



CROWN
MACHINERY



New Innovation Technology for Edible Animal Fat
recovery from Crown Machinery



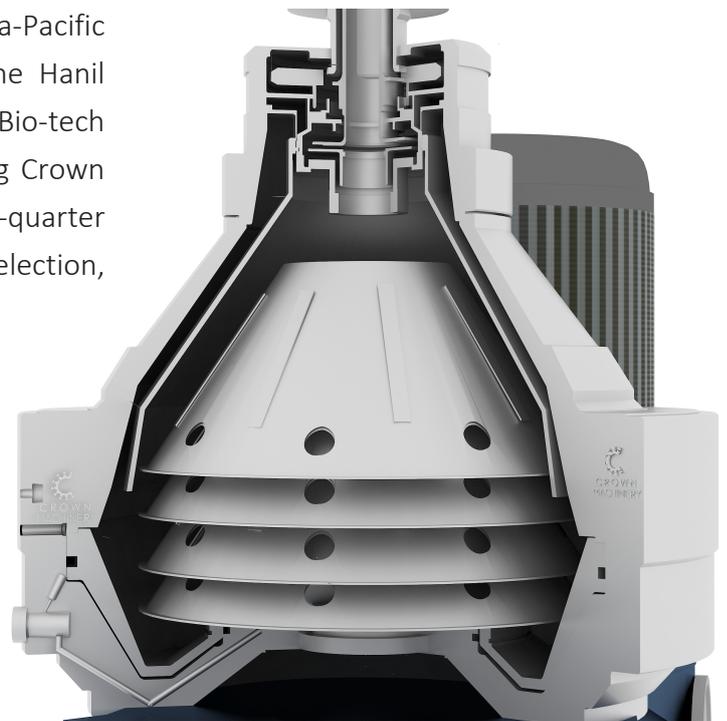
Crown Machinery Enterprise Introduction

Crown Machinery Inc. is a modern innovative high-tech centrifuge R&D and manufacture enterprise with four main branches in global work located in USA , South Korea, Philippine and China. Adhering to the concept of quality is the enterprise life, innovation is the driving force for the development, Conform to the trend of the development of modern industry , Fusion concept of global economic integration, Creative thinking, Integrate liquid separation processing industry leading enterprise in the upstream and downstream resources; Gather technical force; Together with the power of the global enterprise for business purposes; Dedicated to supply the clients complete separation solution.

Our company assemble a number of skillful, talented professionals, introduction advanced of international centrifuge technology with 30 years experiences of the development and design, through adopting international advanced management method, we have developed very professional separator and centrifuge for edible oil , pharmaceutical , chemical , waste project and various liquid industry. Until now we have accumulated more than 500 clients in global world market and get wide good feedback for our products and service, as our enterprise name "Crown Machinery" described we would like to supply the products like the crown quality and service.

Nowadays, our USA branch mainly forwards the waste-water market; Manila branch mainly prompts the coconut products machinery in Asia-Pacific market; Our Korean branch also named the Hanil Science Medical Co.,Ltd. is focusing on the Bio-tech and Bio-pharmaceutical market; And Liaoyang Crown Machinery Co.,Ltd. in China works as the head-quarter of four branches to serve the machinery selection, sale, technology support and after-service job.

Up to now, we have successfully introduced many clients' final products such as coconut oil into Chinese market to achieve a mutually beneficial win-win situation. We do hope serving the client not only the products but also the wonderful experience to cooperate with us.



Welcome to contact and visit us.



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Edible Animal Fat Centrifuge

Animals are slaughtered to produce their by-products which can be well utilized for various applications in day to day human life, thus, contributing to the value of animals.

Modern methods for the processing of raw animal fats are characterized by the wide application of centrifugal clarification and separation techniques.

In order to guarantee optimum yields and a high quality of the produced raw fat, we have been putting a lot of energy to innovate our equipment especially the essential components of all fat rendering systems, which are adapted by our process engineers to individual customer requirements and the specific raw materials used. At the same time, we place the highest demands on efficiency and quality.

The main animal fat which we have been dealt with is tallow, lard, lanolin, chicken fat and etc. Dairy products also yield popular animal fat and oil products such as cheese and butter.



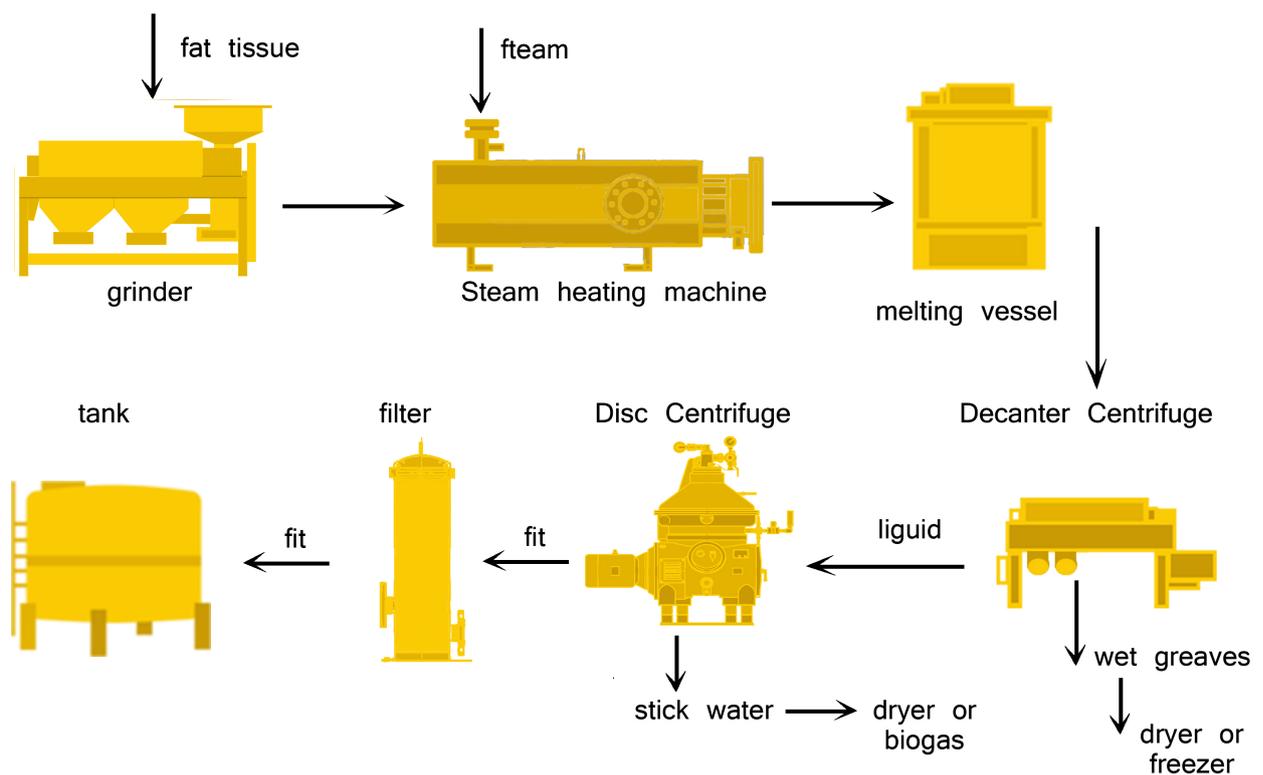


Processing of Fats

Fats are produced by a variety of processes, generally referred to as rendering. Fatty tissues from both beef and pork are composed of essentially three components, viz. water, protein and fat.

The purpose of any rendering system to obtain as complete a separation as feasible of these materials. In most cases, the fatty tissues are cooked and the fat is released by temperature and cell rupture. In advanced process, the temperature is kept low and the fat is released principally through mechanical rupture of the cells.

Process of low-temperature wet rendering





Decanter Centrifuge General Description

Based on the more 30 years separator technics experience, we have developed and advanced the previous centrifuge and separator .

When separator operation is no longer feasible due to high proportions of solids in the suspension to be processed, decanter centrifuge is used, a horizontal, solids-oriented, solid-wall scroll centrifuges.

The solid bowl decanter centrifuge consists of two horizontal concentric rotating elements contained in a stationary casing. The outer rotating bowl element is tapered so that the solids discharge from a smaller radius than the liquor. The inner element is a hollow hub screw conveyor with blade tips shaped to fit closely to the contour of the bowl.

Advantage and Benefits to Choice Decanter Centrifuge

- ✓ Low Cake Moisture
- ✓ Compact design and requires
- ✓ low space Low operation cost
- ✓ High dewatering and filtration
- ✓ Capacity Low required space

Decanter Centrifuge Main Parameter

| Model | HDC/S 300 x 1350 | HDC/S 355 x 1600 | HDC/S 450 x 1800 | HDC/S 520 x 2200 | HDC/S 650 x 2600 |
|----------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Bowl Dia. (mm) | 300 | 350 | 450 | 520 | 650 |
| Through-put Capacity (L/H) | 1000-3000 | 3000-5000 | 50000-100000 | 100000-200000 | 200000-500000 |
| Bowl Length Dia.(mm) | 1350 | 1600 | 1800 | 2200 | 2600 |
| L&D Ratio | 1:4.5 | 1:4.5 | 1:4.0 | 1:4.2 | 1:4.0 |
| Bowl Speed (r/min) | 4200 | 3800 | 3200 | 3000 | 2800 |
| Separation Factor | 3000G | 2868G | 2575G | 2620G | 2850G |
| Screw Differential (r/min) | 5-30 Stepless Adjustable | 2-20 Stepless Adjustable | 4-28 Stepless Adjustable | 5-25 Stepless Adjustable | 5-25 Stepless Adjustable |
| Motor (kw) | Main Motor11 Vice4 | Main Motor15 Vice7.5 | Main Motor30 Vice11 | Main Motor45 Vice15 | Main Motor75 Vice22 |
| Noise db(A) | ≤85 | ≤85 | ≤85 | ≤85 | ≤85 |

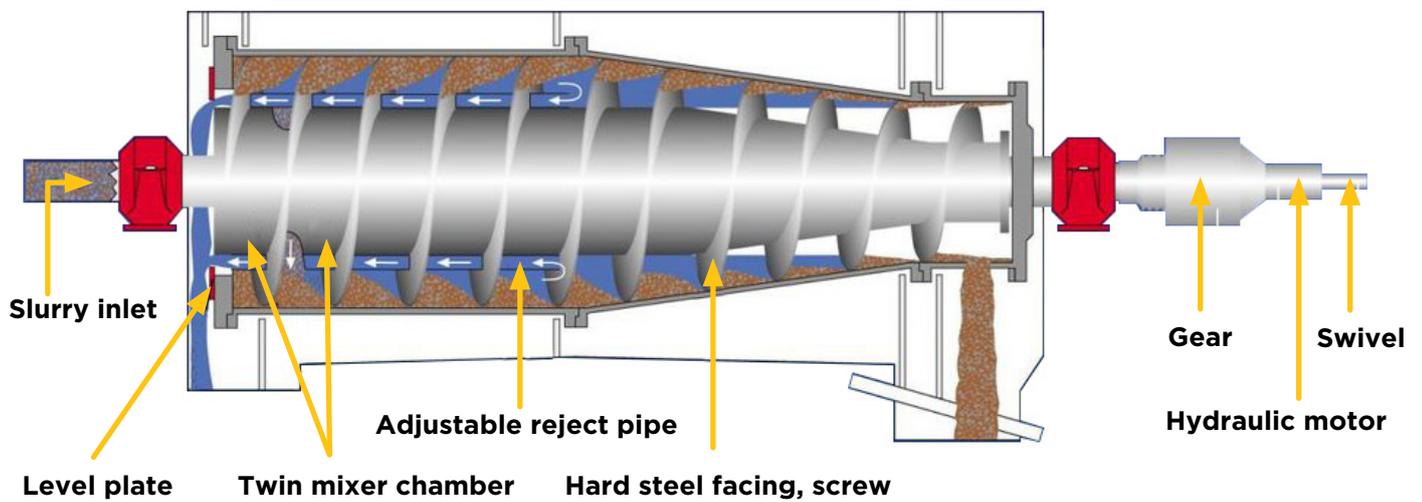
*Actual production capacity base on the raw materials.





Decanter Centrifuge Separation Principle

1. Feed slurry is introduced into the conveyor hub. As the feed accelerates to the machine speed, the slurry is delivered by centrifugal force into the rotating bowl by way of ports in the conveyor hub.
2. The solids settle through the liquid pool formed on the wall of the bowl. The solids are then conveyed, due to a slight differential between the screw conveyor and bowl, up the drying beach to the solids discharge ports.
3. The clarified liquors are discharge in the opposite direction from adjustable overflow ports.





Centrifuge Machine Standard Design

The machine has a main frame that consist a horizontal drive shaft with clutch and brake, worm gear, lubricating oil bath and vertical bowl spindle in the lower position.

The bowl is mounted on top of the spindle, fixed by the upper parts, the gasket, the collecting parts, and frame hood. The material feed into the bowl, by the effects of centrifugal force the liquid phase pumped out of machine through outlet pipe, meanwhile the solid phase adhere on the bowl wall, then were discharged automatically by operation water. The electric motor is of the variable frequency drive type or of controlled-torque type. All parts in contact with material are made of stainless steel.

Basic Equipment

Concentrator or purifier parts, inlet and outlet devices, revolution counter, set of erosion-protective parts, illuminated sight glass for liquid phase outlet, vibration sensor, vibration-isolating base plate, flange motor, set of tools and set of standard spare parts.

Optional Extras

Electric cabinet, frequency converter, discharge control panel, standard set of fittings, set of CIP valves and fittings and serviceability package for on-line viewing of separator status



Material Data

Bowl body, hood and locking ring S.S304 Solids cover and frame hood S.S304 Frame bottom parts green casting iron Inlet and outlet parts S.S304 Gasket and O-ring Nitrile rubber

Disc Centrifuge Main Parameter

| Model | Bowl Speed (rpm) | Through-put Capacity (L/H) | Running Load (kw) | Dimensions (mm) | | |
|-------|------------------|----------------------------|-------------------|-----------------|---------------|--------|
| | | | | Width | Front-to-Back | Height |
| 300 | 7302 | 300-500 | 4 | 950 | 950 | 1250 |
| 400 | 7070 | 1000-2000 | 7.5 | 1555 | 1130 | 1640 |
| 480 | 6600 | 3000 | 15 | 1780 | 1500 | 1900 |
| 500 | 6600 | 5000 | 18.5 | 1780 | 1500 | 1900 |
| 550 | 6000 | 10000 | 22 | 1800 | 1850 | 1900 |

*Actual production capacity base on the raw materials.



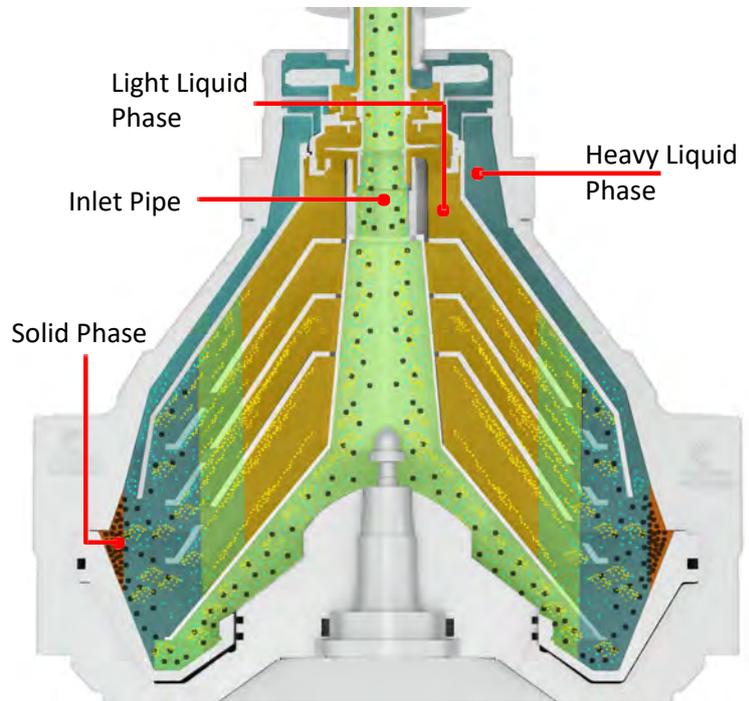


DGS series Disc Centrifuge Operating Principle

Whole separation process of a disc centrifuge accomplished through a rotating bowl, which is mounted on the top of the vertical axis driven by the motor at high-speed rotation. The bowl consist a paring of discs that are nestled together, and a small space between the disc.

Emulsion is added by a inlet pipe located in the center of the bowl. When the emulsion flows through the gap between the discs, the liquid phase of emulsion layered under the centrifugal force and form on the surface of the disc, then light liquid phase flow upward through disc, and heavy liquid phase upward flows close to the wall of bowl, and the separated liquids discharge from the outlet pipe. The solids particles automatically discharge for each batches.

* An emulsion is a mixture of two or more liquids that are immiscible indeed, possible with a certain amount of solid particles

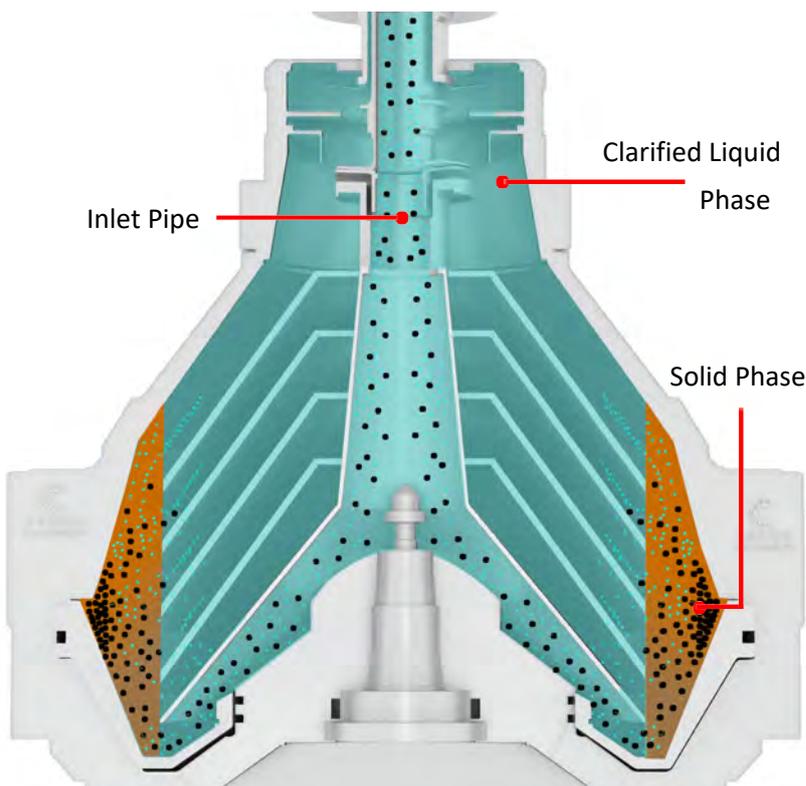


DGC series Disc Centrifuge Operating Principle

Whole separation process of a disc centrifuge accomplished through a rotating bowl, which is mounted on the top of the vertical axis driven by the motor at high-speed rotation. The bowl consist a paring of discs that are nestled together, and a small space between the disc.

Suspension is added by a inlet pipe located in the center of the bowl. When the suspension flows through the gap between the discs, the solid particles settle under the centrifugal force on the disc to form a sediment, then it slides out of the disc surface and accumulates in the largest diameter of the bowl, and the separated liquid discharges from the outlet of bowl. The solids phase will automatically discharged for batches.

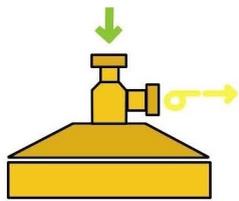
* A suspension is a heterogeneous mixture containing solid particles that are sufficiently large for sedimentation.





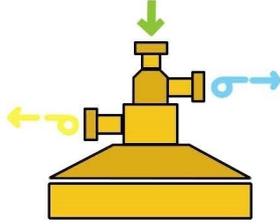
Liquid Feeding/Discharging Configuration

DGC series
One liquid Phase



- Feeding Material
- Liquid Phase
- ↻ Flow with Pressure

DGS series
Two liquid Phase



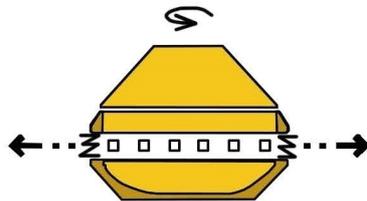
- Feeding Material
- Light Phase
- Heavy Phase
- ↻ Flow with Pressure
- ↻ Flow with Pressure

Discharging Method



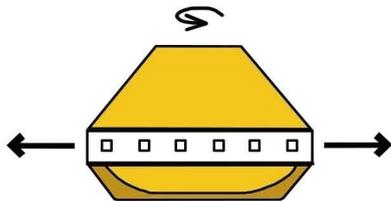
Manual Discharging

Shut down and open the bowl, manually remove the inside sediment by labor.



Automatic Discharging

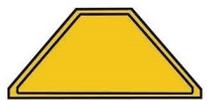
Through Intermittent open lower parts of the bowl, sludge discharged automatically.



Continuous Discharging

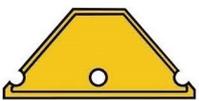
Sludge discharging achieve by the nozzles around the pericline.

Disc Separation



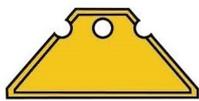
Clarification

Separate the solid particles from the liquid



Separation

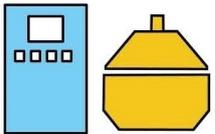
Separate a heavy liquid phase from major light liquid phase, meanwhile the suspended solid particles be separated as well. Maximum level of purified the light liquid phase.



Concentration

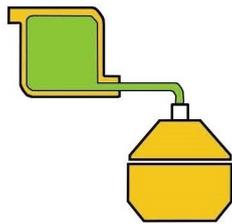
Separate a light liquid phase from major heavy liquid phase, meanwhile the suspended solid particles be separated as well. Maximum level of purified the heavy liquid phase.

Optional Components and Systems



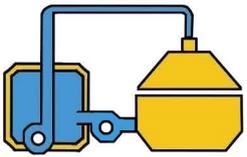
Electric Cabinet

Monitoring and adjustment of power, parameters setting and safety devices.



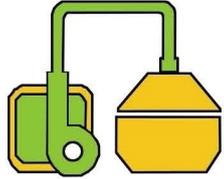
Gravity Feeding System

Ensure the material continuous and stable feeding to centrifuge.



CIP Cleaning System

Control the system clean the separation components automatically.



Feeding Pump

Ensure the flow of material to the centrifuge is stable and adjusted automatically.



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