



SEPARATION

# THE MOST EFFICIENT WAY TO CLARIFY WINE

DYNAMIC CROSSFLOW  
FILTRATION

**ANDRITZ**

ENGINEERED SUCCESS

# Recovery and filtration of tank lees with the dynamic crossflow filtration (DCF)

Every drop counts in oenology. With its dynamic crossflow filter (DCF), ANDRITZ Separation provides a highly efficient separation solution that is superior to common technologies like vacuum drum filters or filter presses. Tank lees recovery during vintage or wine purification is only one of the various applications of the DCF skid. It is a smart solution to increase yield, optimize quality, reduce costs, and improve working conditions.

In traditional crossflow filters, the filter membranes are kept clean by pumping the slurry across the membrane surface. However, this method is not applicable when handling sensitive or highly viscous products. At ANDRITZ Separation, we have taken a step forward in development and designed the DCF. In this process, overlapping rotating discs divide their membrane surface into the filtration zone and the turbulence zone. In the turbulence zone, the differential speed of the discs towards each other, generates a turbulent and three-dimensional flow without pumping and circulating the slurry, and without any circulation line at all. This very efficient and local cleaning effect leads to high detaching forces that can remove even highly adhesive clogging layers.

With the all-new DCF skid, ANDRITZ Separation provides a plug-and-play solution for sustainable lees recovery, increasing the plant yield and, at the same time, reducing the volume and mass of waste streams. Thanks to its small dimensions, the DCF skid not only provides very efficient separation technology, but is also a very compact and space-saving unit, benefiting from its vertical layout. The skid is already equipped with a wide range of process instruments, which means there is no need for

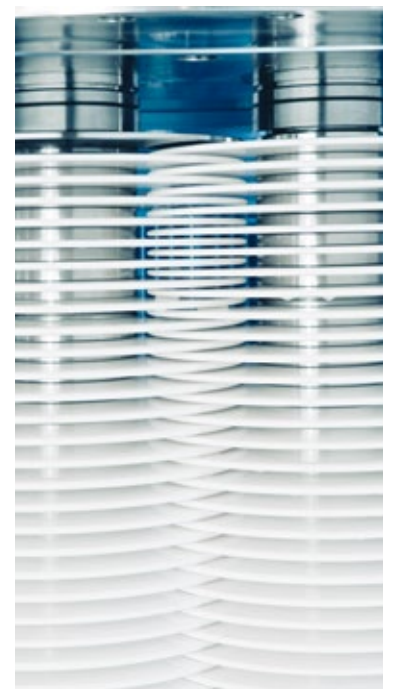
additional installations. Operation of the unit itself is very easy because the DCF skid runs in a continuous and stable process in which no diatomic earth or other filter aids are needed. Furthermore, there is no need to concentrate tank lees in the feed tank, and even small batches can be handled efficiently thanks to the low retentate volume. As solid components are discharged with a pasty consistency suitable for pumping, they are easy to handle and transport.

## YOUR BENEFITS

- Higher yield of 96 to 98% of wine processed
- Very high solids concentration of 80 to 90% by volume
- Filtered wine has top quality with regard to  $V_{max}$ , IF, or IFM, allowing direct bottling, no loss of alcohol,  $CO_2$ , flavor, or taste
- No  $O_2$  pick-up due to self-venting design through vertical shafts
- Reduced energy consumption (approx. 7.5 kW for 10 hl/h)
- No need for filter aids, thus minimizing costs for consumables and their disposal
- Sterile permeate prevents further fermentation
- Multipurpose use thanks to easy transport and a wide range of process conditions



Krauss-Maffei dynamic crossflow filter DCF



DCF filter membranes

**PROCESS ENVIRONMENT**

- Normal operation at room temperature for white, rosé, or red wine lees
- Operation at cooled conditions, preventing fermentation, e.g. for young wine from vintage, lees from must after flotation, foam from flotation, or difficult products like muscat grapes
- Operation at higher pressure levels of up to 6 bar
- Operation in isobaric processes for sparkling wines

**FIELDS OF APPLICATION**

- Grape juice and must
- Vintage and turbid wine
- Wine fining
- Traditional crossflow retentate
- Separator sludge

**SCOPE OF SUPPLY**

- Plug-and-play skid, minimum of process and utility connections
- All process instruments included
- Touch panel with graphic visualization of the process

- Fully automatic CIP (cleaning-in-place), without an operator being present
- Feed pump with frequency converter included
- Connections for three CIP media as well as hot and cold water handling included
- Frequency converter to allow optimum adjustment of membrane rotation for each product
- Control of retentate discharge, not back to tank, but directly to waste collector
- Automatic backflush allows maximized and homogeneous filtration rates

**DESIGN FEATURES**

- Small membrane diameter to provide optimum membrane strength
- Small membrane distance to provide high filtration rates
- Double jacket for heating or cooling
- Single drive motor

- Hanging arrangement of membrane disk stack to allow full self-venting
- Elliptical housing for minimum dead volume and minimum retention time
- Minimum noise from the dynamics of the filter and the process pump

**OPTIONAL FEATURES**

- Double strainer with manual cleaning
- Double strainer with automatic cleaning
- Smart access supervision
- Remote diagnosis tool



Left to right: feed, permeate, retentate

Technical data	Unit	DCF 312/8	DCF 312/16	DCF 312/32
Installed membrane surface	m <sup>2</sup>	8	16	32
Typical throughput	hl/h	2 to 8	5 to 16	10 to 32
Transportation weight of DCF	kg	1,600	1,800	3,000
Transportation weight of skid	kg	800	800	900
Total weight	kg	2,400	2,600	3,900
Installation footprint	mm x mm	2,400 x 1,300	2,400 x 1,300	2,600 x 1,500
Installation/maintenance height	mm	2,500 / 3,900	3,000 / 4,300	3,000 / 4,600
Total installed power	kW	9	15	22
Noise level	db(A)	68	68	68



DCF skid





## WHAT'S YOUR SEPARATION CHALLENGE?

ANDRITZ Separation is the world's leading separation specialist with the broadest technology portfolio and more than 2,000 specialists in 40 countries. For more than 150 years, we have been a driving force in the evolution of separation solutions and services for industries ranging from environment to food, chemicals, and mining & minerals. As the OEM for many of the world's leading brands, we have the solutions and services to transform your business to meet tomorrow's changing demands – wherever you are and whatever your separation challenge. **Ask your separation specialist!**

### AFRICA

ANDRITZ Delkor (Pty) Ltd.  
p: +27 11 012 7300  
separation.za@andritz.com

### EUROPE

ANDRITZ KMPT GmbH  
p: +49 8139 80299 0  
separation@andritz.com

### ASIA

ANDRITZ Singapore Pte. Ltd.  
p: +65 6512 1800  
separation.sg@andritz.com

### NORTH AMERICA

ANDRITZ Separation Inc.  
p: +1 817 465 5611  
separation.us@andritz.com

### AUSTRALIA

ANDRITZ Pty. Ltd.  
p: +61 3 8773 4888  
separation.au@andritz.com

### SOUTH AMERICA

ANDRITZ Separation Ltda.  
p: +55 47 3387 9100  
separation.bra@andritz.com

### CHINA

ANDRITZ (China) Ltd.  
p: +86 757 8258 6802  
separation.cn@andritz.com

**ANDRITZ.COM/SEPARATION**



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