimmer 400	up to 40,000 l/h
GEA CleanSkimmer 500	up to 50,000 l/h
GEA CleanSkimmer 600	up to 55,000 l/h
GEA CleanSkimmer 700	up to 60,000 l/h

GEA PHARMA SEPARATOR PURE C

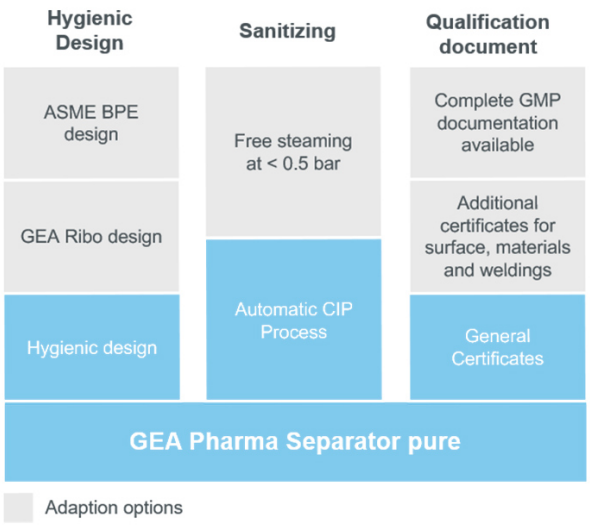
Smooth handling of biopharma products, high separation performance, all features available for an optimum cleanability according to your process requirements: automatic CIP, easy validation and more.

Pharmaceutical processing made simple

With the introduction of its new pharma separator line pure, GEA offers to its pharma customers a new level of performance, flexibility of cleanability features and validation easiness.

Pharma processing reaches the next level of security.

Features and options of GEA pure



The GEA promise

Making pharmaceutical processing as adaptable as possible to the individual cleanability requirements and the integration into the process lines of our customers as secure and as fast as possible. Automatic CIP, ASME BPE and many more are included or available as an option in the pure line.

Smooth handling: No turbulences, no splashes, no shear forces

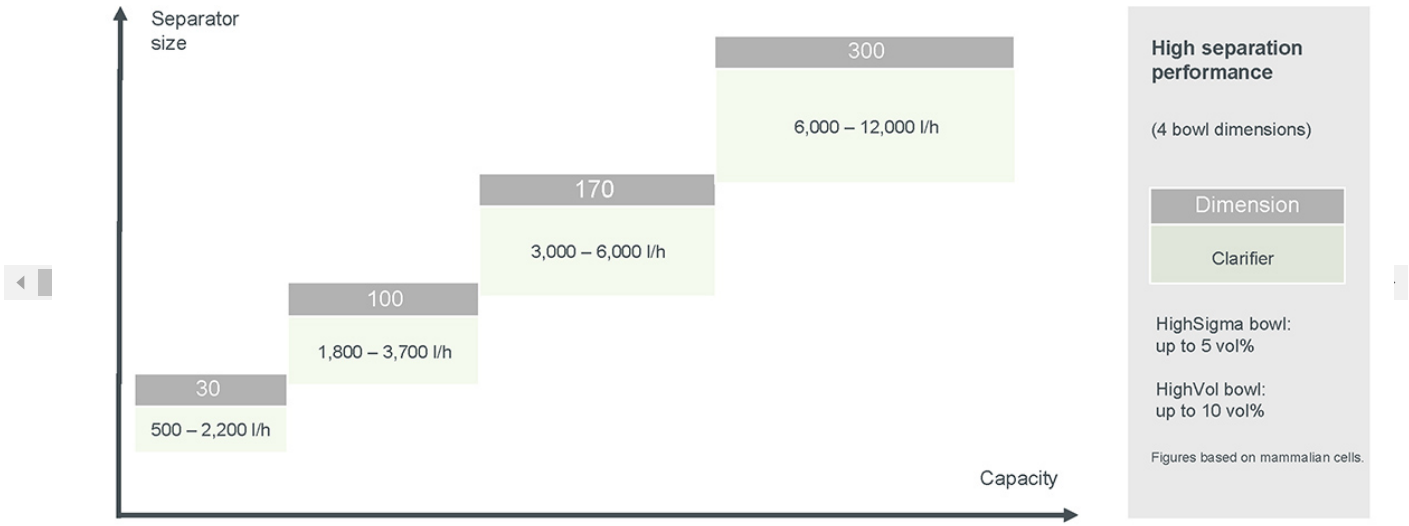
Shear sensitive products, i.e. cells, are fed gently by the patented hydrohermetic inlet underneath the liquid level of the filled bowl and smoothly accelerated at the axis of rotation.

Optimized skid design for a perfect fit to your process

The GEA plug & produce pharma skids pure are perfectly designed for standard and customized requirements for maximum safety, maximum yield and a perfect fit to your process.

Full range of capacity

The pure clarifier skid is available in two bowl designs and four different bowl sizes to fit to the capacity of your process.



Optimum yield with optimized bowl design

The pure clarifier skid has an optimized bowl design with a High Sigma clarifier bowl for up to 5 vol% percent or a HighVol clarifier bowl for solids up to 10 % vol%. They ensure optimum yield for your process.

GEA Integrated Direct Drive for high clean room class level

The new, state-of-the art IDD Drive with a water cooled motor and a closed housing prevents any emissions into cleanroom. Fewer parts mean less wear parts and an easier service of the machine.

CHAMBER BOWL SEPARATORS PHARMA BIOTECH

This separator has been designed for protein recovery. PKB 25 - 300-600 l/h* & PKB 45 - 500-1000 l/h*

Overview
The valuable solids are separated out in the chamber and periodically removed by hand. Separation is executed by reliable, cooled chamber centrifuges. The bowl inserts divides the bowl in two chambers. The product is fed into the center of the rotating bowl through the feed. It flows from the center to the periphery through both chambers, whereas the finer particles are separated out in the outer chamber. The clarifying efficiency remains constant until the chambers are filled with proteins.

*Product throughput (depending on the product and process in l/h)

Features & Benefits
Machine driven by a 3-phase AC motor with frequency converter
Worm wheel gear
Product connections as TriClamp
All product-contacting parts are made of high-alloyed stainless steels
The seals comply with the requirements of the FDA and USP Class VI
Machine frame and the motor are varnished
Cooling system
Options Depending on Model
Motor control
Automatic pre- and post filling of the product
Turbidity meter
Lower section of frame cladded in stainless steel
Moveable work bench with crank gear for bowl assembly
Spare bowl for quicker processing of the solids abstractions
Available in ATEX design for EX-Zone 2
Capacity
Throughput capacity from 500 to 1,000 l/h

GEA PHARMA SEPARATOR

Aseptic processing made simple

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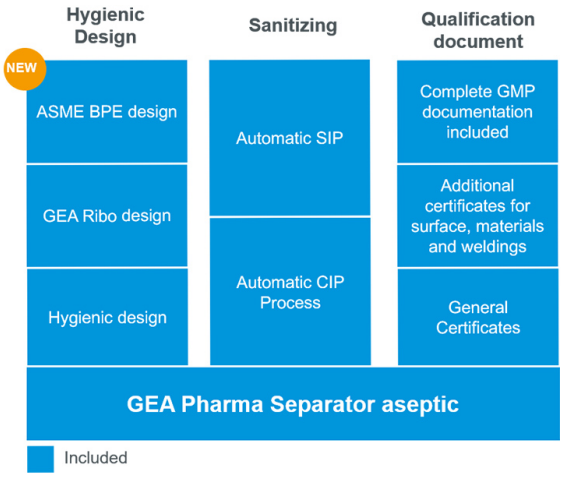
Included features of GEA aseptic



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Full range of capacity

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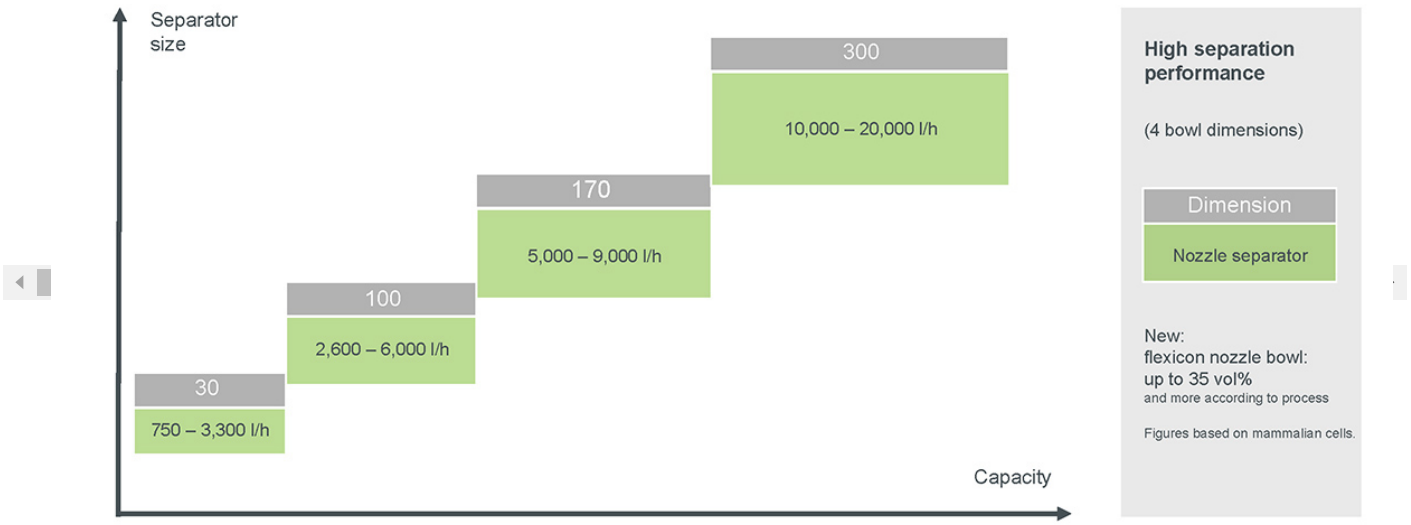


Optimum yield with the NEW seamlessly adaptable GEA flexicon nozzle bowl

Concentrate flow rate and outlet concentration are now seamlessly adjustable. And this even during production. As a result: maximized yield, optimized speed to be ready for the next product, no machine modification necessary.

The aseptic nozzle skid has an optimized bowl design with a flexicon nozzle bowl for up to 35 vol% or even higher according to process. They ensure very high yield for your process.

GEA Integrated Direct Drive for high clean room class level.

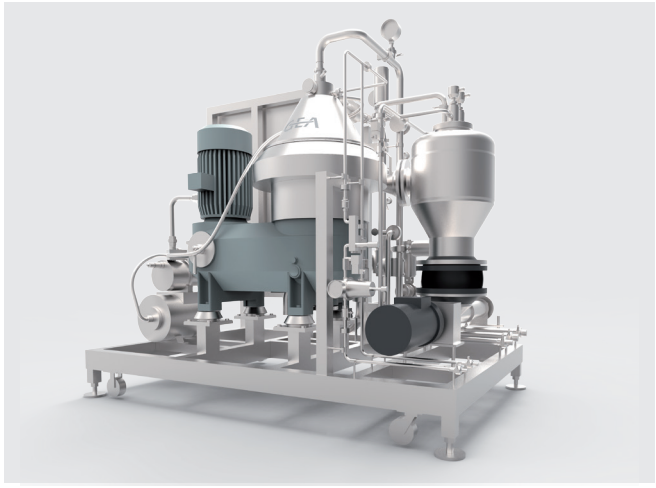
The new, state-of-the art IDD Drive with a water cooled motor and a closed housing prevents any emissions into cleanroom. Fewer parts mean less wear parts and an easier service of the machine.

GEA HB Craft Cider Series

Centrifuges Developed Specially for Craft Cideries

Whether your operation is just getting started or on the way to expansion, you can benefit from the HB Craft Cider Series centrifuge skid from GEA. This versatile equipment has a variety of applications in the cidery. Each application benefits the cidery by improving the consistency of the product, minimizing product losses, accelerating production time and, ultimately, increasing profitability. In fact, the payback for this equipment has proven to quickly justify the investment.

A good example of the return that can be expected from this equipment is found in the amount of salable cider that can be recovered from tank or barrel bottoms. Tank bottom volumes, including yeast and lees, contains 50 - 80% recoverable cider. Use of the HB Craft Cider centrifuge provides the cidery with a flexible solution to process their volumes and increase yield. Further, because the yeast and lees are now concentrated, they can be sold. And wastewater disposal costs are also significantly reduced.



GEA HB0125 Craft Cider Skid	
Cider clarification	up to 20 hl / h
Tank bottoms recovery	1 hl / h
Dimensions (H / W / D)	1500 × 1150 × 1650 mm
Motor	5.5 kW

Ideal for small cideries with great vision and for test applications.

GEA HB025 Craft Cider Skid	
Cider clarification	up to 50 hl / h
Tank bottoms recovery	2 hl / h
Dimensions (H / W / D)	1500 × 1150 × 1650 mm
Motor	7.5 kW

Perfect for medium-sized creative cideries beginning to expand their market share.

GEA HB05 Craft Cider Skid	
Cider clarification	up to 100 hl / h
Tank bottoms recovery	3 hl / h
Dimensions (H / W / D)	1950 × 1400 × 2050 mm
Motor	15 kW

The right choice for growing medium-to-large-size creative cideries and established regional cider houses.

Create More Cider

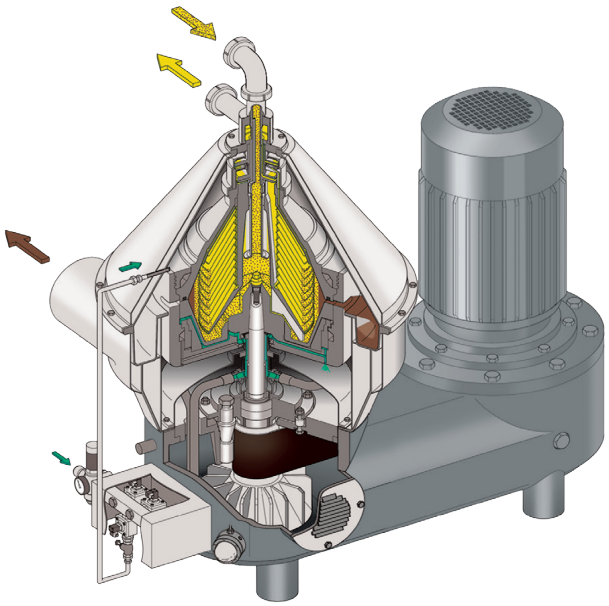
A large volume of perfect cider is lost in the process when cellaring-off lees. It's all money going down the drain. But with a GEA HB Craft Cider Series centrifuge, you can extract the maximum amount of cider every time.

Greater yield from the same resources

- 5 to 10% more cider from the same amount of raw ingredients (depending on recipe and process)
- Same amount of cider processed with decisively reduced effort (less energy and hours of work)
- Multi-purpose applications in the cidery take your business to the next level!

Separation is the secret

The g-force in a rotating centrifuge achieves all these benefits for you. It separates the solids from the valuable liquid product. The result: You create more cider.



THE CENTRIFUGE DOES IT

The mixture to be separated enters the rotating centrifuge bowl – with a combined surface equivalent to 80 soccer fields. The higher density of the solids means they are forced towards the bottoms and the outer solids discharge chamber. The remaining liquid in the disk stack is caught by a centripetal pump and moved to the outlet pipe at the top end of the centrifuge.

GEA PHARMA SEPARATOR PURE X

Pharmaceutical processing made simple

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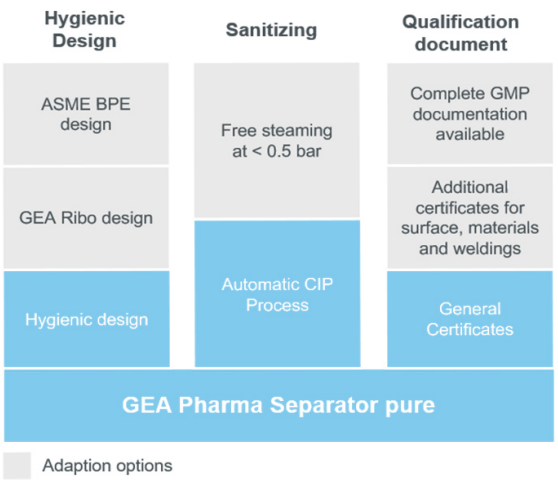
Pharma processing reaches the next level of security.

Features and options of GEA pure



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Optimized skid design for a perfect fit to your process

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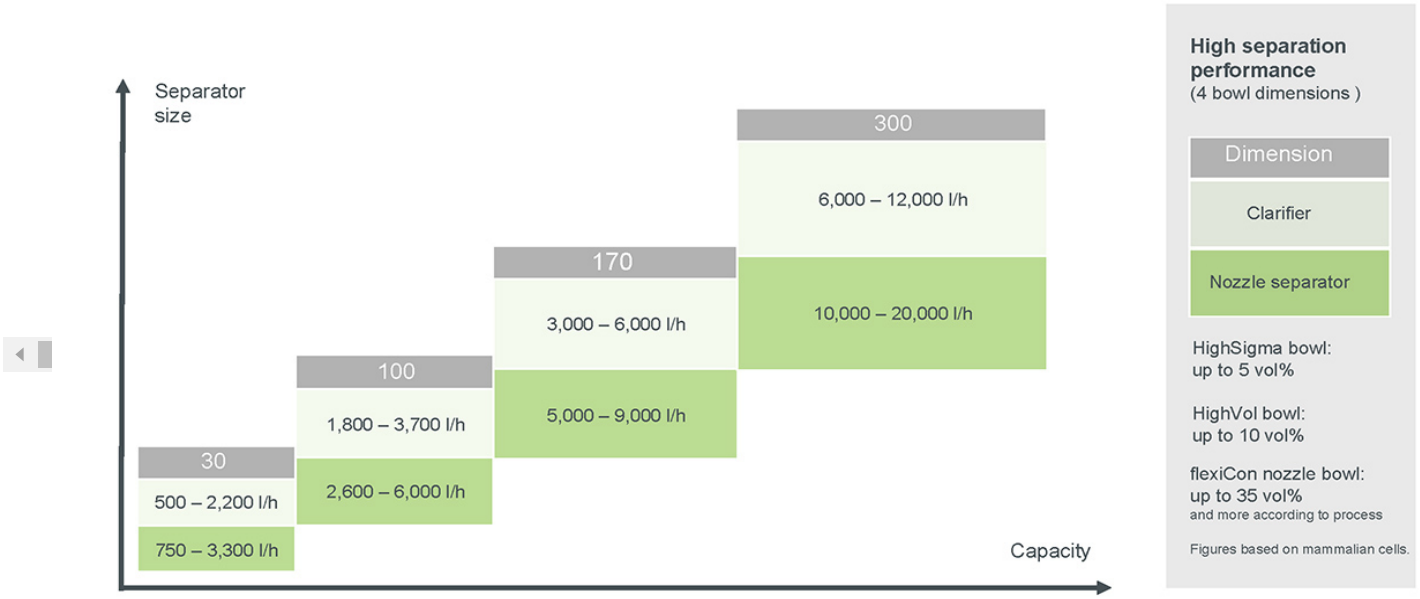
Full range of capacity

The pure skid with GEA flexChange concept is available in four different bowl designs to fit to the capacity of your process.



Optimum yield with optimized bowl design

The aseptic separator skid with GEA flexChange concept offers three different bowl designs optimized for your process

1. High Sigma clarifier bowl for up to 5 vol% percent
2. HighVol clarifier bowl for solids up to 10 % vol%.
3. NEW flexicon nozzle bowl for solids up to 35 vol% or higher according to process. Concentrate flow rate and outlet concentration are now seamlessly adjustable. And this even during production. As a result: maximized yield, optimized speed to be ready for the next process step, no machine modification necessary.

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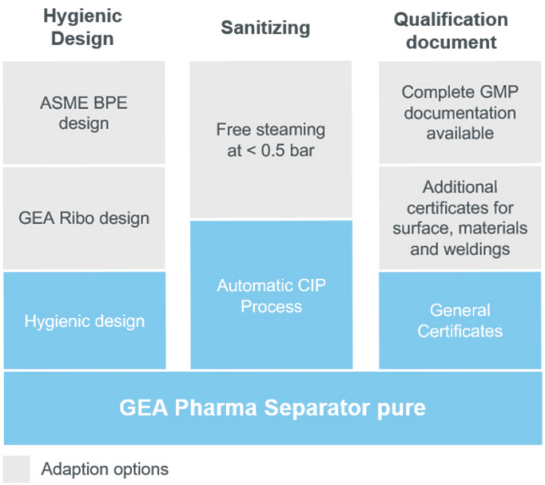

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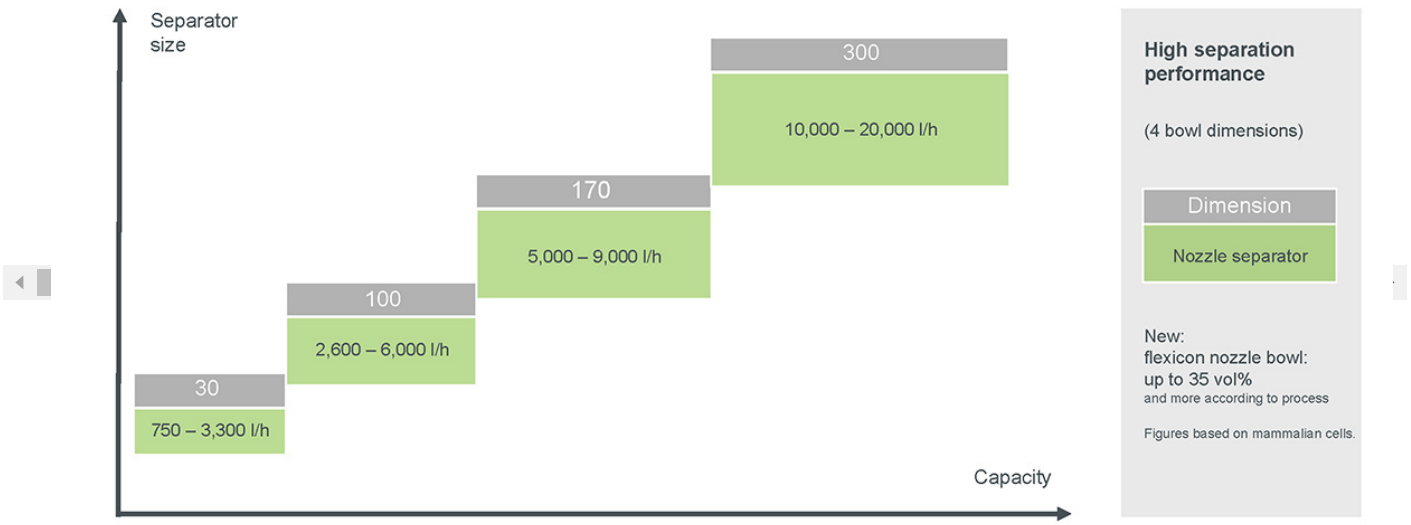

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GEA Integrated Direct Drive for high clean room class level

The new, state-of-the art IDD Drive with a water cooled motor and a closed housing prevents any emissions into cleanroom. Fewer parts mean less wear parts and an easier service of the machine.

GEA PHARMA SEPARATOR PURE C

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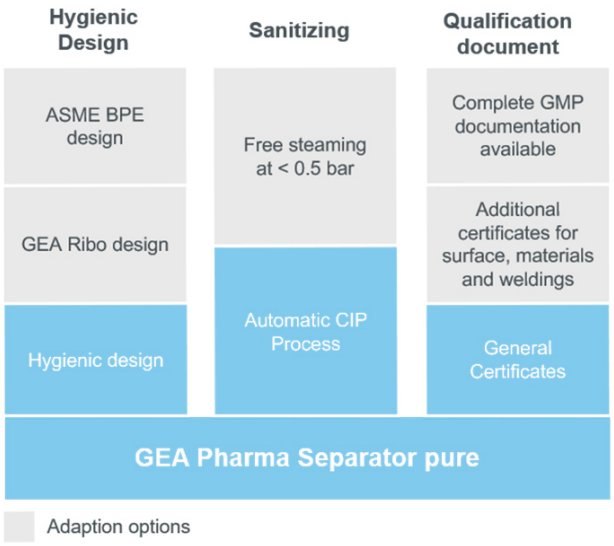

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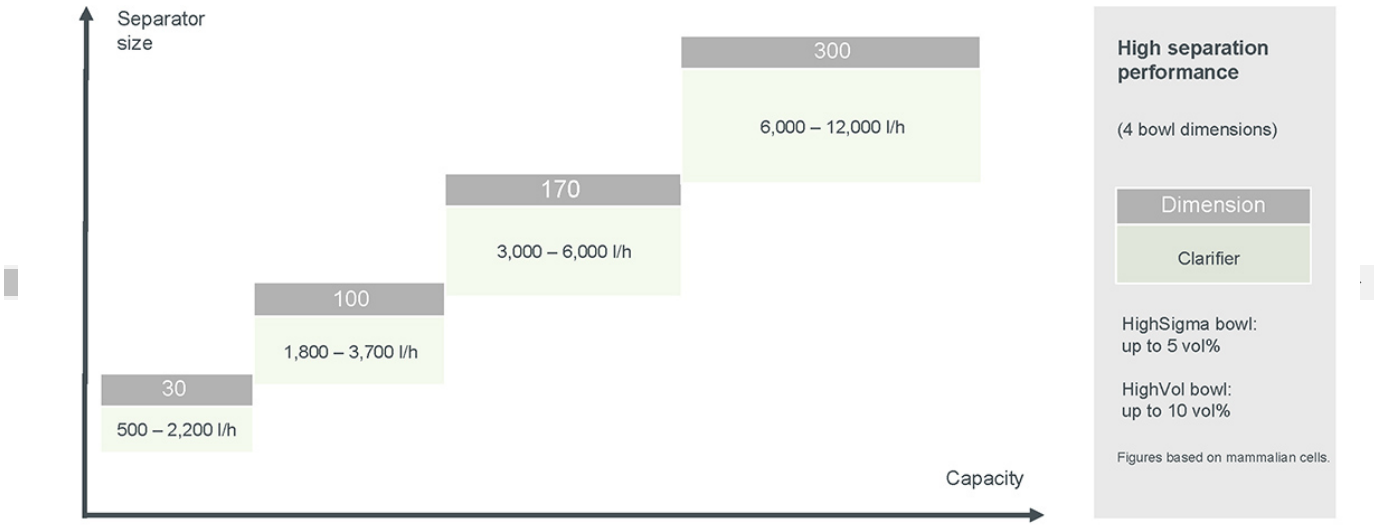

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Separator RSE / RSI for Oil Refining

GEA separators are used for degumming, neutralization and dewaxing of vegetable as well as animal oils and fats.

Special applications for our centrifuges in this industry are the use in soapstock splitting, treatment of used cooking oils as well as crude oil and miscella clarification for the production of high quality lecithin. Further applications are transesterification processes (e.g. for making biodiesel), processing od epoxidized oils, wet fractionation of fatty acids as well as further oleochemical applications.

Fine-tune your separation results
Our oil refining separators feature the GEA finetuner, a combination between a centripetal pump and a paring tube. It is characterized by a substantially improved efficiency factor compared to conventional centripetal pumps.

This is the ratio of the conversion of rotational energy into pressure. The effect is viscous media such as gums from super degumming installations can be discharged without difficulty. The adjustment of the finetuner diameter can be done by a manual hand wheel or by a pneumatic actuator from the control unit.

Maximum uptime with Integrated Direct Drive from GEA
There are different drive concepts available for our oil refining separators: the conventional gear drive, flat-belt drive with power transmission from the torque-controlled motor to the bowl spindle vial single flat belt, direct drives with the motor directly mounted to the spindle and the newest evolution in drive technology from GEA: integrated direct drives. The integrated direct drive also transfers the motor power directly to the bowl but is integrated into the centrifuge’s housing.

Thus, our separators need up to 35 percent less space and operate much more quietly. The entire technical concept has been simplified and the number and variety of parts reduced. Bowl and motor can both be removed as a single entity reducing the downtime for maintenance considerably. . Our integrated direct drive concept maximizes the availability of our separators making sure your oil mill is working to capacity.

Gentle product treatment for highest yields
The hydrohermetic feed system developed by GEA protects the product from exposure to the high shearing forces, which would break up the gums or soap particles and consequently making separation a lot more difficult. Emulsification is avoided at this point especially during washing and winterisation. The also featured hydrohermetic vapor seal (sealing by liquid) prevents vapors from rising out of the feeding chamber into the lower centripetal pump chamber. This has a positive effect in case of higher separating temperatures (> 90°). Additionally, liquid can be fed into the bowl through a separate bowl flush water channel.

Features & Benefits:
GEA finetuner

For optimum adjustment of the separating zone
Flexibility of the separators: a single machine can carry out all refining processes without the need for converting the machine
For improved operating reliability and no oil losses
Hydrohermetic feed

Protects the product from exposure to high shearing forces through gentle product feed
No mechanical seal and therefore no additional cooling water consumption
No oxygen pick-up
Hydrohermetic vapour seal

The hydrohermetic seal prevents vapours in the inlet space from causing turbidity in the oil
Bowl flush

A highly viscous heavy phase can be diluted to improve its flow characteristics
Also available for use in explosion hazarded surroundings
Integrated direct drive

Very small footprint
Fast maintenance and maximum availability
Reduced energy costs due to direct power transmission
Fewer wearing parts
Reduction of noise level
GEA direct drives meet all explosion proof requirements

GEA PHARMA SEPARATOR ASEPTIC X

Aseptic processing made simple

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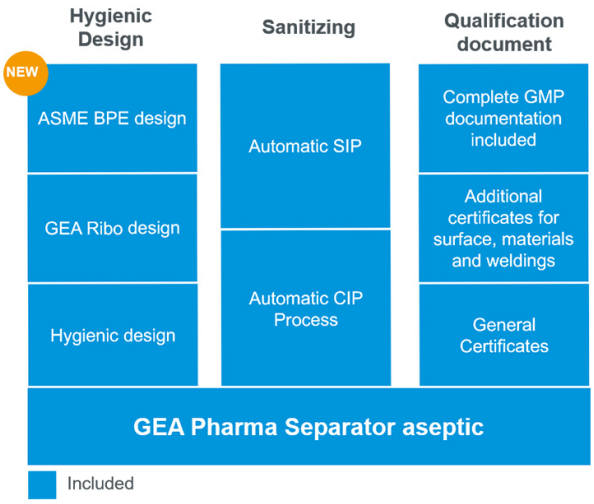
Included features of GEA aseptic



The GEA promise

Making aseptic processing and the integration into process lines of our customers as secure, as easy, and as fast as possible. ASME BPE, automatic SIP much more is included to the aseptic line.

Smooth handling: No turbulences, no splashes, no shear forces

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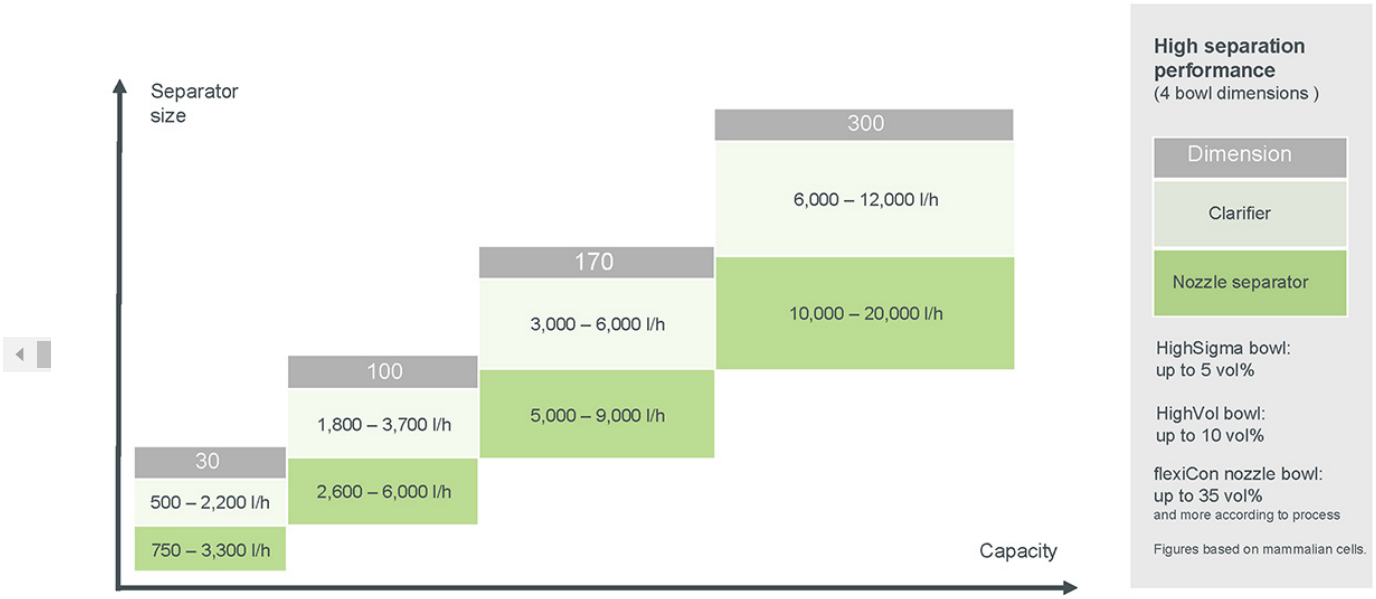

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SEPARATORS FOR BIOCHEMICALS

The self-cleaning GEA separators for biochemical ensure high product quality and yield. Pilot skids for easy scale up are available. Wide range of production machines in different sizes and models. According to model, the separators are designed to resist concentrated acids, high pressures and inflammable or even explosive substances.

The separation is fast and gently ensuring highest efficiency. With very precise ejection systems which ejects the solids from the separator bowl at operating speed for a fully continuous operation and short payback periods.In many application areas of the White Biotech, developments have only just begun. To secure your investment, GEA separators may be designed according to our customers’ needs after laboratory tests with the original products of the customer.

SEPARATORS FOR DOUBLE CREAM FRESH CHEESE

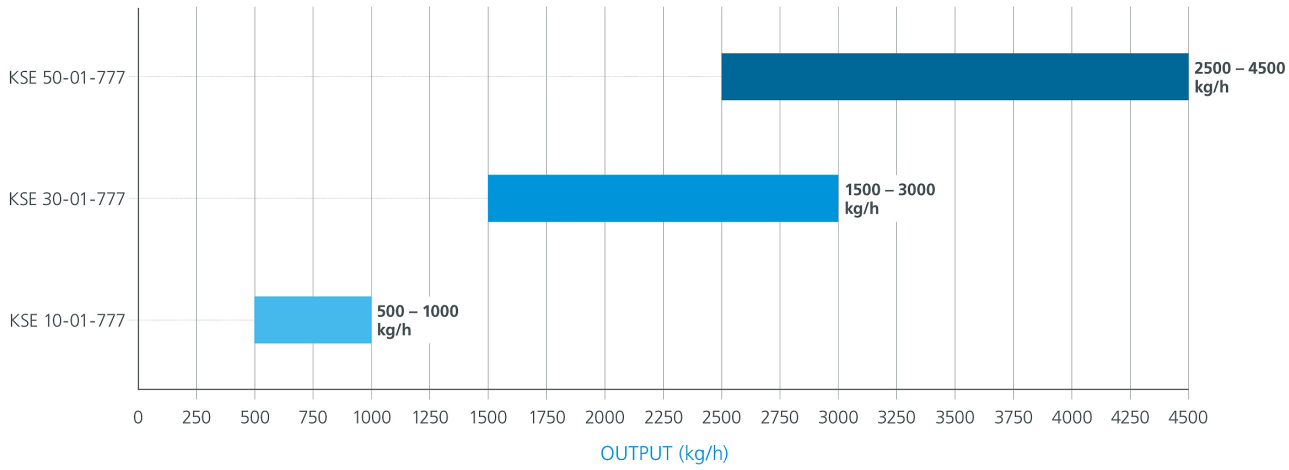
This separator has been designed for the production of double cream fresh cheese from fat milk of 8 to 12 percent fat content. (The exact capacity is dependent on the parameters of raw and finished product.) The machine is driven by a frequency-controlled 3-phase AC motor without clutch via a flat belt. The self-cleaning bowl makes the machine suitable for fully automatic cleaning-in-place (CIP). Opening and closing of the bowl for discharging the solids takes place hydraulically using water. The product is fed into the machine through a closed-line system. Double centripetal pumps likewise discharge the heavy and light phases in a closed system.

All product-contacting parts are made of stainless steel.FDA approved materials are available for the seals.

The optional condition monitoring system permits permanent monitoring of bearing condition and smooth rotation as a basis for targeted pro-active maintenance.

Standard scope of delivery
3-phase AC motor
Foundation frame
Basic spare parts
Special tools

Fresh Cheese Separator Selection KSE Series



SEPARATORS FOR OIL RECOVERY

The separated oil from the decanter still contains residual water and extremely fine lees material. Therefore, the oil phase is polished by a separator after the decanter

Once again, GEA equipment is state of the art here. The self-cleaning models reduce downtime and maintenance costs to a minimum, while handling the oil with the utmost care. The GEA hydrostop system ensures optimum product yield. With this system, the partial discharges can be adjusted so precisely that the liquid is retained in the bowl when solids are ejected, thus avoiding product losses.

Features & Benefits
GEA hydrostop system for higher product yield
Self-cleaning bowl for fully automatic operation
Improved clutch design – for a longer wear lifespan
All components which come into contact with product are made of stainless steel
Flat-belt drive for low maintenance
Highest g-force for highest oil yields
Automated operation
Continuous processing mode
Simple maintenance
Low-noise design

SEPARATORS FOR MARINE

Centrifugal separators from GEA specialize in the purification of fuel and lube oil as well as bilge and EGR water treatment on board ships. With their high g-force, the separators reliably guarantee high performance and economic operation of ship engines, and boost their service life even under extreme conditions.

The GEA marine separator specializes in the purification of fuel and lube oil on board ships. With its integrated direct drive, the GEA marine Separator is a revolutionary solution that offers more performance per square meter of space, an extremely simple service concept, and smart connectivity.

Learn more about the numerous advantages for ship owners.

Resource efficient solution

As one of our most resource-efficient solutions, our GEA marine Separator carries the Add Better label.*

The high-efficiency motor transfers energy directly to the bowl without the use of belts and clutches. This reduces the energy consumption of the GEA marine Separator by 9% compared to the predecessor model and results in energy savings of up to 30,000 kWh per year per vessel.

GEA bilge Separator

GEA bilge Separator with integrated direct drive is designed to purify oily water on board marine vessels and produce minimum residual oil contents. GEA bilge Separator guarantees a residual oil content of less than 15 ppm and for more demanding requirements even less than 5 ppm.

GEA bilgEGR Solution

Innovative separator technology with real benefits

- Reduced energy consumption and significantly lower disposal costs Revolutionary
- design with high-efficiency integrated direct drive
- High separating efficiency
- Maximum reliability and continuous unmanned operation
- Compact design with a small footprint
- Easily exchangeable drive system
- GEA unitrolplus: flexible adjustment to difficult and changing feed conditions GEA
- hydrostop: nearly oil-free discharge (no product loss)
- Intelligent GEA IO control unit: one-touch operation eliminates operator mistakes and provides efficiency programs

SEPARATORS FOR OIL & GAS

Oil and gas production installations have to meet their quotas 24 hours a day. Drilling rigs and production installations in ice-cold Siberia are subject to background and process conditions which are fundamentally different to those encountered in installations in extremely hot desert regions or FPSOs on the world's oceans. Whatever the conditions or location – the overriding priority has been unchanged for years: The machines have to run. 24 hours a day.

Centrifuges from GEA provide reliability in every respect. For many decades, they have had a fixed place in the oil field industry and are known for the reliability and precision with which they do their job.

Separating oil and water phases, purifying emulsions, removing cat fines: the requirements and procedures for processing crude oil, slop oil and other solid-liquid mixtures are fundamentally different. In all applications, the separating and process technology of GEA is the first choice – and is used throughout the world. On drilling platforms and FPSOs in the Atlantic as well as in the oil sand mines in Canada, and for refineries throughout the world.

With the experience gained in around 3000 process engineering applications, GEA has expertise in complex separating and clarifying processes for processing viscous, diluted and heavily contaminated media. Our highly specialized high-speed centrifuges with throughput capacities of up to 80 m^3 / h are used in various applications, e.g. dewatering and desalinating heavy crude oil, processing contaminated drilling suspensions and sludges or de-oiling bilge, drain and produced water before it can be recycled back into the sensitive ocean.

Our Oil & Gas separators come in gas-tight design with nitrogen blanketing for reliable explosion protection (ATEX), for maximum protection and uptime of our separators we have the know how to use duplex/ super duplex steel as bowl material. Constant movements on platforms are compensated so that the centrifuges are perfect for onshore as well as offshore installation.

Features & Benefits
Maximum g-force
Maximum separating efficiency
Particularly robust and durable
Maximum cost-effectiveness throughout the entire life cycle
Materials highly resistant to corrosion and erosion
Explosion-proof design
Minimum maintenance
Suitable for unsupervised fully automatic and
self-monitoring operation
Minimum space requirements and weight
Ready-to-connect process lines and treatment systems

SEPARATORS FOR RECOVERING PLASMA AND MEAL FROM ANIMAL BLOOD

Consistent processing of animal blood into blood plasma or blood meal is a possible way of increasing the profitability of abattoirs even further. Obtaining blood plasma in particular opens up lucrative opportunities because this product is very much in demand from a wide variety of industries due to the valuable constituents it contains. Blood plasma is used as an additive in the food sector as well as in the pharmaceutical and pet food industries.

High-value protein source
When the blood with added anticoagulant is separated, plasma is recovered as a light liquid component. It contains 7 to 9 percent protein with a very high proportion of essential amino acids, and hence has a correspondingly high nutritional value. The blood plasma recovered can be fed into fresh processing or further processed to make blood plasma powder. The second phase from separation of animal blood is the blood concentrate which can be dried to make blood meal.

GEA plasmaprime and for small scale blood processing
GEA offers entry-level separators with smaller capacities which are easy to operate and handle for small scale blood processors, e.g. small abattoirs as well as fully automatic, high efficiency and high capacity centrifuges for full scale blood processing specialists. Whether small or big, all our separators feature hygienic design for high quality food-grade plasma. Our smaller plasmaprime separators focus on simplicity to make it easy for our customers to add value to their slaughtering processes by additionally recovering the plasma. The separators are easy to integrate, the overall process setup is straightforward and intuitive to operate and clean. Our separators with higher capacity focus on highest efficiency with fully automatic cleaning and operation for maximum utilization, most gentle product handling for highest separation efficiency and a design for fast and easy service.

Features & Benefits
All product contacting parts of the separator are made from stainless steel
Food-grade gaskets
Use of lubricants approved for food applications
Entry-level separators easy to integrate, operate and handle
Fully-automatic cleaning and operation of high capacity separators
Highest availability and efficiency

SEPARATORS FOR INDUSTRIAL FLUIDS

GEA separators for industrial fluids have been designed for the separation of cooling lubricants, washing liquids, oil-water mixtures, lube oil, fuel oil, waste oil, etc. The separator of enclosed design is equipped with an oil level sight glass and driven by a 3-phase AC motor. Power is transferred to the bowl spindle via a flat belt. The hood of the separator is hinged and all bearings are splash-lubricated from a central oil bath.

Water, oil and fine particles are simultaneously separated.

Features & Benefits
Reduced operating costs resulting from longer engine and component life, fewer oil change intervals and disposal volumes
High throughput capacities
High separation efficiency thanks to GEA softstream inlet
Controlled and rapid solids ejection due to GEA hydrostop
Minimized weight, space requirement and energy consumption
Easy maintenance and operation
Low noise level due to the belt drive

BACTERIA REMOVAL SEPARATORS FOR MILK AND WHEY

Dairy products can become heavily contaminated by bacteria and spores, somatic cells and non-milk constituents. This makes it all the more important to remove impurities from the raw and vat milk as well as the whey efficiently, a job that is reliably performed by the bacteria removal separators from GEA.

Application spectrum ranges from the one-stage, two-stage and special bacteria separation from drinking milk through variable bacteria separation to cheese-making milk, right up to treatment of the whey concentrate.

Increased protein yield with GEA proplus
Optionally, the bacteria removal separators can be equipped with the proplus system. With proplus it is possible to extend the ejection intervals during production up to six-fold compared to conventional bacteria removal separators. The result is a significant boost in protein yield from the raw milk used by means of consistent loss minimization of up to 75 %. In addition, there is a decrease in costs for waste water, maintenance and wear.

Optimum design for the efficient removal of spore formers
The bacteria removal separator separates in particular spore formers such as Bacillus cereus, heat-resistant up to 128 °C and cold-tolerant at the same time, which negatively impact the shelf life of the drinking milk due to sweet coagulation. A large number of cheese defects can likewise be prevented effectively through the application of bacteria removal separators.

The use of nitrate is also largely superfluous or can be dispensed with completely. Due to the higher specific gravity of the spores compared to the raw milk and skim milk, they can be removed from the milk extremely efficiently with the aid of bacteria-removing centrifuges. The design of the centrifuge – the feed, disk stack and centripetal pump in particular – is configured optimally for this task. Additionally, every GEA bacteria removal separator is equipped with a so-called recirculation system. Up to 3% of the feed volume is tapped off as carrier liquid and recycled back into the feed. In this way, the spores can be reduced by up to 99%.

NOZZLE SEPARATORS FOR CHEMICALS AND MINERALS

GEA nozzle bowl separator for catalyst recovery, phosphoric acid, and many more.

GEA nozzle bowl separators with a disc-type bowl feature nozzles at the periphery through which the concentrate is discharged continuously. The separated solids (concentrate) are continuously discharged through nozzles into the concentrate catcher. The solids concentration depends on the throughput capacity, the feed concentration, the nozzle diameter and the bowl speed. The desired concentration can be adjusted by exchanging the nozzles and regulating the throughput capacity. The concentrate flows off under gravity from the concentrate catcher. The product flows through the feed into the distributor of the bowl, is accelerated by vanes and passes through the rising channels into the disc stack where clarification takes place under the influence of centrifugal force. Special materials such as super austentite, super duplex, Inconel 625 are available. Erosion protection.

NOZZLE SEPARATORS FOR STRAINED YOGHURT, QUARK AND FRESH CHEESES

Whether quark, fresh cheese, labneh, skimmed milk yoghurt or Greek yoghurt – the demand on the global milk market is multi-faceted. As a major market player with decades of experience for these applications, GEA has designed both specific equipment and production processes such as the Thermo Quark process for the individual products and established them in practice. With our focus on the continued improvement and development of machines and process lines, we ensure that fresh cheese and yoghurt production is efficient,economical and sustainable.

The latest generation of GEA nozzle separators was designed especially for manufacturing fresh cheese products and their efficient and economic operation is convincing. The continuously operating centrifuges enable a repeatable product quality with minimized product losses, increased yield precise setting of the fresh cheese texture or the total solids percentage – and everything fully automatic and user-friendly!

A product's success is based firstly on its exceptional quality, here: a "natural" flavor and a creamy and smooth "mouthfeel". Compared to traditional manual and time-intensive methods, whey is today separated with the aid of GEA centrifuges at 10,000 times the force of gravity in order to obtain the desired product – with a quality and taste that equals the original in its full-bodied creaminess.

Customer benefits
Depending on the individual process, our centrifuges offer decisive advantages, for example compared with the membrane filtration process:

Constant flow rate
Constant product characteristics (e.g. with respect to texture or total solids)
Option of direct filling after concentration
Easy integration into existing process line
Quick and easy adaptation of total solids
Option of integration into an existing CIP line
Long operating times (minimum 16 hours) compared with alternative processes
No addition of stabilizers and powders required
Highly efficient and flexible production
GEA nozzle separators are used in the production of

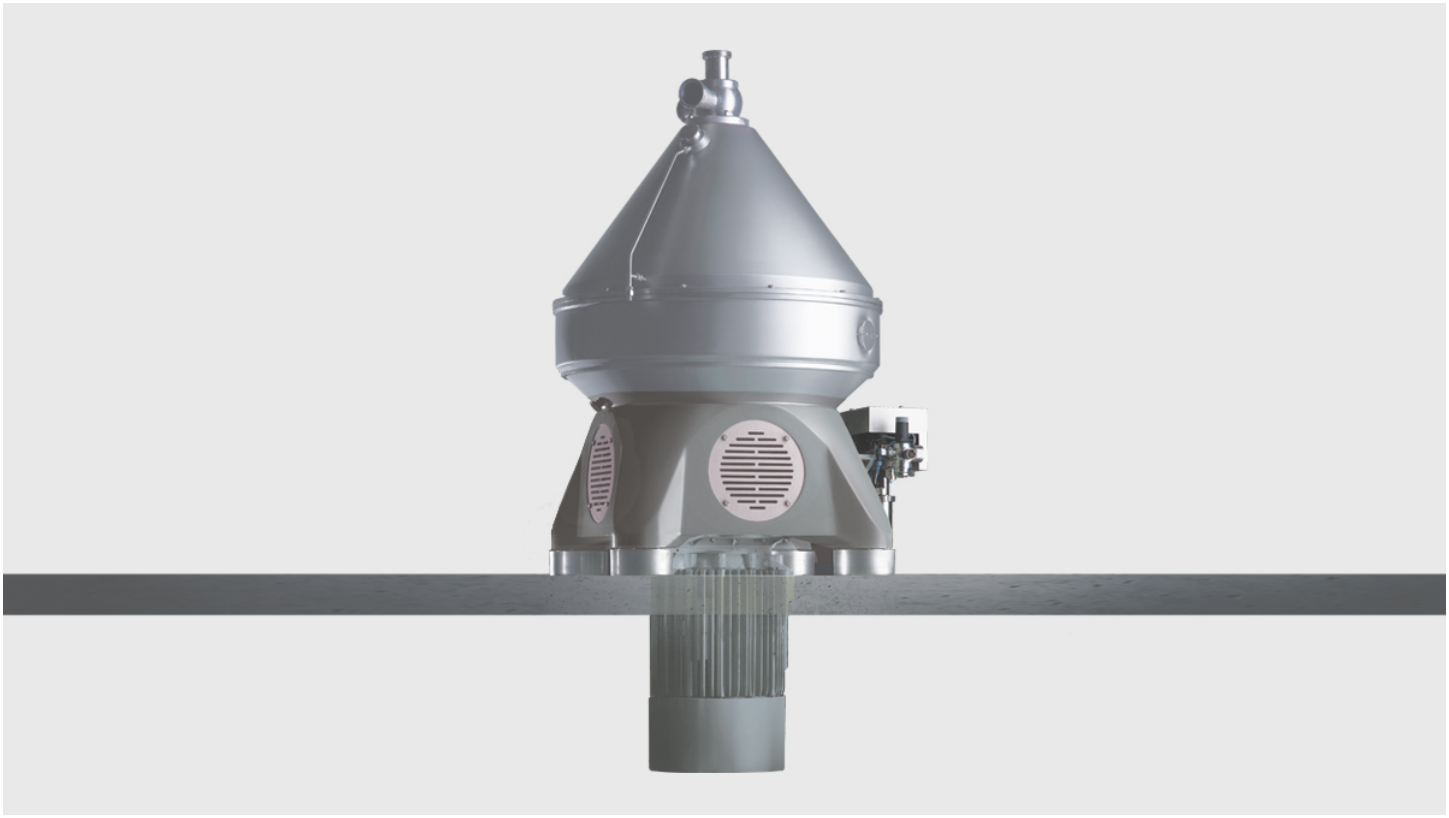
Quark (standard or Thermo Quark process, from buttermilk, from recombined milk)
Fresh cheese
Strained yoghurt (Labaneh)
Labneh
Greek yoghurt
Skyr

SEPARATORS FOR CHEMICALS AND MINERALS

Safety in the chemical, petrochemical and mineral industry requires a priority experienced in hardly any other branch of industry. Where concentrated acids, high pressures and inflammable or even explosive substances are part of everyday production, extremely stringent demands are posed on the separator design.

GEA separators successfully fulfill these challenges: from the bowl and all other components that come into contact with product right through to the smallest seal, everything has been consistently designed for this process. With liquid centripetal pumps for both phases, the separators meet the requirement for safely discharging on both phases under pressure. According to model, the location of the discharge drain hole is in the bottom of the bowl. This prevents the operator or service personnel from coming into contact with the extremely dangerous substances.

GEA separators are designed to resist concentrated acids, high pressures and inflammable or even explosive substances.



SEPARATORS FOR ANIMAL AND FISH BY-PRODUCTS

Rapid and clean processes, high yields and excellent product quality – our customers benefit in many ways with our machines and process lines in a very wide range of different applications.

Our separators used in the meat industry for dry and wet rendering separate even the smallest micro-residues from the fats and are thus able to recover pure fat in extremely high quality. GEA also supplies separators for the efficient production of blood plasma and blood meal, for the recovery of valuable protein hydrolyzate as well as for gelatin production. Abattoirs are also able to considerably boost their added value by means of processing flotation sludge.

GEA separators for the fish industry are installed downstream the decanter stage and remove extremely small remaining particles from the oil phase. Compliance with maximum purity standards as a result of the hygienic design of the complete process means that first-class fish oil in food quality can also be recovered.

If customers decide to use our separators, they benefit not only from fully automated processes. As a result of the stainless steel design of all components which come into contact with product and also as a result of automatic chemical cleaning, our process lines permit safe and sanitary production whilst complying with maximum hygiene standards. The innovative hydrostop system for highly concentrated solids discharge ensures minimum product losses in the separator stage.

Features & Benefits
Robust design for maximum reliability
Hydrohermetic feed for gentle product treatment
Optimized disk stack for top oil quality
Very large clarifying area for an optimum polishing of the protein-containing phase and thus very pure protein hydrolyzate
Food-grade design: hood, solids catcher and bowl parts made of stainless steel
Self-cleaning bowl makes for fully automatic cleaning-in-place (CIP)

CHAMBER BOWL SEPARATORS BLOOD PROCESSING

Fractionation by the Cohn process is executed by reliable, cooled chamber centrifuges. These separators operate in performance ranges from 300 to 1000 l / h. They have long become established world-wide and have proved their value in over 400 sold machines for human blood plasma fractionation. The compliance with a narrow temperature range of -3 to -6 °C is important for the process. In the clarifying separators this is achieved by cooling circuits.

SOLID-WALL BOWL SEPARATORS FOR MILK & WHEY

Standard scope of supply
Commissioning spare parts
Lubricants and gaskets for commissioning

Set of bowl top gaskets
Flat belt
Initial filling of lubrication oil
Special tools
Set of special tools for dismantling and assembling of the machine.

Optional
Base frame
Base frame, mild steel, varnished to be integrated in the floor structure.

Spare parts

Set of spare parts for discharge housing, hood and bowl
Set of spare parts for drive
Optional
Valves

Set of manual valves and indicating instruments for the adjustment of feed, skim milk discharge pressure and cream flow as well as the continuous standardizing of milk and cream fat content. Milk cleaning (complete re-blending) and full skimming are possible as well.

Control system
Manual motor starter

Capacity
Skimming: 600 l/h - 10,000 l/h
Standardizing: 600 l/h - 12,500 l/h

SOLID-WALL BOWL SEPARATORS FOR PHARMA EXTRACTION

GEA solid-wall disk-type separators are used primarily for separating liquid mixtures with no or with only minimal solid contents (less than < 0.1 % by vol.).

The separator is equipped with a solid-wall bowl. The product flows through the hydrohermetic feed, which minimizes the shearing forces for sensitive products, and is broken down into a light phase and a heavy phase in the disk stack. The separated components are discharged under pressure by means of the corresponding centripetal pumps through outlets. The use of a disk stack increases the equivalent clarification area S of the separator many times over compared with a centrifuge with the same volume which consists of a single chamber.

SOLID-WALL BOWL SEPARATORS FOR POWER PLANTS

During operation, the turbine lube oils are subject to continuous contamination. Fine metal particles from rotating or sliding parts as well as dust, condensate and decomposition products deposit in the lube oil sump. Furthermore, lube oils can be contaminated with acids, causing aging of the oil when reacting with impurities.

Besides removing the contaminants resulting from metal abrasion, it is also essential to completely separate out the water which has penetrated into the lube oil system to inhibit premature aging of the oil.

Purification and dewatering with centrifugal separators offers an efficient and economical solution for this application.

Key benefits:

Efficient separation of solid and liquid impurities
Substantial improvement in the useful life of the lube oil
Considerable savings in lube oil costs
Lower disposal costs
Low wear on the bearings
No undesirable stoppages

NOZZLE SEPARATORS FOR OIL & GAS

The system can be used on land-based installations or offshore fixed and floating production systems. All necessary components are mounted on the self-supporting frame. The skid and associated support structures are designed for single point lift and transport. The skid itself is provided with four lifting lugs to facilitate lifting. A carbon steel drip pan with drain connection is incorporated in the skid.

The complete system is tested in our test bay before delivery and therefore on-site assembly and commissioning work is reduced. Depending on the required flow rate and performance as well as for stand-by function a number of systems in parallel operation can be considered

Features & Benefits
Simple and compact design with automatic operation
Delivered as a compact, factory assembled and tested system
Suitable for installation in Ex-zones 1 or 2
Low operational weight
Control unit including motor starters and programmable logic control
Designed according to oil field standards
Capacity
Rated capacity up to 250 m3 / h / 37,700 BPD

NOZZLE SEPARATORS FOR STARCH RECOVERY

A high quality starch can only be obtained if the small fiber fragments, lipids, proteins and dissolved substances are washed out from the starch fraction efficiently. For this process steps GEA offers 2-phase and 3-phase nozzle separators, each available with either flat belt or direct drive.

Our nozzle separators are of course CIP-capable, on-top they are designed for maximum capacity, lowest energy consumption and maximum availability. The optional direct drive makes for higher capacities with the same energy input, lower noise level, smaller footprint as well as reduced service costs due to less parts and easy maintenance.

Furthermore, replacing a nozzle is only a matter of minutes as they are easily accessible and replaceable through a duct from the outside: a dismantling of the hood or the bowl is not necessary.

Features & Benefits
Excellent process water minimizing fresh water consumption
Continuous and stable feed to the HC unit for uncomplicated washing
Maximum performance with minimum maintenance
No starch quality loss because of closed feed and discharge (no oxidation of starch possible)
Low energy consumption because of modern drive concepts and special nozzle configuration
CIP cleaning at operating speed
No additional pumps for the liquid phase because of internal centripetal pump
Fast and easy maintenance due to excellent access to the nozzles
Extra advantages of separators with direct drive:
Higher capacity with same energy input
Reduced service costs (no gearbox, coupling replacement is direct and simple)
Noise level is comparably low
Motor or coupling failure cannot cause damage
No belt tensioning
Only very little space required due to small footprint
Capacity
Rated capacity feed: from 40 up to 500 m^3/h

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Low operational weight
Control unit including motor starters and programmable logic control
Designed according to oil field standards
Capacity
Rated capacity up to 250 m3 / h / 37,700 BPD

NOZZLE SEPARATORS FOR BAKER'S YEAST AND YEAST EXTRACT

GEA yeast separators – a century of constant innovation

In 1904, GEA developed the first yeast separator. Just one year later, in 1905, 20 yeast centrifuges, with a capacity of 125 l / h per machine, were delivered to the Bramsch yeast factory in Teplitz. When sliding bearings were replaced by ball bearings in 1921, the capacity of the machines increased rapidly. The first centripetal pump machine, namely the HD 50, enabled the clarified liquid to be discharged under pressure. This solution very much simplified the overall separation process. In 1983, GEA built the largest yeast separator in the world, namely the HDA 300, with a capacity of up to 260 m3 / h yeast wort.

Stable process conditions with viscon

In subsequent years greater emphasis has been placed on closed systems which were able to respond in a flexible manner to product fluctuations and which ensured a constantly high concentration of end product. Accordingly, 1990 saw the arrival of the viscon® system – separators featuring an automatic viscosity control facility (viscosity-controlled nozzles) for the yeast cream, which is discharged under pressure from the separator in a closed system. Nowadays, the research engineers in the field of separator development are working on the requirements of organisms such as yeast in the future. viscon® separators are designed in the form of a modular system. This means that machines can also be built in the form of sterilizable separators and can be used in the sterile environments of biotechnology for yeast applications.

HFx separator series with automatic flow control

The development of the viscosity controlled nozzles (viscon®) signalled the end of annoying adjustments to the separators' parameters in response to changes in the feed conditions, with the result that the solids concentration in the discharge is now constant. The HF series of nozzle separators represents state-of-the-art technology in the production of baker's yeast and yeast extract. Consisting of a swirl chamber and the downstream outlet nozzle, these special nozzles automatically modify the flow. If, for example, the concentration in the outlet is too low, the volumetric flow reduces and the concentration increases. If, on the other hand, the concentration is too high, the nozzle increases the volumetric flow, which correspondingly reduces the concentration.

Features & Benefits

Extensive selection of nozzle separators in varying sizes to cover any capacity required
Use of special viscon® nozzles ensures constant discharge concentration, even when feed conditions change
Avoidance of shearing forces thanks to hydrohermetic feed and the location of the discharge nozzles on the bowl top
Enclosed product handling as a result of the concentrate and the clarified phase being discharged by centripetal pump
All separators are completely CIP capable
Intelligent discharge systems ensure minimum product losses, high flexibility and precision in solids discharge
All separators are equipped as standard with low-maintenance flat belt drives. The larger separators can also be equipped with GEA's direct drive for

Higher capacity with same energy input
Smaller footprint
No belt tensioning thus less maintenance required

NOZZLE SEPARATORS FOR CHEMICALS AND MINERALS

GEA nozzle bowl separator for catalyst recovery, phosphoric acid, and many more.

GEA nozzle bowl separators with a disc-type bowl feature nozzles at the periphery through which the concentrate is discharged continuously. The separated solids (concentrate) are continuously discharged through nozzles into the concentrate catcher. The solids concentration depends on the throughput capacity, the feed concentration, the nozzle diameter and the bowl speed. The desired concentration can be adjusted by exchanging the nozzles and regulating the throughput capacity. The concentrate flows off under gravity from the concentrate catcher. The product flows through the feed into the distributor of the bowl, is accelerated by vanes and passes through the rising channels into the disc stack where clarification takes place under the influence of centrifugal force. Special materials such as super austentite, super duplex, Inconel 625 are available. Erosion protection.

GEA PHARMA SEPARATOR

Pharmaceutical processing made simple
With the introduction of its new pharma separator line pure, GEA offers to its pharma customers a new level of performance, flexibility of cleanability features and validation easiness.

Pharma processing reaches the next level of security.

Features and options of GEA pure
Options GEA pharma separator pure
The GEA promise
Making pharmaceutical processing as adaptable as possible to the individual cleanability requirements and the integration into the process lines of our customers as secure and as fast as possible. Automatic CIP, ASME BPE and many more are included or available as an option in the pure line.

Smooth handling: No turbulences, no splashes, no shear forces

Shear sensitive products, i.e. cells, are fed gently by the patented hydrohermetic inlet underneath the liquid level of the filled bowl and smoothly accelerated at the axis of rotation.

Optimized skid design for a perfect fit to your process

The GEA plug & produce pharma skids pure are perfectly designed for standard and customized requirements for maximum safety, maximum yield and a perfect fit to your process.

Full range of capacity

The pure nozzle skid is available in four different bowl sizes to fit to the capacity of your process.

SEPARATORS FOR POWER PLANTS

Power plants in extremely cold regions are exposed to fundamentally different environmental conditions than those installed in red hot desert regions. These adverse conditions are made even more difficult, depending on the region, by an immense difference in the quality of the fuels fed into the gas turbines or diesel engines of the power plants. But the goal is the same for both extremes: the energy must flow.Round-the-clock. With no exceptions.

Power plant concepts are required which work trouble-free, efficiently and environmentally friendly in all load ranges. The continuous treatment of fuel and lube oils for turbines and diesel engines is the key to reliable power supply.

The conceptual design of the treatment systems is precision work which is optimally adapted to the composition of the fuels and oils used. The separators, for example, separate trace elements from the fuels which can cause corrosion damage at high exhaust gas temperatures. The reliable fuel desalting and solids separation reduces the corrosion to a technically realizable minimum and ensures smooth operation. Water, abrasion and impurities can likewise negatively impact the life of the plant components. In severe cases, there is a risk of unscheduled downtime and high breakdown costs.

The treatment systems from GEA are designed to assure constantly high availability. In all these fields of application, the OSE separator generation is entering a new dimension.

Safety in focus:

Fuel oil treatment for diesel engines and gas turbines
Lube oil treatment
Treatment of oil-water-solids mixtures

Features & Benefits:

Hot separation
Highest g-force
Throughput capacities up to 80 m3 / h per separator
Maximum separating efficiency
Especially robust and durable
Highest economy throughout the entire life cycle
unitrolplus – sensor system for automatic monitoring and control
Reliable treatment of particularly heavy and severely contaminated fuels
Ideal also for unsupervised operation
Maximum operating reliability

SEPARATORS FOR BEVERAGES

This GEA separator was developed for de-oiling citrus juice and for separating citrus oil emulsions. It can be modified in design in numerous ways so that it can be adapted for various separation tasks. The product enters via the product feed through special rising channels in the disk stack of the separator bowl. The positions of the rising channels depends on the liquid component which is to be recovered in the cleanest condition. If for example in an oil-water mixture, this is the heavy component (water), the rising channels are close to the inner rims of the disks. For the light liquid component (oil) however, they are close to the disk periphery. If both components are to be obtained equally pure, the rising channels are in the middle of the disk stack. Separating efficiency and product quality can thus be perfectly customized. In this case both liquid phases are pressure discharged. For this purpose, a double centripetal pump is installed in the bowl top. Both paring disks are immerged in the separated liquid phases and discharge them under pressure. Solid particles sediment in the solids holding space of the bowl. This design allows 3-phase separation. With its self-cleaning bowl the machine is suitable for fully automatic CIP cleaning.

По вопросам продаж и поддержки обращайтесь:

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
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Смоленск (4812)29-41-54
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