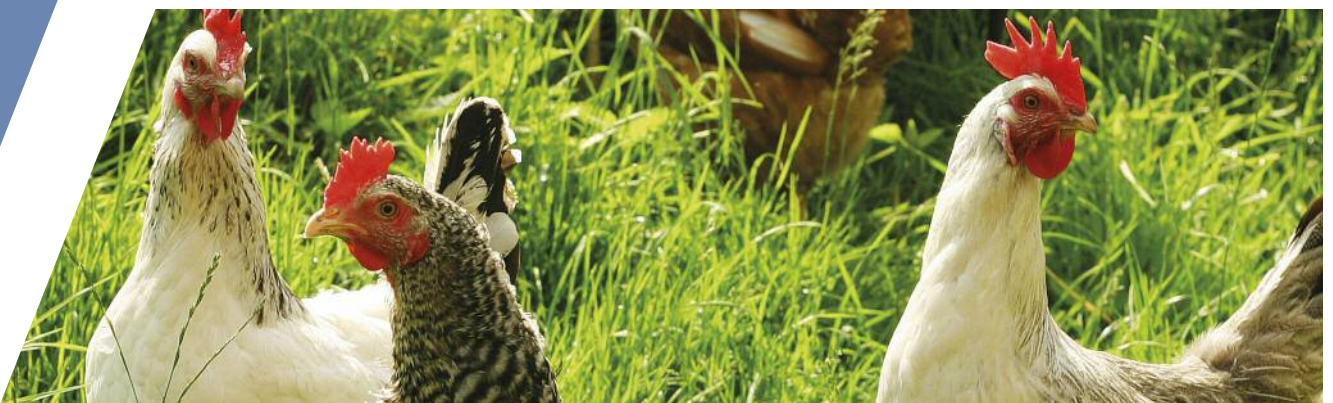




FLOTTWEG CENTRIFUGES
for Processing Slaughter By-Products



FLOTTWEG

Your Competent and Reliable Partner

Modern methods for processing slaughter by-products are characterized by the application of centrifugal clarification and separation technologies. Flottweg has been a world leading manufacturer of industrial centrifuges and a competent and reliable partner for the meat processing industry for many years. Compliance with legal requirements, perfectly hygienic processes and protection of the environment are for us a matter of course.

Flottweg Decanters, Tricanters® and Disk Stack Centrifuges are used in slaughterhouses for processing slaughter by-products intended for human consumption as well as in traditional animal carcass processing with all its different methods and treatments. Thus, Flottweg Centrifuges play an important role in animal by-product disposal and reutilization as well as in edible fat recovery. The machines are available in a large variety of different models from standard to full hygienic design.

QUALITY “MADE IN GERMANY”

Flottweg is ISO 9001 certified and manufactures its products in compliance with the latest technical standards.

Flottweg Centrifuges are used in

- fat melting plants for processing slaughter by-products suitable for use in food
- animal carcass processing plants for separating and clarifying fat
- plants for recycling used edible fats
- plants for processing leftover food
- tanneries for limed fleshings treatment
- waste water treatment plants for dewatering and thickening sewage sludge
- three-phase separation of flotation sludge



FLOTTWEG CENTRIFUGES FOR FAT RECOVERY

Highest Hygienic Standards and Excellent Quality

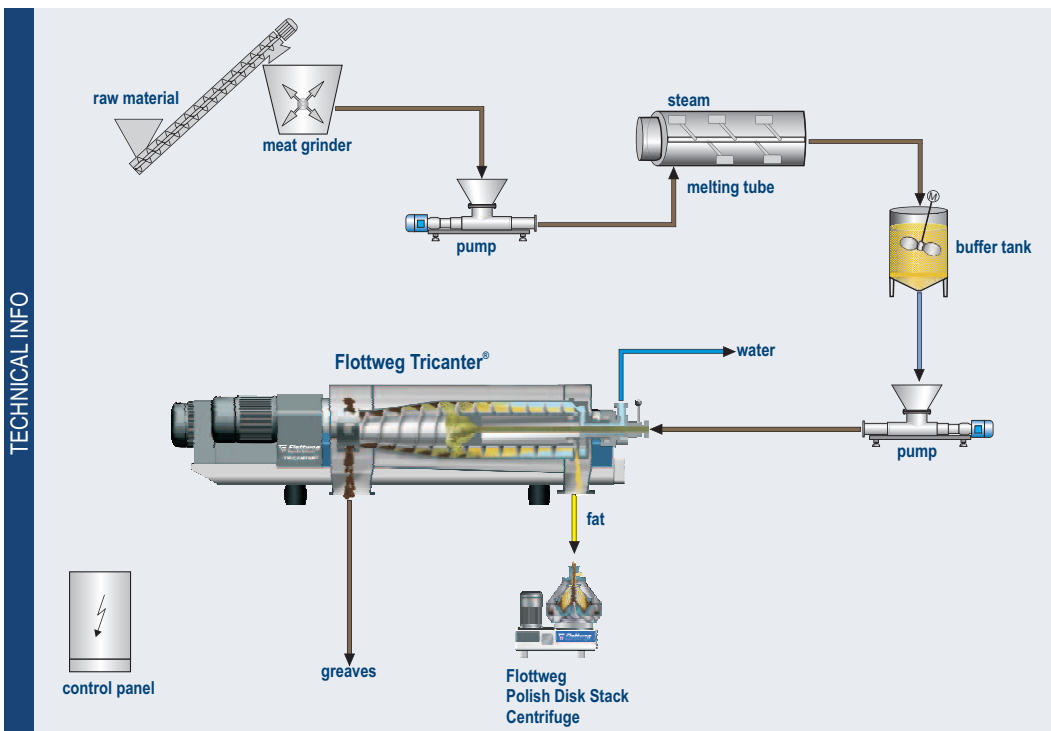
Fat melting plants process slaughter by-products such as rinds which are suitable for further use as food. Generally, there are two different processes when treating these by-products. After milling and heating the product, decanters are traditionally used in the first stage for separating

the greaves. In a second stage, disk stack centrifuges separate the liquid phase coming from the decanter into its components of fat, limed water, and solids. Usually, the fat phase is clarified afterwards with a second disk stack centrifuge.



Flottweg Tricanter®-System for low temperature application

Alternatively, there is the possibility to use a Flottweg Tricanter® instead of the decanter in the first stage. The biggest advantage of this method is the immediate, simultaneous separation of the two liquid phases. Fat and limed water are discharged separately from the machine – the fat phase via a free overflow, and the water phase under pressure using an adjustable impeller. Re-mixing the fat and water phase is thus impossible and the quantity of emulsions which have to be re-separated afterwards is minimized. Due to the variable impeller, the Flottweg Tricanter® can be adjusted at any time to varying feed conditions, always offering optimum separation efficiency. For separating the fat in a second stage the disk stack centrifuge may be smaller than for the traditional process. Normally, it is not necessary to further process the limed water.



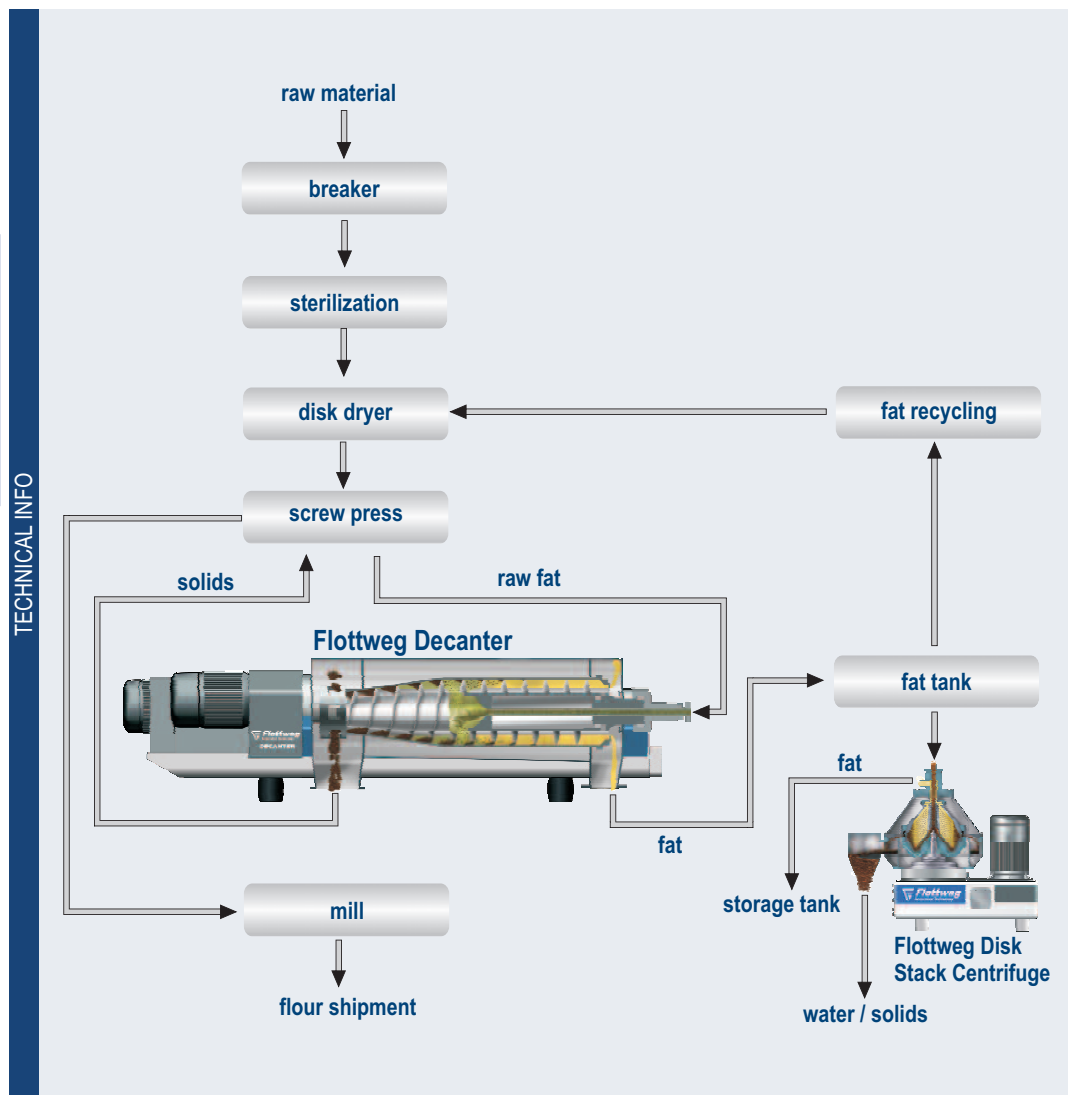
3-phase process for fat melting plants

EFFICIENT RECOVERY OF ANIMAL BY-PRODUCTS

Flottweg Centrifuges are used in different processes for the processing and disposal of animal carcasses and slaughter waste. Depending on the process, it is possible to process capacities between 0.5 – 27.5 US tons/hr*** (decanter) and/or 0.5 – 13.2 US tons/hr*** (disk stack centrifuge).

Flottweg Decanters are used in two-phase processes, while Flottweg Tricanter® are used in three-phase processes.

SOLIDS SEPARATION AFTER THE SCREW PRESS



2 phases (disk dryer)

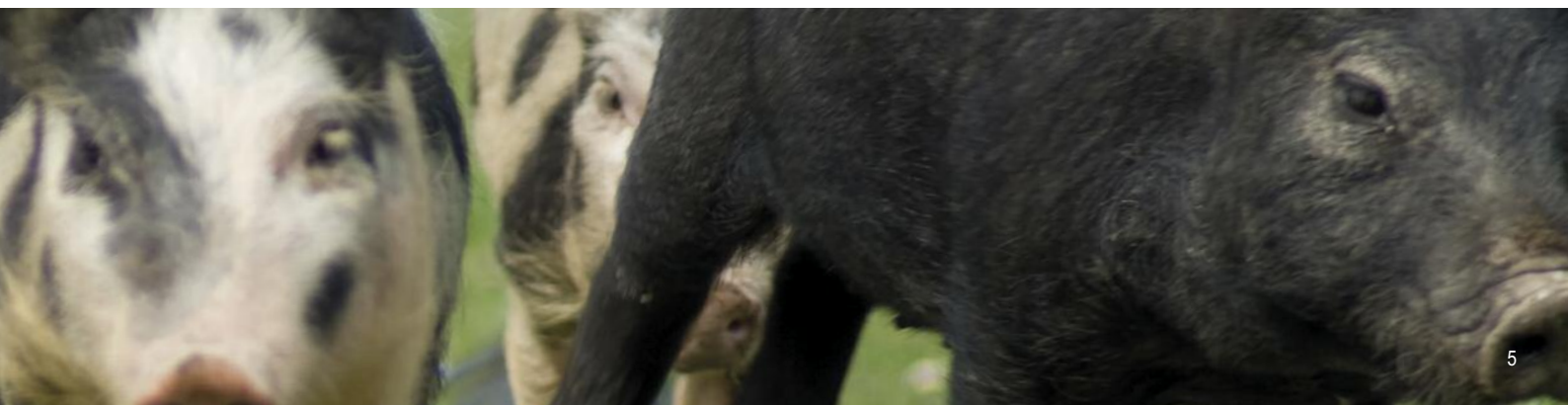
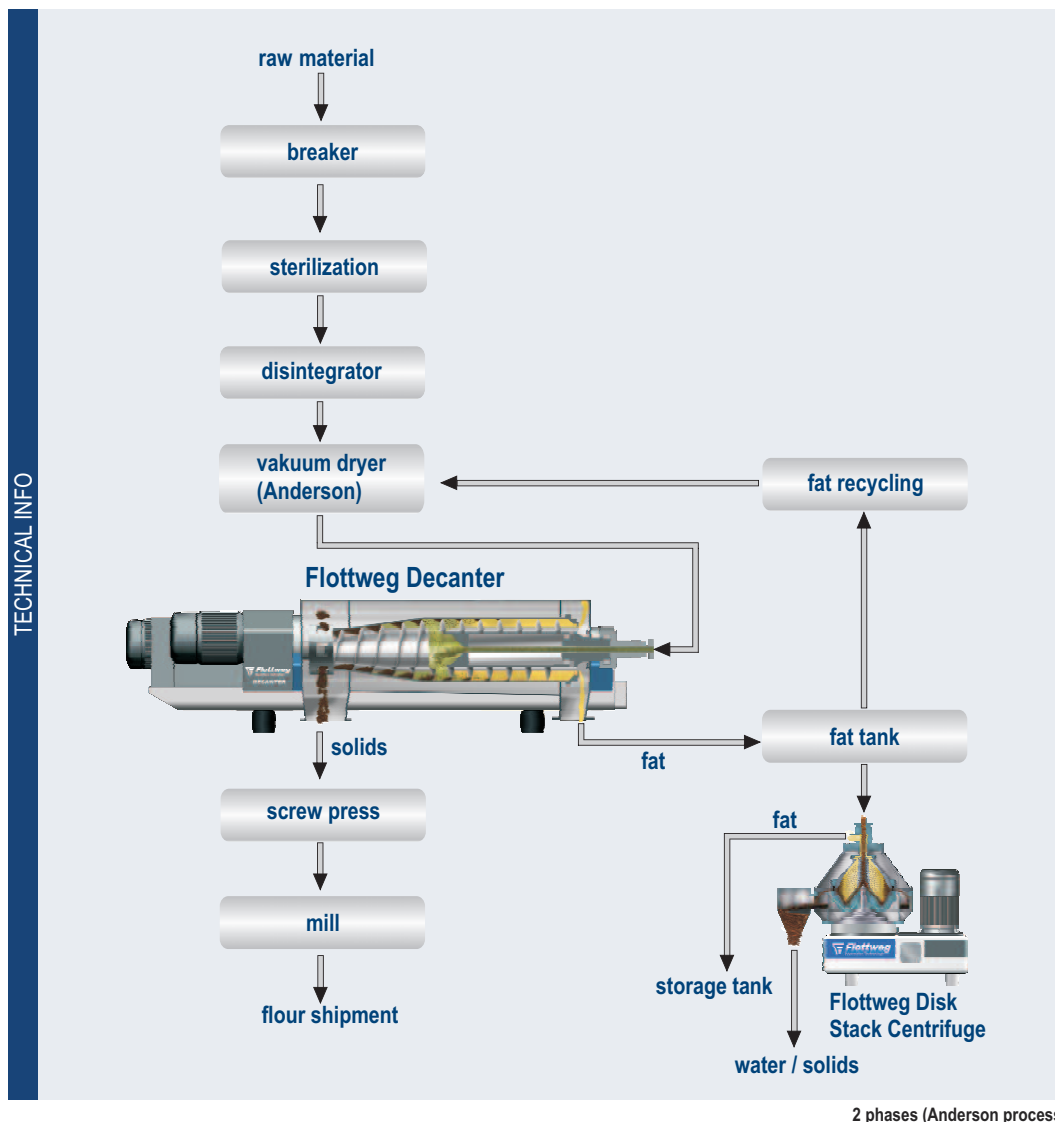
® = registered trademark for various countries / *** short tons (1t = 2.000 pounds or 907.2 kg)



There are basically two different processes: the one using a disk dryer (left side) and the one using vacuum drying (below).

Disk dryers are typically used in cases of low capacities while vacuum dryers are used for higher capacities.

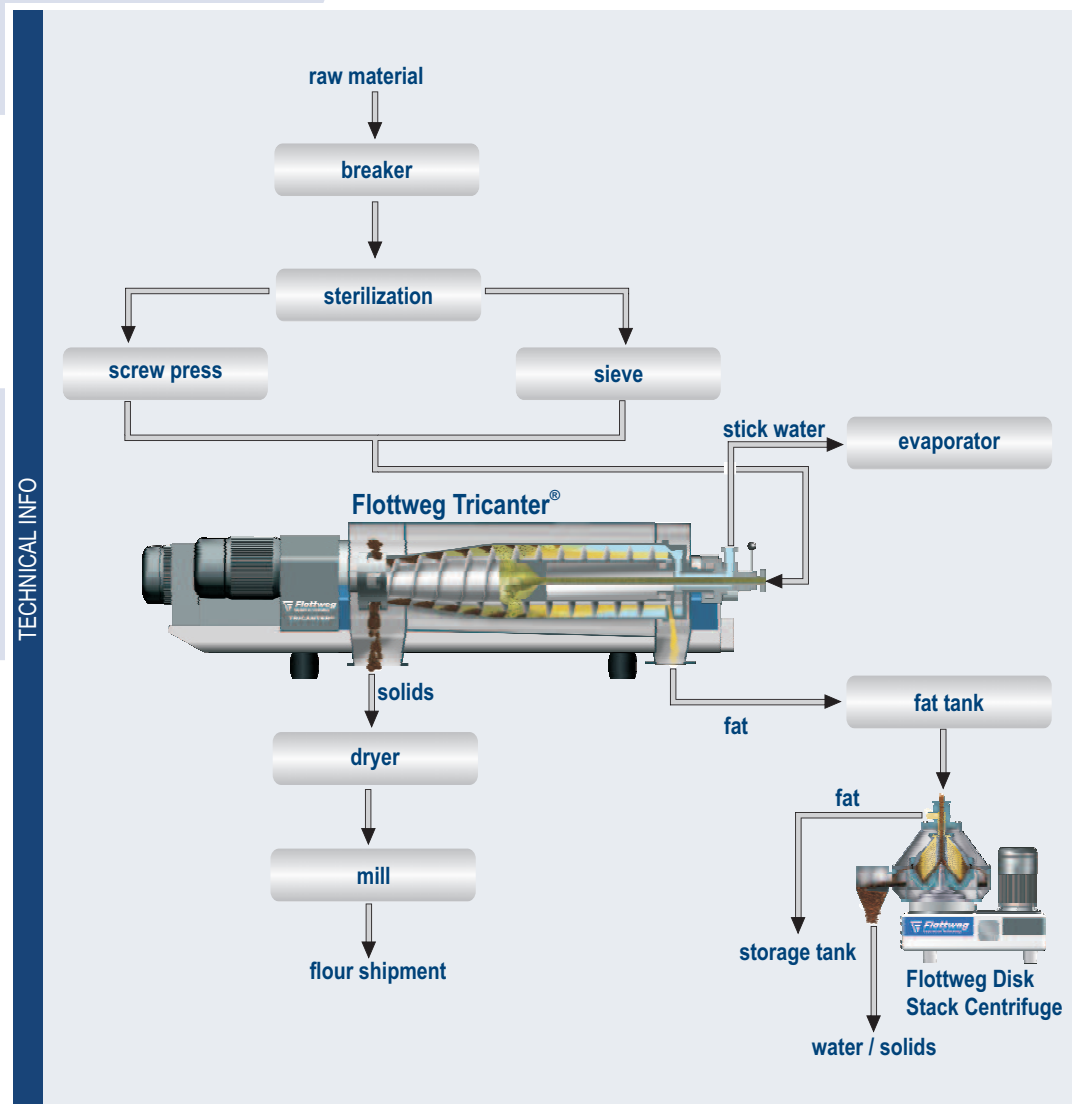
SOLIDS SEPARATION AFTER THE VACUUM DRYER



PROCESSING ANIMAL BY-PRODUCTS

3-Phase Process at High Temperatures

In contrast to the two-phase process, here the product is separated during the first stage before the individual streams are dried and/or evaporated.



3 phases (high temperature processing)



greaves



limed water

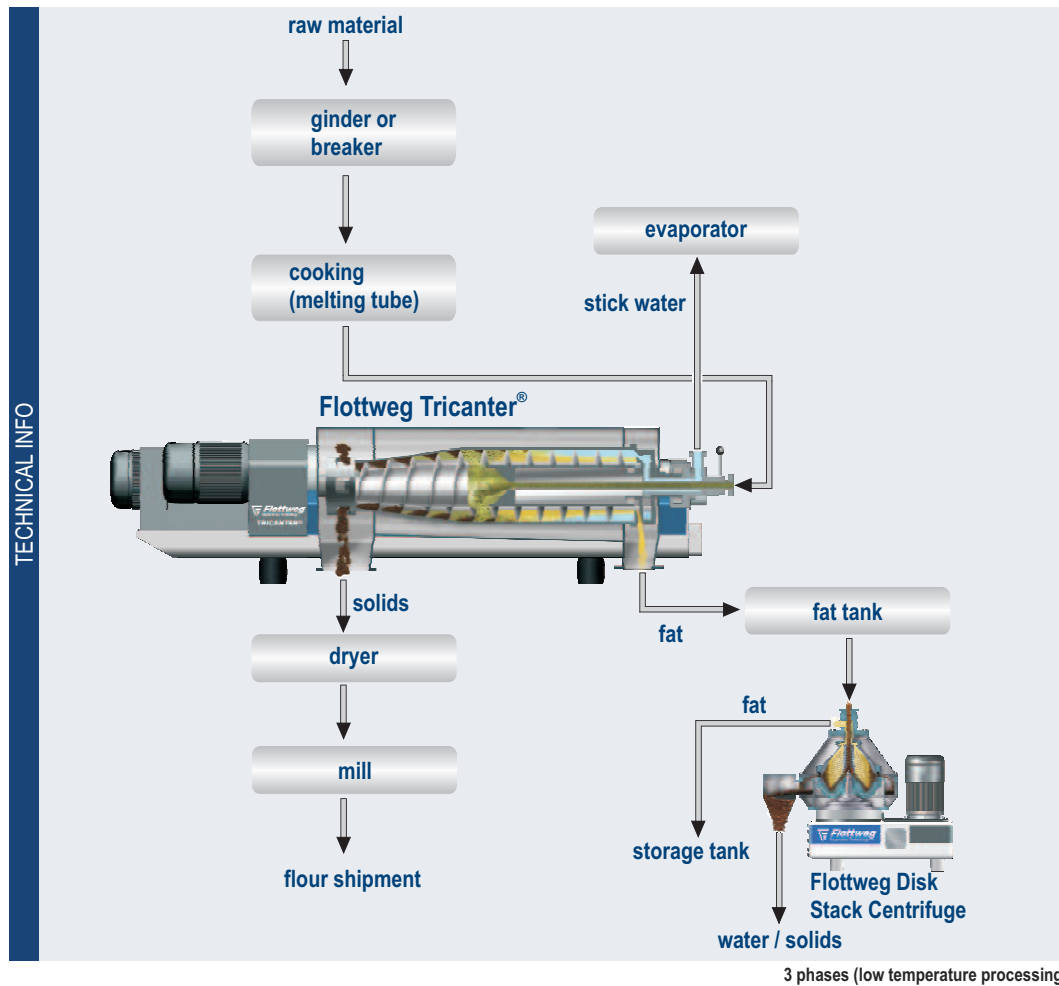


fat

3-Phase Process at Low Temperatures

The low-temperature method is mainly utilized when processing materials belonging to category 3 (slaughter waste from poultry), limed fleshings, or for the recovery of bone fat, but it is also used in small fat

melting plants. The process engineering for all of these applications is nearly identical.



Non-food applications for the Flottweg Tricanter®

- 3-phase separation after the screw press and/or screening
- Processing poultry slaughter waste
- Processing waste edible fats
- Processing other slaughter waste (category 3)
- Processing leftover food (The two-phase method is also an alternative)
- Treatment of limed fleshings generated in leather production
- Flotation sludge treatment



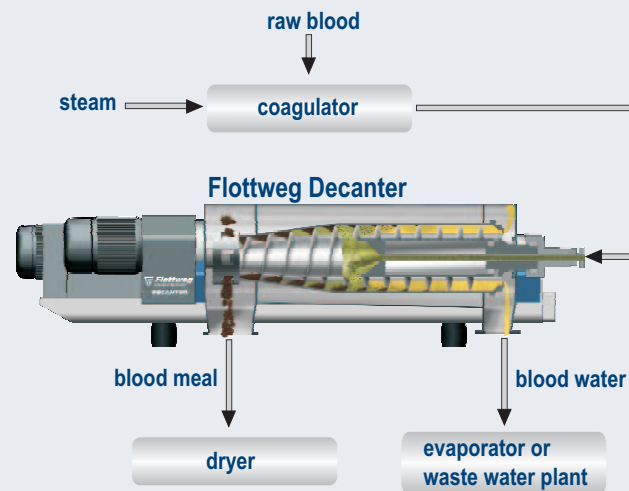
Picture shows leather production

DEWATERING COAGULATED ANIMAL BLOOD

Animal blood is an important product for the feed industry. Producing blood meal by processing animal blood can increase the profitability of slaughterhouses.

Flottweg Decanters with free overflow are used for dewatering coagulated animal blood. Due to a special scroll design it is possible to reach optimum cake dryness in the solids discharge and thus optimum separation efficiency.

TECHNICAL INFO



2 phases (coagulated animal blood)

Applications for Flottweg Decanters

- Fat cleaning after the screw press
- Solids separation after the vacuum dryer
- Fat clarification (using decanters or disk stack centrifuges by adding water)
- Dewatering of coagulated blood
- Dewatering of sludge from in-house sewage plants



FEATURES OF FLOTTWEG DECANTERS AND FLOTTWEG TRICANTERS®

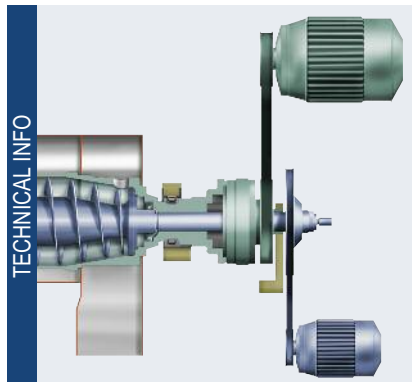
FLOTTWEG SIMP DRIVE®

The Flottweg Simp Drive® controls the differential speed in response to the scroll torque. Therefore, the decanter adapts itself to varying load conditions and dewateres the sludge to the point of maximum cake dryness. The Simp Drive® features a multi-stage planetary gear with special coupling, which allows for entirely independent drive capability of the bowl and the scroll.



Your benefits

- Low specific power consumption due to high efficiency
- Completely motoric drive system therefore no oversized drive motors
- No energy linkage via circuit coupling
- Uniform drive, constant torque
- Easy integration in process control systems
- Standard frequency inverters
- High flexibility when selecting the operating speed
- Ability to evacuate the bowl during standstill
- Most advantageous for use at low and medium differential speed



Torque-dependent differential speed control via Flottweg Simp Drive®

TECHNICAL DATA

	FLOTTWEG DECANTER	FLOTTWEG TRICANTER®
Bowl diameter	230 – 620 mm 9 – 24.4 inches	230 – 620 mm 9 – 24.4 inches
Maximum bowl speed	5500 rpm	5500 rpm
Differential speed*	1.5 – 30 rpm	1.5 – 30 rpm
Materials of construction	All product-wetted parts are made of high grade stainless steel	
Maximum drive motor	60 hp (45 kW)	60 hp (45 kW)
Maximum scroll motor	30 hp (22 kW)	30 hp (22 kW)
Maximum capacity**	27.5 US tons/hr*** (25 t/h****)	22 US tons/hr (20 t/h)

* adapted to the prevailing conditions, automatic control dependent upon torque

** to be regarded as guideline, capacity depends on the process and the raw material

*** short tons (1t = 2.000 pounds or 907.2 kg)

**** metric tons (1t = 1.000 kg)



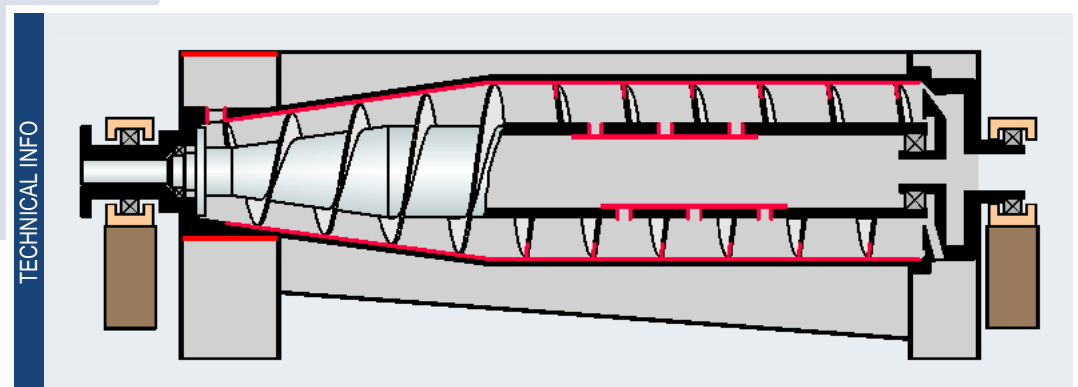
ADVANTAGES OF FLOTTWEG DECANTERS AND FLOTTWEG TRICANTERS®

Wear protection

Flottweg offers a wide range of wear protection to meet the requirements of the many different applications in which centrifuges are installed:

- Welded hard facing or spray coating
- Ceramic
- Tungsten carbide tiles, brazed or bolted
- Chill castings
- Plastic liners

In order to minimize maintenance costs for applications involving highly abrasive products, all wear protection elements, except welded hard facings or spray coatings, are field-replaceable.



Red coloured sections = exchangeable wear protection devices

The picture shows an exchangeable bushing made of hard metal

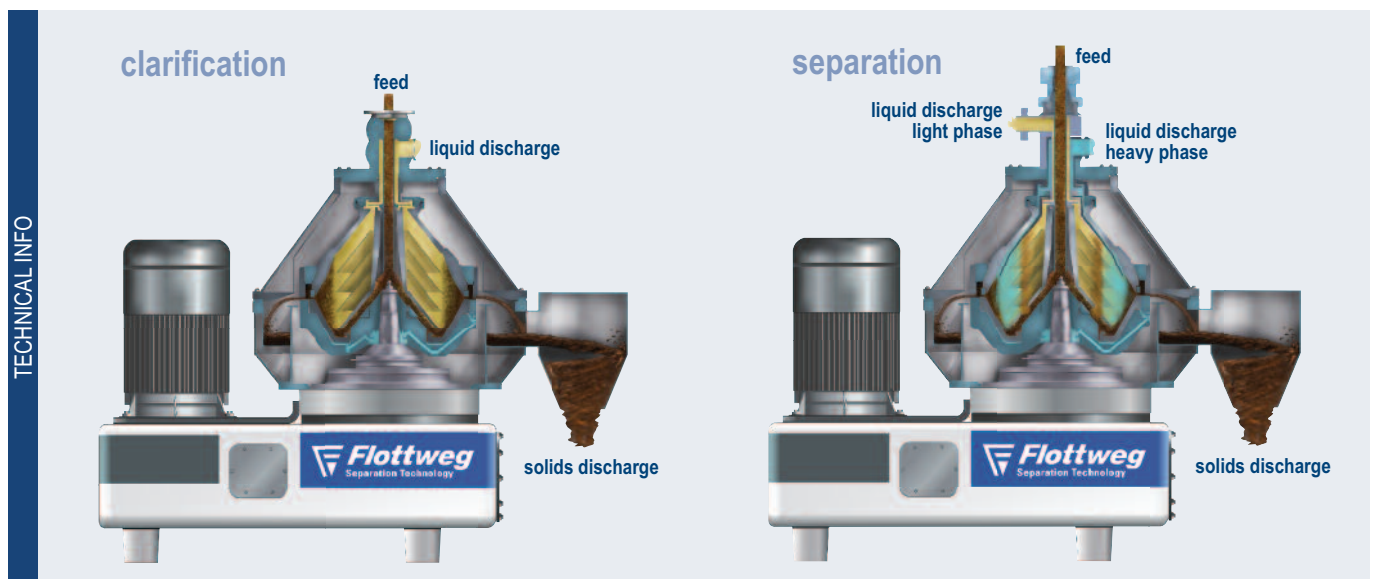


FLOTTWEG DISK STACK CENTRIFUGES

Flottweg Disk Stack Centrifuges of the AC series are used as clarifiers as well as separators for processing animal fats. Clarifiers clean fat by separating the finest solid impurities such as protein from fat. Separators separate 3-phase suspensions into its components such as fat, limed water and solid impurities. The most appropriate size or model depends on the process.

Applications in the meat processing industry

- Separation of fat and limed water
- Fat cleaning
- Fine clarification of fat



Flottweg Disk Stack Clarifier for the separation of solids from liquids

Flottweg Disk Stack Centrifuge for the separation of two immiscible liquids and simultaneous solids separation

TECHNICAL DATA

FLOTTWEG DISK STACK CENTRIFUGES	
Bowl volume	4 – 58 liters 1 – 15 gallons
Maximum bowl speed	9300 rpm
Maximum drive motor	75 hp (55 kW)
Maximum capacity**	13.2 US tons/hr*** (12 t/h****)

** to be regarded as guideline, capacity depends on the process and the raw material

*** short tons (1t = 2.000 pounds or 907.2 kg)

**** metric tons (1t = 1.000 kg)



Picture shows the bowl of the disk stack centrifuge



Flottweg Separation Technology – Engineered For Your Success



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