ANDRITZ Separation

Dynamic crossflow filtration

The most efficient way to clarify wine

DCF – dynamic crossflow filtration for wine

Recovery and filtration of tank lees at its best

Every drop counts in oenology. With its dynamic crossflow filter (DCF), ANDRITZ SEPARATION provides a highly efficient separation solution which 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 disks divide their membrane surface into the filtration zone and the turbulence zone. In the turbulence zone, the differential speed of the disks 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 which are removing 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 benefitting 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.

▲ Dynamic crossflow filter – DCF

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 Vmax, 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 is minimizing costs for consumables and their disposal
- Sterile permeate prevents further fermentation
- Multipurpose use by easy transport and wide process conditions

▲ 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

▲ DCF skid

▲ Left to right: feed, permeate, retentate

Technical data	Unit	DCF 312/8	DCF 312/16	DCF 312/32
Installed membrane surface	m²	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

ANDRITZ SEPARATION in the food industry

Well-known companies serving the food industry for decades – KMPT Krauss Maffei Process Technology, GMF Gouda dryers, Frautech dairy separators, Netzsch filter press, Guinard centrifuges – with literally thousands of reference installations are now part of the global ANDRITZ SEPARATION organization. ANDRITZ SEPARATION has the global reach, financial strength, and innovative team to continue to invest in these companies – extending and integrating the product portfolio and services for mechanical solid/liquid separation and thermal treatment technologies to the benefit of customers in the food industry. The company offers equipment and services for all stages of processing in the different food applications, developed in combination with key customers.

Guinard
Humboldt TCW
Netzsch Filtration
KHD
Rittershaus & Blecher
KMPT
Bird
Frautech Separators
VA Tech Wabag Fliessbettsysteme
Royal GMF-Gouda
Contec Decanter
3Sys Technologies

AFRICA
ANDRITZ Delkor (Pty.) Ltd.
Phone: +27 (11) 466 2361
Fax: +27 (86) 636 2122
separation.za@andritz.com

AUSTRALIA
ANDRITZ Pty. Ltd.
Phone: +61 (3) 8773 4888
Fax: +61 (3) 8773 4899
separation.au@andritz.com

EUROPE
ANDRITZ AG
Phone: +43 (316) 6902 2318
Fax: +43 (316) 6902 92318
separation@andritz.com

SOUTH AMERICA
ANDRITZ SEPARATION Ltda.
Phone: +55 (47) 3387 9110
Fax: +55 (47) 3387 9103
separation.bra@andritz.com

ASIA
ANDRITZ Singapore Pte. Ltd.
Phone: +65 (6512) 1800
Fax: +65 (6863) 4482
separation.sg@andritz.com

CHINA
ANDRITZ (China) Ltd.
Phone: +86 (757) 6663 3419
Fax: +86 (757) 6663 3448
separation.cn@andritz.com

NORTH AMERICA
ANDRITZ SEPARATION Inc.
Phone: +1 (817) 465 5611
Fax: +1 (817) 468 3961
separation.us@andritz.com

www.andritz.com

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