



Instant Coffee

Maximum coffee enjoyment with separators and decanters
from GEA Westfalia Separator



GEA Westfalia Separator – Competent Partner of Instant Coffee Manufacturers

Growth enhancement due to innovative instant coffee beverages

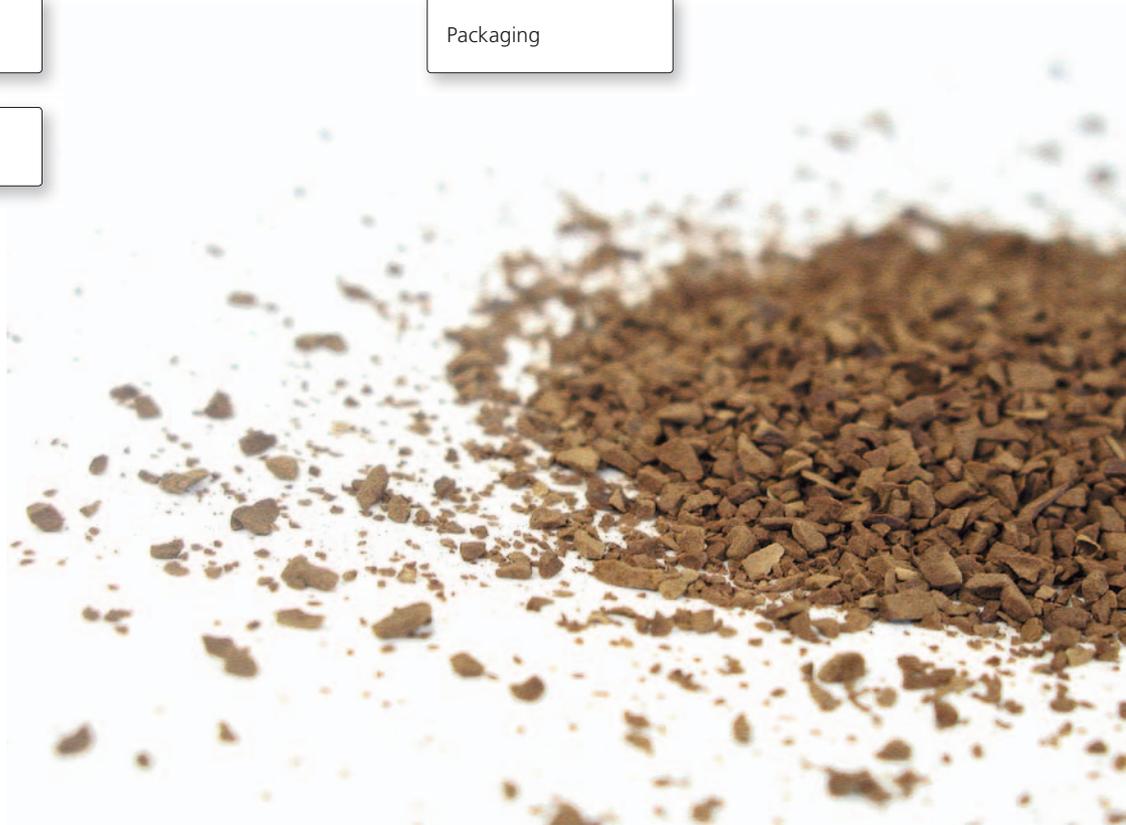
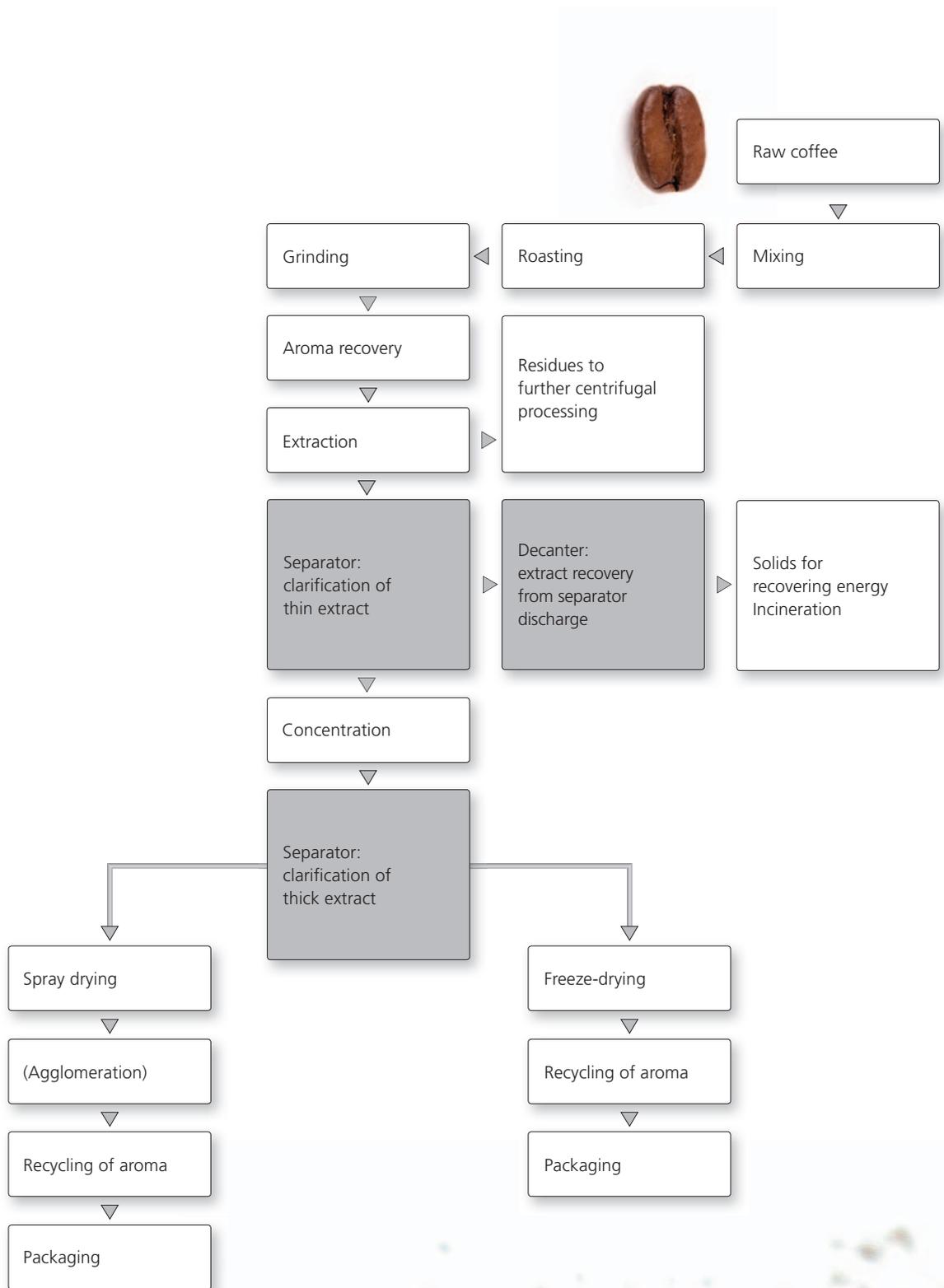
The fast world of modern society launched its appropriate beverage, instant coffee onto the market during the 1930's. Nowadays, the concept of convenience dominates consumer behaviour to an even greater extent than was the case at that time. The example of instant coffee demonstrates that centrifugal separation technology from GEA Westfalia Separator Group occupies an extremely important position in the production process. The growth enhancement of soluble coffee is mainly attributable to the flavoured specialties such as cappuccino, espresso, vanilla, chocolate or amaretto. The market momentum of these specialties is fascinating. The desire of the consumer for innovative taste experiences and change will enhance this trend.

Where such strong emphasis is placed on enjoyment, process technology that ensures gentle product treatment is extremely important.

Because decanters and separators from GEA Westfalia Separator Group simultaneously ensure the quality standard in a particularly effective manner, the company has become the partner of brands known throughout the world. Centrifugal separation technology supports the coffee industry in the process of separating the insoluble coffee bean components from the valuable coffee extract. At the same time, product purity is encouraged.

The areas of application for decanters and separators are summarized as follows.

- Clarification of thin extract
- Clarification of thick extract
- Clarification/ de-oiling of coffee press water
- Optimizing yields using decanters
- Cleaning with CIP solutions



Clarification of Coffee Thin and Thick Extracts for Maximum Coffee Enjoyment

Decanters and separators – Guarantees for maximum coffee yield

Instant coffees have now been on the market for many decades. The hot-soluble instant beverages enjoyed initial popularity in the first half of the 20th century. Following blending, whereby different coffee beans from different countries are mixed together, the beans are roasted and are then ground relatively coarsely, so that good penetration with hot water can be achieved in the downstream extraction columns. Extraction under pressure and temperatures of 190°C to 200°C result in comparatively higher yields than is the case with traditional coffee-making methods.

Clarifiers are then used for separating the insoluble components. This clarifying stage is not only responsible for ensuring that there are no sediments in the end product; it also increases the operating life of the downstream evaporator – which is the bottleneck in the entire instant coffee production process.

Further substances are precipitated while the so-called thin extract is being concentrated to 50–60 percent dry matter. These are also removed from the so-called thick extract with clarifiers by further clarification. After the second clarification stage, the thick extract is dried either by means of a spray drying solution with a counter-stream hot air arrangement, or in a more gentle and more complicated manner by freeze-drying

at -40°C. During the production of instant coffee, the aroma which is released is extracted and then added back to the finished product. This measure ensures that very aromatic instant coffee is produced.

Characteristic advantages of centrifugal separation technology:

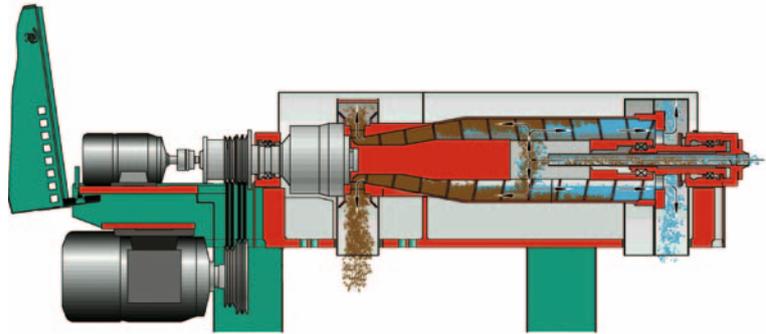
- High clarifying efficiency, i.e. the insoluble coffee bean particles are removed from the extract
- High reliability of the centrifuges
- Continuous clarification of the coffee extracts
- Reduced energy costs for drying the powder and granulate
- High yield
- More marketable product
- Minimum losses of coffee extract thanks to the
- GEA Westfalia Separator hydrostop bowl discharge system
- Optimum integration into existing CIP systems
- **Integration into automatic processes with programmable control**

GEA Westfalia Separator Group offers its customers support in terms of planning, installation and commissioning.





Decanters such as the CE 305 illustrated at this point handle a wide range of tasks in the production process. These include the recovery of coffee extract as well as the efficient processing of coffee press water.



Separators from the GSC and GSE series are used in the clarifying stages for thin and thick extract. They are characterized by unusually high clarifying efficiency, and can be easily and quickly integrated into existing production lines.



A close-up photograph of a silver spoon tilted to the left, pouring a stream of dark brown coffee powder. The powder is captured in mid-air, creating a blurred trail as it falls. The background is a plain, light color.

GEA Westfalia Separator hydrostop Enhances Operating Reliability

Clarifiers ensure high product quality and yield

In addition to excellent taste and aroma of the high quality instant coffee beverage, the appearance is also very important. This is why the instant coffee powder also has to be soluble without any sediments.

The insoluble and glutinous particles in the coffee extract are separated from the liquid in the disc stack of the separator bowl, and collect in the solids holding space. GEA Westfalia Separator Group supplies special clarifiers from the series GSC (GEA Westfalia Separator **hydry**®) and GSE (GEA Westfalia Separator **hyvol**®), to enable these solids to be completely discharged at intervals. The clarifiers are characterized by high-speed bowl discharge technology and a large clarification area. The special discharge requirements have meant that the “coffee extract clarifiers” are equipped with a special opening

system. These ensure a much longer bowl opening time during total ejections, and thus ensure that the glutinous and insoluble sediments are completely discharged. Subsequent flushing of the still open bowl achieves an optimum cleaning effect of the wall of the bowl. The combination of controlled and high-speed partial ejections and a total ejection can also be installed if such a solution is permitted by the product characteristics of the coffee extract.

Advantages at a glance:

Clarifiers GSC and GSE ensure:

- Optimum dry matter in the discharged solids in the case of partial ejections
- Higher clarifying efficiency
- High product yield



Coffee Press Water De-Oiling Maintains the Full Aroma

Coffee oil recovery for a broad aroma in the end product

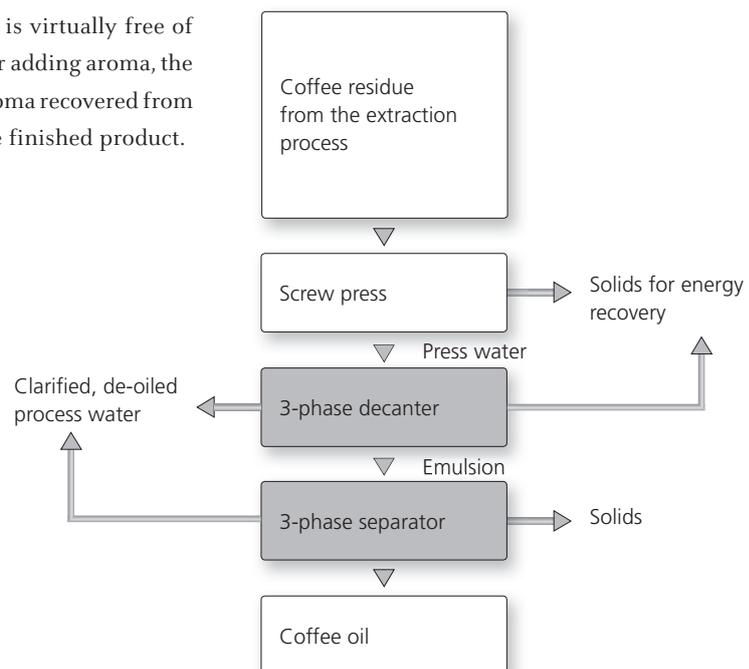
Whether we drink traditional soluble coffee or specialties such as cappuccino: the aroma is extremely important for the end product. In order to recover coffee oil which is used as the aroma medium, the residues from the extraction process are pressed and the so-called coffee press water which is released in this way is de-oiled using 3-phase decanters. After it has passed through the decanter, the press water is discharged without any press oil and insoluble solids. The oil phase is discharged from the decanter in the form of an emulsion, i.e. with a certain amount of process water. A 3-phase separator is used for separating the oil from the emulsion.

The coffee oil which is recovered is virtually free of water and insoluble sediments. For adding aroma, the coffee oil can be mixed with the aroma recovered from the process and added back to the finished product.

The 3-phase decanters are equipped with a patented 2-gear drive and guarantee high dry matter values in the separated solids.

3-phase decanters ensure:

- Coffee press water free from oil and solids
- Extremely dry solids
- Recovery of coffee oil free from press water and sediments

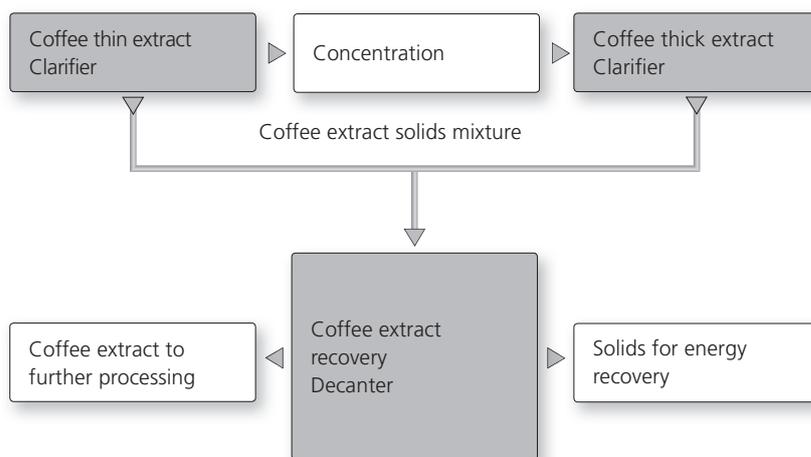


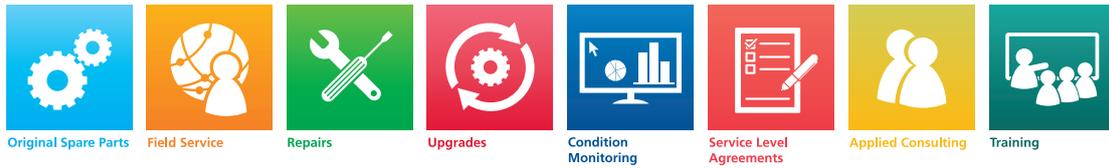
High Yield Due to Extract Recovery

Systematically optimizing value creation

To optimize the yield, the coffee extract-solids mixture recovered from the separators is fed to a decanter. This separates the coffee extract from the solids. The recovered coffee extract is recycled back into the process, and the very dry solids are used for energy recovery (incineration). Decanters for this application are equipped with the patented 2-gear drive, which ensures a high level of dry matter in the separated solids.

- Optimum value creation due to recovery of coffee extract
- High level of dry matter in the separated solids





Your Partner for Reliability, Budget Control and Efficiency

serv&care is the GEA Westfalia Separator Group service philosophy reflecting your needs and covering all common activities from the Business Area Service International and all service organizations in the subsidiaries of GEA Westfalia Separator Group.





This service philosophy should be understood as the overall common service understanding, supporting the values, vision, mission and strategy of the GEA and the Business Unit GEA Mechanical Separation.

The name serv&care combines two aspects of the modern service world

“serv” stands for service, meaning concrete actions to help in any way to maintain your equipment. Whether it is for Spare Parts supply, assistance using our excellent Field Service Engineers or our factory authorized comprehensive repairs, all are covering your requirements. The main values of these services are speed and quality. Our worldwide service network serves as a basis to allow us to fulfill your requirement. GEA Westfalia Separator Group offers on-time delivery of spare parts through our logistic hubs, local stock levels and a global network of highly trained and experienced Field Service Engineers and also having the specialized machinery in our Authorized Workshops for comprehensive and safe repairs that only we can provide. “care” stands for the driving force of our service organization to be an innovative and reliable partner. Together with you we strive to find optimum solutions that fulfill and exceed your expectations. We are not only servicing the equipment, we offer solutions that satisfy the central task to increase the reliability of your equipment, operates efficient processes and ensure that you meet your own corporate mandates for total quality.

Our motivation is to supply complete and timely support that is “one step ahead” of your support requirements. “care-thinking” is the basis of our self-understanding as the market leader and being recognized as your first choice service provider.

Customer benefit orientated service product solutions from GEA Westfalia Separator Group

Your maintenance needs and requirements can be drawn together from our comprehensive service portfolio. Every individual service plays a vital role in securing the reliability, cost control and efficiency of your centrifugal equipment.

The serv&care service products

- Spare Parts – for protecting your investments
- Field Service – always nearby waiting to assist you, 24 hours a day, 365 days a year
- Repairs – care, precision and responsibility from the manufacturer
- Rental Bowls/Exchange Parts – keep downtimes to a minimum
- Upgrades/Modernization – latest design parts and components engineered specifically for your machine
- Condition Monitoring – reliable information for optimizing the installation availability and avoiding unscheduled downtime
- Service Level Agreements – service packages for higher availability together with full budget certainty
- Customer Training – modern training approaches with the aim of dealing with your own practical situations
- Factory Rebuilt Machines – used separators and decanters in First-Class quality
- Applied Consulting – optimizing and adjusting operations with the latest technical knowledge

More information:
www.westfalia-separator.com/service/original-manufacturer-service.html





We live our values.

Excellence • Passion • Integrity • Responsibility • GEA-versity

GEA Group is a global engineering company with multi-billion euro sales and operations in more than 50 countries. Founded in 1881, the company is one of the largest providers of innovative equipment and process technology. GEA Group is listed in the STOXX® Europe 600 Index.

GEA Mechanical Equipment

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