



# SEPARATION TECHNOLOGY FOR THE PRODUCTION OF WINE

Higher yields, consistent quality, and maximum clarity

 **Flottweg**

Engineered For Your Success



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# EMBRACE CHALLENGES - WITH INNOVATIVE SEPARATION TECHNOLOGY

Global competition and changing consumer demands pose new challenges for the industry. This makes it all the more important to rely on innovative and flexible solutions to meet the challenges of tomorrow.

Changing environmental conditions are affecting crop yields and the quality of grapes. Modern processes in must treatment and winemaking are therefore essential to ensure the best possible quality.

Flexible, reliable, and easy-to-operate plant technology such as decanter centrifuges and clarifiers play a key role here. They make the efficient and gentle separation of solids and fluids possible and thus help enable a high yield and a top-quality end product.

## The advantages of innovative separation technology

- Increased product yield in the processing of must
- Improved quality: gentle processing and reduction of oxidation
- Flexibility: adjustment to different grape varieties and processing methods
- Efficiency: reduction of process times and energy costs
- Reliability: durable machines with high operating convenience and minimal maintenance costs

With the right separation technology, wineries are well equipped to tackle the challenges of the future and meet the tastes of end consumers.

**Find out more about Flottweg's innovative separation technologies and how they can help you optimize your processes and improve your products.**



## How to turn a good harvest into an even better product

Both must preclarification and lees management are crucial process steps in the processing and refining of grape must. Flottweg separation technology excels in this area thanks to its optimum yield, its robust design, and comparatively low operating costs.

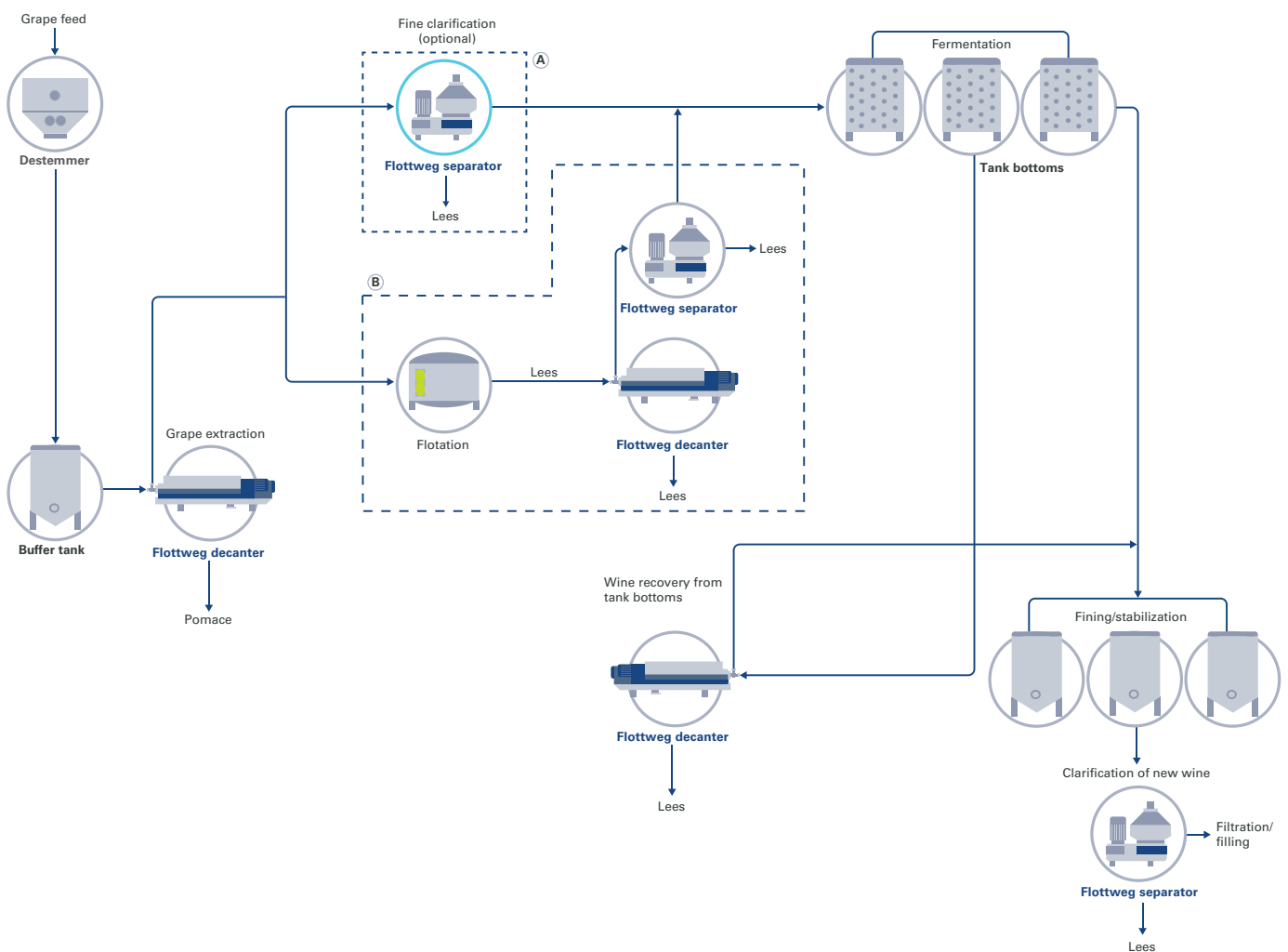
### Advantages of the Flottweg decanter centrifuge for must preclarification

- Quick processing of must and must residues, even in case of a high solids content
- Closed discharge of the clarified must reduces oxygen uptake/oxidation
- Hygienic design and CIP capability for efficient cleaning, resulting in high product quality
- Adjustable impeller for optimal adjustment to the raw material: consistently high yield also in the case of varying grape quality
- Continuous must clarification/grape extraction; alternative to the traditional wine press which does not work continuously

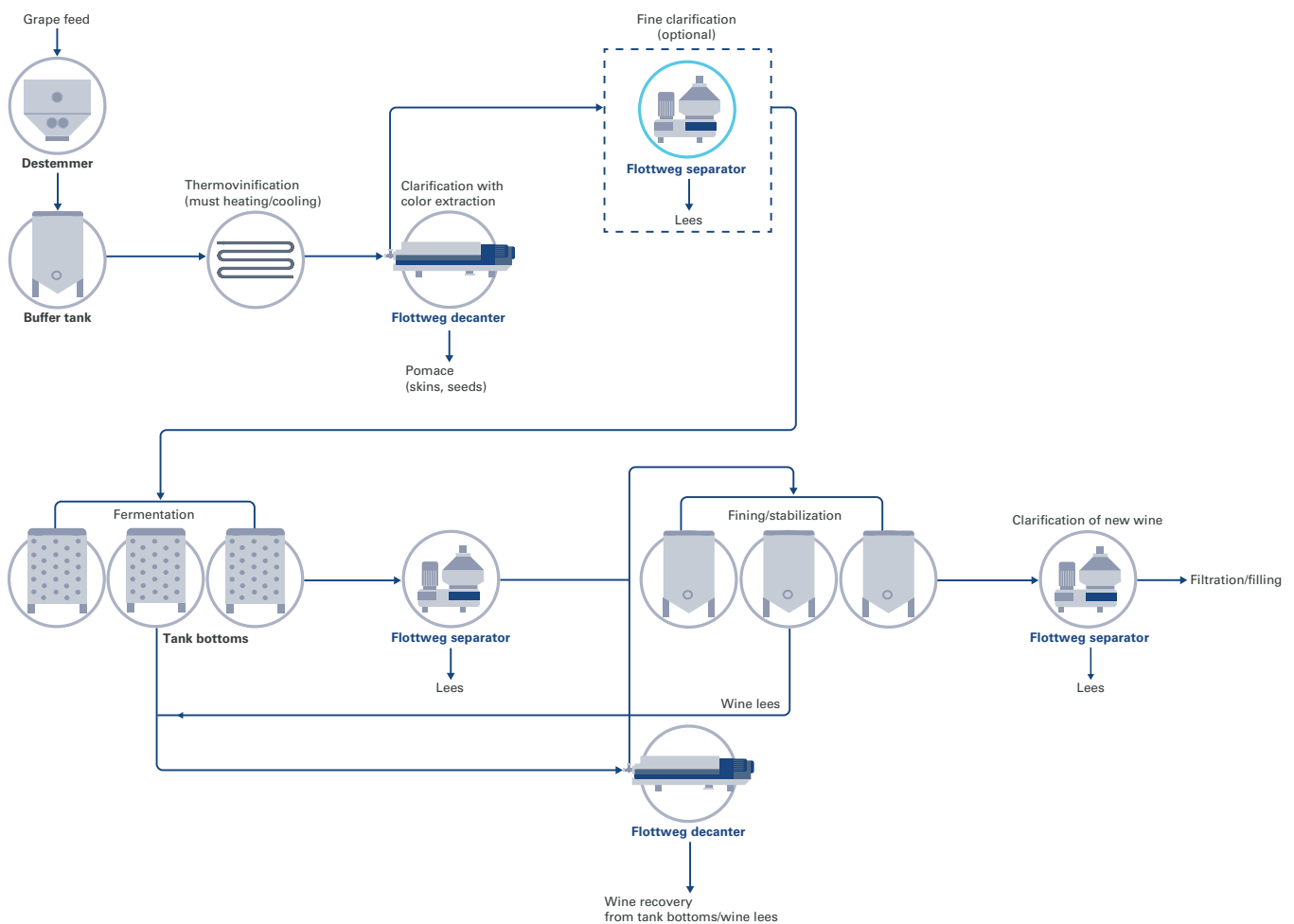
### Advantages of the Flottweg separator for fine clarification

- Positive impact on quality thanks to optimum must clarification
- Flottweg Soft Shot® Flex discharge system offers flexible partial and total discharges; thereby resulting in increased yields because of drier solids

# FLOTTWEG SEPARATION TECHNOLOGY IN THE PRODUCTION OF WHITE WINE



# IN THE PRODUCTION OF RED WINE



# MUST PRECLARIFICATION AND TREATMENT OF LEES/TANK BOTTOMS

## ... with the Flottweg decanter

Decanter centrifuges are used in all cases where liquids containing a high solids content have to be clarified. One such example is for the preclarification of must. The special construction of the Flottweg decanter doesn't only offer economic benefits, but also quality advantages when it comes to the processing of must.

The settleable solid content of the grape must depends on the pretreatment of the grapes. Both harvesting technology and the way grapes are transported can have an impact on the final composition of the must. As a matter of fact, it can be said that mechanically harvested grapes have a higher settleable solid content than manually harvested grapes because of the mechanical stress. The press system used also has a major effect on the production of lees. Scroll presses tend to generate higher content levels of settleable solids in the must than membrane presses.

Efficient must clarification is thus vital for the further production process. The Flottweg decanter offers a whole range of advantages compared to traditional must clarification. The centrifuge is a highly efficient alternative to the classic press process, especially in the production of red wine.

## Improved quality

The machine separates lees from the must within a few seconds, thus significantly reducing the contact time. Due to the high phenol content, lees can negatively impact the quality of must if the contact time is too long (e.g., static sedimentation). The clarified must is gently pumped out of the machine by an adjustable impeller, and the precious liquid is discharged under pressure. The exposure of must to oxygen and thus oxidation processes are minimized.

## Optimum clarification, high yield

The heart of the machine, the centrifuge rotor together with the transport screw, has been specially designed for efficient must and wine clarification. The separation zone within the machine can be optimally adjusted to the raw product using the adjustable impeller. This means that the best clarification result can be achieved even if the grape must has varying content levels of settleable solids. In general, the discharged must only contains a solids content of <1% vol. The Simp Drive® System allows the differential speed of the scroll and centrifuge bowl to be optimally adjusted. The retention time of the solids is thereby optimized, and the yield of clarified must is significantly increased. The decanter can be flexibly used in a wide range of processes in the production of wine. It is Flottweg's true all-rounder for the efficient management of lees.



# THE FLOTTWEG DECANTER



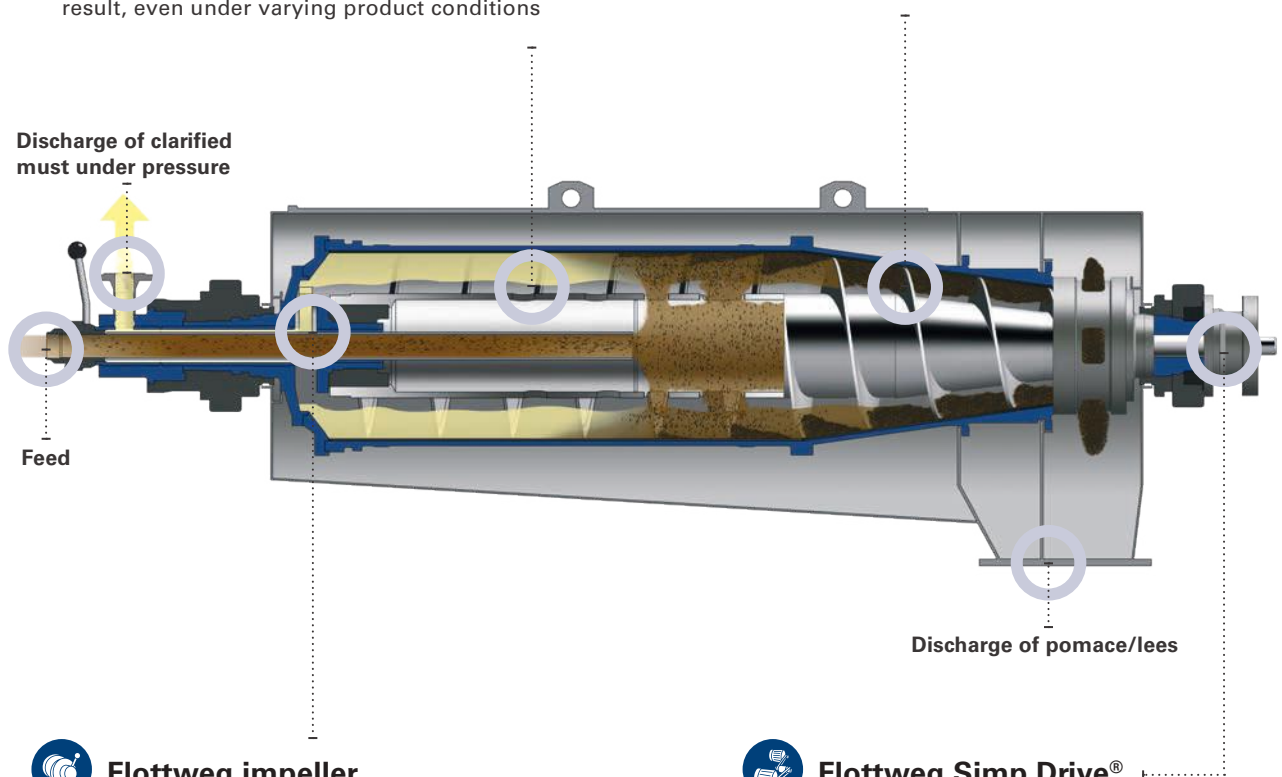
## Must clarification zone

- Flottweg decanter with high clarifying efficiency thanks to the optimum centrifuge bowl and scroll design adapted to the wine industry's requirements
- Flexible adjustment of the separation zone using the adjustable impeller, enabling an optimum clarification result, even under varying product conditions



## Extraction zone

- Optimum configuration of the differential speed enables "dewatering" of the solids in the bowl cone
- High dry matter content in the separated solids, high must yields



## Flottweg impeller

- Closed discharge of clarified must under pressure, preventing the formation of foam oxidation processes are minimized, improving the quality of the final product
- Liquid discharge under pressure means no supply pump is required, which would normally be necessary
- Optimized CIP cleaning
- Option for automation



## Flottweg Simp Drive®

- Torque-controlled adjustment of the differential speed, resulting in consistently high dry matter content in the separated solids
- High level of added value through improved overall grape must yield
- Gearbox installed outside the product room
- Lubricants used in compliance with NSF H1





# FINE CLARIFICATION

## ... with the Flottweg separator

Clarifying processes don't play an important role in the processing of must. Efficient clarification may have a significant impact on the taste of the wine during the entire wine production process and thus on its market value.

In wineries, some fine particles cannot be separated from the liquid with a decanter centrifuge due to their low density difference. This is where separators come into play. The design of these fluid-oriented machines allows them to operate with a higher centrifugal acceleration. Even the finest particles can be separated, enabling the efficient clarification of must and (new) wine.

## Enhanced quality

Separator-based preclarification helps remove the finest lees, which could adversely affect the taste of the wine during further production stages. Moreover, further fermentation is more consistent and can be better controlled. The wine maturation is optimized.

## Economic benefits

Wines made from finely separated must can be better stabilized in a cost-efficient manner. The filter life is extended and thus reduces costs for filter aids. The separation of lees in the must phase typically decreases the amount of sulfur dioxide that needs to be added in further production stages.



# THE FLOTTWEG SEPARATOR



## The wear protection

- High wear resistance thanks to specific wear protection components
- Easy to assemble and disassemble
- Extension of separator bowl's service life in the clarification of must (sand residues) or clarification after fining (bentonite residues)



## The Flottweg Soft Shot® Flex-System

- Accurate total or partial discharges in any combination. Discharge times can be precisely adjusted; thus higher yields in wine and must are possible thanks to more compact solids
- Material-friendly, silent, nearly inaudible solids discharge
- Optional "self-thinking" machine with turbidity monitoring



## The separator bowl

- Compact and robust design
- Easy to assemble and disassemble
- Reduced number of components and seals for low operating costs



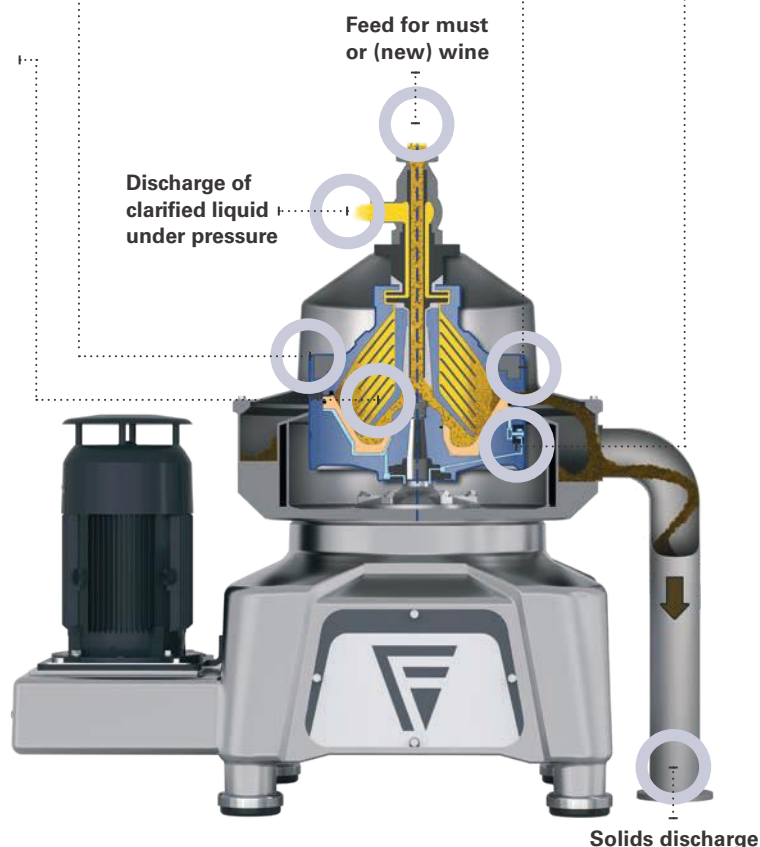
## Disc stack and distributor

### Gentle

- Gentle acceleration of the liquid thanks to an optimized distributor design for gentle product processing

### Efficient

- Highly efficient solids separation and fine clarification due to disc stack's large clarification surface



# DECANTER/SEPARATOR THROUGHPUTS IN THE WINE INDUSTRY

## Target throughputs [m<sup>3</sup>/h] of Flottweg decanters for the wine industry

Type	Z3E	Z4E	Z5E	Z6E	Z8E
Must <sup>1</sup>	Up to 4	Up to 12	Up to 25	Up to 30	Up to 40
Sedimentation lees/ tank bottoms <sup>2</sup>	1.8	Up to 4	Up to 6	–	–

1) Depending on vintage and variety

2) Throughput depending on solids charge in feed



## Target throughputs [l/h] of Flottweg separators for the wine industry

Type	AC1200	AC1500	AC1700	AC2000	AC2500	AC2510
Must <sup>1</sup>	2,000	4,000	6,000	8,000	15,000	18,000
Wine <sup>2</sup>	2,500	5,000	7,000	12,000	25,000	31,000

1) Depending on vintage and variety

2) The values serve as guidelines and may vary depending on process and pretreatment



# FLOTTWEG QUALITY AND SERVICE



## Guaranteed Flottweg quality

Made in Germany: We have a clear vision of quality and make no compromises. Our customers often have to deal with aggressive materials. Components of Flottweg centrifuges that come into direct contact with the medium that will be processed (including the bowl, scroll, and feed) are exclusively made from high-quality, rust- and acid-resistant stainless steel. This means higher strength and improved resistance.

Ideally equipped, our machines can continuously meet your requirements - in extreme cases, 24 hours a day, 7 days a week. Additionally, our strict quality controls (DIN ISO 9001:2015) and the traceability of all critical components ensure product safety.



## Our service - we are always there for you!

Our 1,100 employees around the world and a network of more than 60 sales and service centers are here to serve you. We are not only striving to provide first-class advice about selecting and designing our systems. We are available for you whenever you need us—in more than 100 countries around the world, 24 hours a day, 7 days a week.



## You can plan success. In just three steps.

Are you planning your own success story for your products?  
Then get in touch with Flottweg and benefit from our three-step road map:

# 01

We will discuss the separation task with you and the desired business objectives.

# 02

In pre-engineering, we examine your raw materials in our laboratory and carry out customer-specific tests in the Flottweg technical center or on your premises. In this context, existing product samples can already be made available.

# 03

After design and detailed development, you will receive a concrete offer including all relevant key performance indicators for the realization of your individual Flottweg application.

**Make Flottweg the key player in your success:  
Our sales partners are looking forward to hearing about your ideas and challenges!**





Flottweg worldwide

**11**  
international  
subsidiaries

Projects in over  
**100**  
countries

Over  
**50**  
service centers

- - Headquarters
- - Subsidiary
- - Representative





**Flottweg SE**

Industriestraße 6-8  
84137 Vilsbiburg  
Germany  
Tel.: + 49 8741 301-0  
Fax: + 49 8741 301-300  
[Contact form](#)  
[mail@flottweg.com](mailto:mail@flottweg.com)  
[www.flottweg.com](http://www.flottweg.com)