



**MAXIMIZE YOUR PROFIT WITH FLOTTWEG**  
Innovative Solid/Liquid Separation  
for the Production of Vegetable Milk Alternatives



# MAKE INVESTMENTS TO INCREASE YOUR PROFIT

## Key Technologies for the Production of Soy and Grain Milk

More and more people appreciate vegetable milk alternatives. Not only for ecological but also for health reasons (lactose intolerance, vegan diet, etc.), an increasing number of consumers are choosing this healthy alternative.

Producers of these products have to adapt flexibly to consumer demands. Industrial centrifuges like decanters and disk stack centrifuges as well as belt presses play an important role in the industrial production of milk alternatives, e.g. from grains or soy. Efficient solid-liquid separation

not only helps increase yields significantly but also improve the quality of the final product.

Whether in Australia, China, Europe, or the US, all over the world producers and plant manufacturers rely on Flottweg's core competences.



Decanter model Z6E used for the production of soy milk

© = registered trademark for various countries





Decanter Model Z4E in soy milk production

## Your advantages

Take advantage of our years of experience! We offer:

- Customized systems to increase yields, optimize sub-processes, and increase the quality of your product
- Optimum adaptation of our industrial centrifuges to your application
- Pilot tests on-site or at the Flottweg Laboratory and Test Center
- More than 80 sales and service centers all over the world



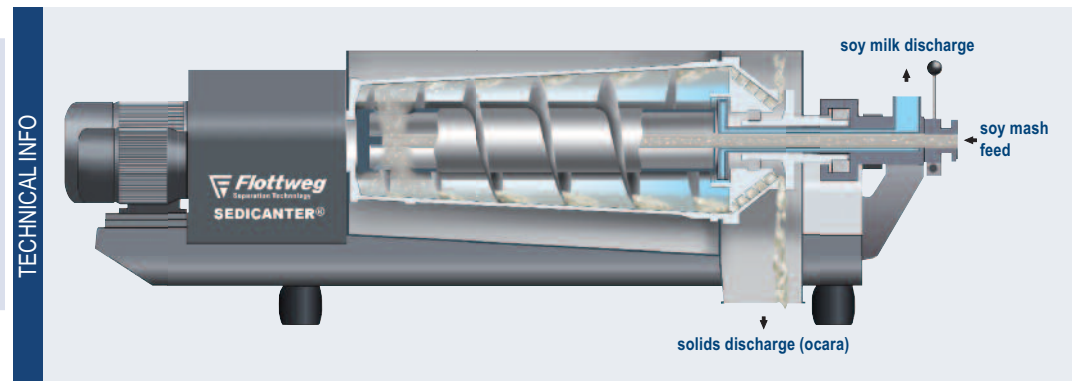
# THE FLOTTWEG SEDICANTER®

## A Unique Concept for Soy Milk Production

In soy milk production, the peeled beans are first milled and then cooked. The finer the milling of the raw material, the higher the yield of extract (e.g. high-quality proteins) in the final soy milk.

Especially during the fine grinding process of the soy beans, fine and soft solids are generated which then have to be separated efficiently from the soy milk. Due to its unique functional principles, a Flottweg Sedicanter® especially adapted to this application helps achieve optimum separation results with this type of solid/liquid mixture. High rota-

tional speed together with the right design allows for high soy milk yield. Separation efficiency of up to 99.5 percent by volume has been determined. And if feed conditions vary, the adjustable impeller provides the Sedicanter® with the same flexibility seen in the Flottweg Decanter.



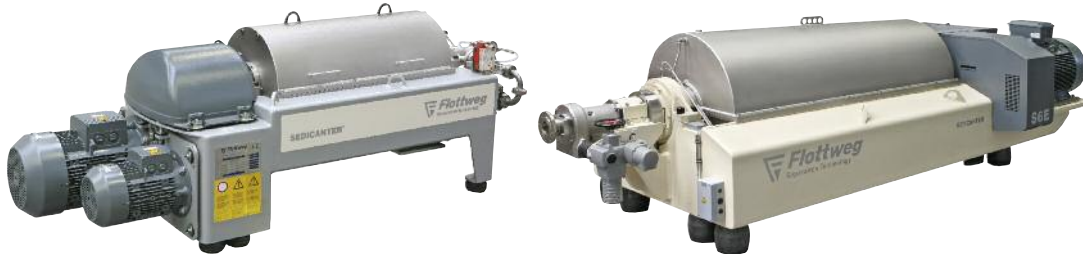
Flottweg Sedicanter®



### Advantages of the Flottweg Sedicanter® in soy milk production

- High speed together with a unique centrifuge design for excellent separation results when processing soft or fine solids
- Optimum clarification and high purity in the final product, even with very fine grinding
  - Higher soy milk yield due to optimum dewatering
  - Higher dry substance in the discharged solids (ocara)
  - Adjustable impeller
  - Flexibility in production, even under varying feed conditions
  - Optimized CIP cleaning

# TECHNICAL DATA FOR THE FLOTTWEG SEDICANTER®



TECHNICAL DATA FOR THE FLOTTWEG SEDICANTER® FOR SOY MILK PRODUCTION*			
Model	S3E	S4E	S6E
Bowl diameter	300 mm	470 mm	670 mm
Bowl speed	7750 rpm	5000 rpm	3650 rpm
Max. g force	10000 x g	6500 x g	5000 x g
Materials of construction	All product-wetted parts are made of rust-proof and acid-resistant stainless steel (1.4571 or better).		
Dimensions* (LxWxH)	2304 x 700 x 752 mm	3222 x 1000 x 1200 mm	4527 x 1705 x 1270 mm
Total weight*	1050 kg	2400 kg	8580 kg
Capacity**	500 - 2000 l/h	max. 8000 l/h	max. 16000 l/h

\* The figures listed are to be understood as guidelines.

\*\* The actual capacity will depend on the characteristics of the product.



# ADVANTAGES AND TECHNICAL DATA OF THE FLOTTWEG DECANTER



## Advantages of the Flottweg Decanter in grain milk production

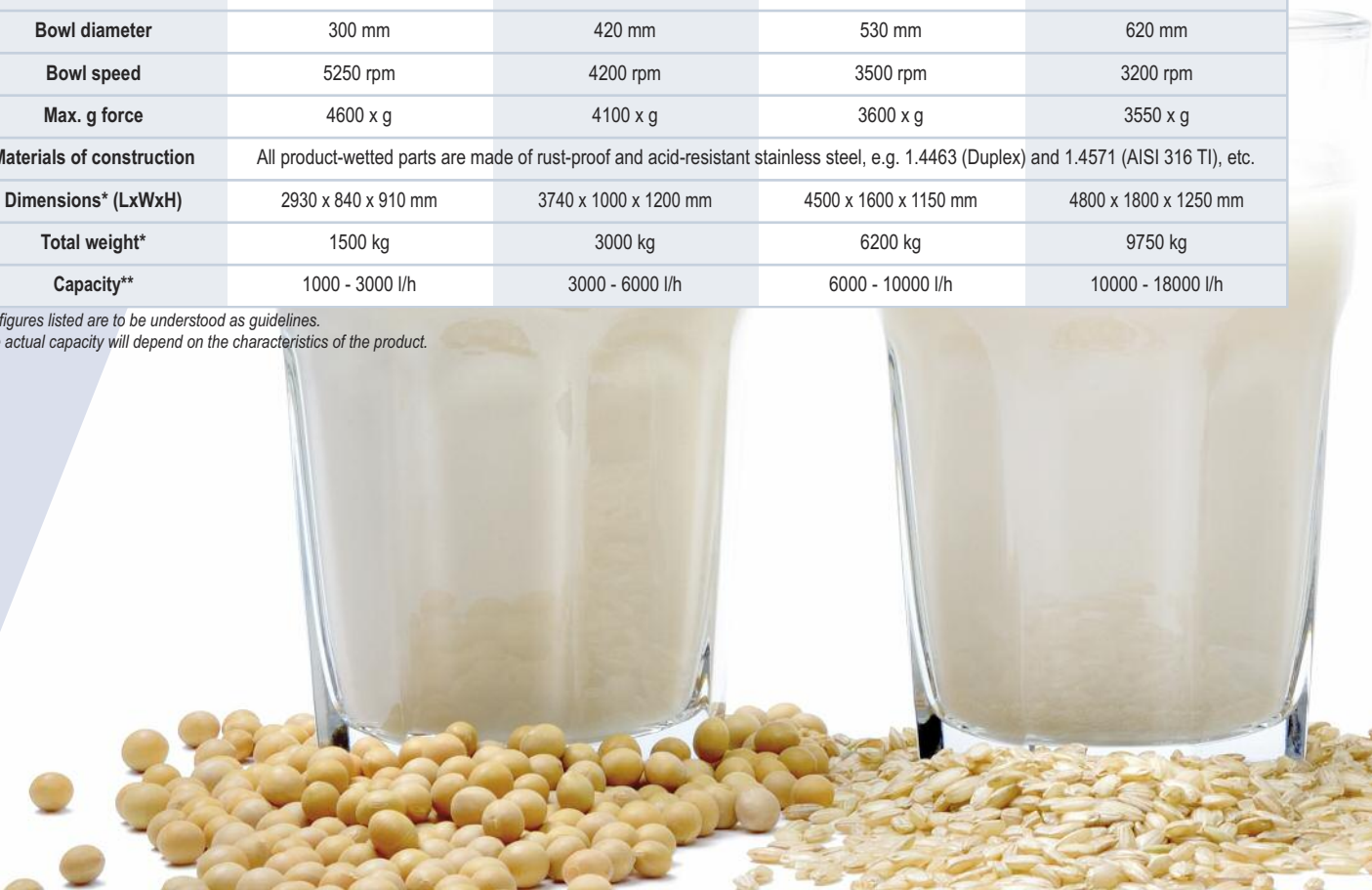
- High grain milk purity and maximum yields
- Adjustable impeller
  - Flexibility in production, even under changing feed conditions
  - Optimized CIP cleaning
- Easy integration into existing systems
- Hygienic design for highest possible product quality
  - Food certificates for lubricants and seals (in compliance with NSF H1)
  - Gaskets with FDA certificate or conformity if requested
- Optimum dimensioning of the machine for high product temperatures and aggressive media (e.g. CIP cleaning, cleaning media) in food processing companies

TECHNICAL DATA FOR THE FLOTTWEG DECANTER FOR THE PRODUCTION OF MILK ALTERNATIVES FROM GRAIN\*

Model	Z3E	Z4E	Z5E	Z6E
<b>Bowl diameter</b>	300 mm	420 mm	530 mm	620 mm
<b>Bowl speed</b>	5250 rpm	4200 rpm	3500 rpm	3200 rpm
<b>Max. g force</b>	4600 x g	4100 x g	3600 x g	3550 x g
<b>Materials of construction</b>	All product-wetted parts are made of rust-proof and acid-resistant stainless steel, e.g. 1.4463 (Duplex) and 1.4571 (AISI 316 TI), etc.			
<b>Dimensions* (LxWxH)</b>	2930 x 840 x 910 mm	3740 x 1000 x 1200 mm	4500 x 1600 x 1150 mm	4800 x 1800 x 1250 mm
<b>Total weight*</b>	1500 kg	3000 kg	6200 kg	9750 kg
<b>Capacity**</b>	1000 - 3000 l/h	3000 - 6000 l/h	6000 - 10000 l/h	10000 - 18000 l/h

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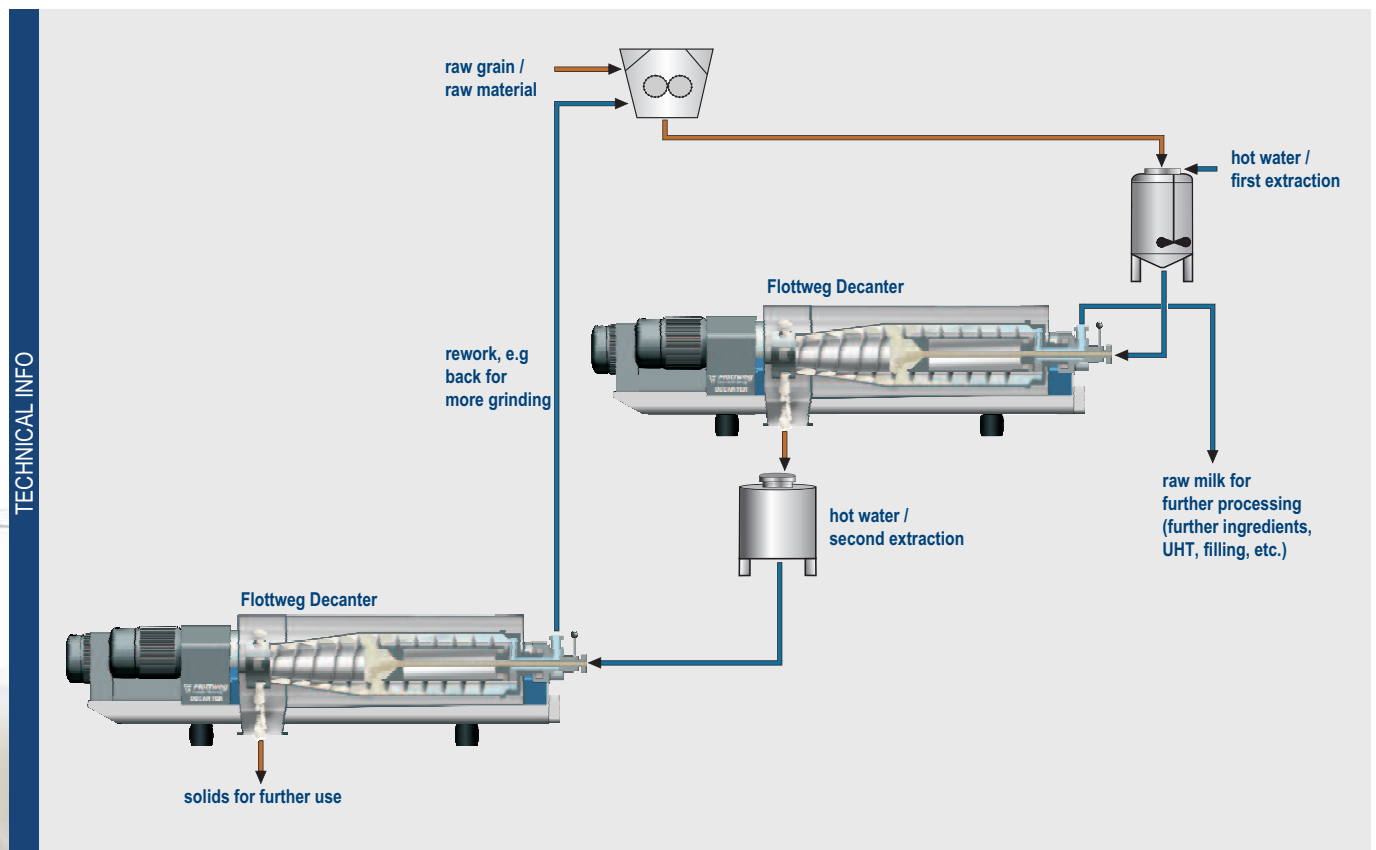
# THE FLOTTWEG DECANter

## State-of-the-Art Separation Technology for the Production of Milk Alternatives

Grain milk is generated during saccharification of carbohydrates and is produced from flour or fermented grain. The demand for grain milk is continually increasing due to more and more people suffering from lactose and soy intolerance.

Milk alternatives can be produced from rice, nuts, or nearly any grain, such as oats, spelt, or rye. Decanter centrifuges play a key role in the industrial production of those milk alternatives. First, the raw material is ground. The grain flour is mashed, adding sufficient water. This results in a creamy mass which is then processed using a decanter. The decanter separates the grain milk from the solid grain residue.

Due to high g-forces, grain milk yield is high, and so is the separation efficiency. Thanks to the variable impeller, it is possible to adjust the desired consistency of the final product perfectly – even under changing feed conditions. This ensures continuous high quality in the final product.



Simplified process diagram: Production of milk alternatives



# THE FLOTTWEG DECANter CENTRIFUGE IN A NUTSHELL

## Advantages



### MATERIALS

- All metallic, product-wetted parts are made of austenitic or austenitic-ferritic stainless steel
- Complete CIP cleaning and reproducible cleaning results
- Design according to EHEDG directives

### HOUSING

- Spray nozzles for cleaning the cover, the rotor, the solids discharge device, and other parts in contact with liquids
- Surface roughness max. 0.8 µm (product-wetted surfaces, welding seams hygienically smoothed)



### SCROLL

- Flushing device at the scroll body
- Smoothed scroll blade, surface roughness max. 0.8 µm
- Optimum adjustment for processing milk alternatives



### FLOTTWEG SIMP DRIVE®

- Stepless adjustment of the bowl and rotational speed parameters depending on torque for high yields, even under changing feed conditions
- Gear mounted outside of the product zone
- Lubricants used in compliance with NSF H1



### ADJUSTABLE IMPELLER

- Optimum adjustment to product requirements
- Adjustable from outside during operation
- Automated adjustment on request
- Additionally: cleaning support during CIP cleaning



# INCREASING CAPACITY WHILE SAVING ENERGY

## Using the Flottweg Belt Press Before Drying Processes

During the production of soy milk or milk alternatives, solids (e.g. ocarra) are generated and retained as valuable byproducts. These solids separated by centrifuges still contain residual water and some are processed for the production of powder. Thermal drying, for example, is done using a fluidized bed or convection bed drying with internal waste heat recovery, using a lot of energy.

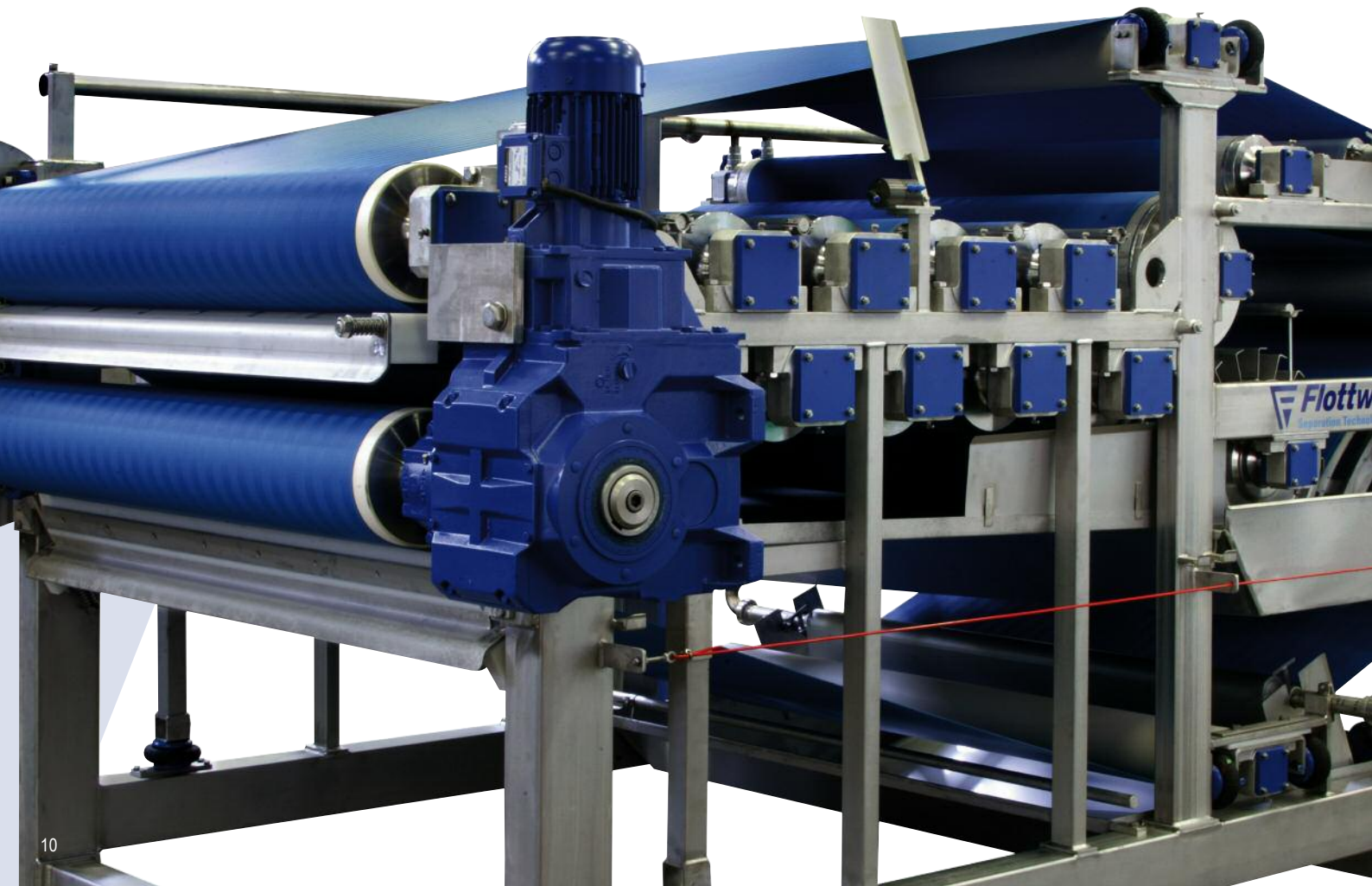
Using Flottweg Belt Presses before the drying process improves the solids' structure considerably, reducing the water content and consequently the required thermal energy in the dryer. The capacity of the dryer can sometimes also be significantly increased.



# ADVANTAGES OF THE FLOTTWEG BELT PRESS

## Advantages of the Flottweg Belt Press in the production of grain and soy milk

- Simple system – maintenance can easily be carried out by the customer
- Automatic system
- Efficient mechanic dewatering of solids from grain and soy milk production before subsequent drying processes
- Optimization of the solids' structure before drying (easier processing due to less compacting), increasing dryer capacity and saving thermal energy
- Optimized design for easy operation and cleaning



# TECHNICAL DATA FOR THE FLOTTWEG BELT PRESS

TECHNICAL DATA FOR THE FLOTTWEG BELT PRESS FOR THE DEWATERING OF SOLIDS GENERATED IN THE PRODUCTION PROCESS*					
Model	BFRU800	BFRU1200	BFRU1500	BFRU1750	BFRU2500
Motor for belt drive	2,2 kW	2,2 kW	3,0 kW	3,0 - 5,5 kW	3,0 - 5,5 kW
Materials of construction	All product-wetted parts are made of AISI 304 or food safe plastics.				
Dimensions * (LxWxH)	4000 x 1600 x 2300 mm	4000 x 2000 x 2300 mm	4600 x 2400 x 2400 mm	5500 x 2700 x 2500 mm	5500 x 3450 x 2500 mm
Total weight*	2,3 t	2,6 t	4,5 t	7,0 t	8,8 t
Capacity**	4 m <sup>3</sup> /h	6 m <sup>3</sup> /h	8 m <sup>3</sup> /h	10 m <sup>3</sup> /h	15 m <sup>3</sup> /h

\* The figures listed are to be understood as guidelines.

\*\* The actual capacity will depend on the characteristics of the product.



# Flottweg Separation Technology – Engineered For Your Success



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