



CLARA 200

Mobile separation unit for wine and beverages



CLARA 200 separation unit.

When producers of wine and other beverages consider using a centrifuge for clarification purposes, flexibility and ease of operation are important issues. In production plants, the way such a centrifuge is to be installed is also crucial. The unique design of the CLARA 200 mobile separation unit features a very small footprint, which reduces the amount of floor space needed. In order to speed up the start-up process and simplify subsequent operation, the CLARA 200 unit is delivered as a complete fully equipped system ready to install. CLARA 200 is highly efficient, and provides users with an environmentally friendly alternative to earth filters.

CLARA 200 is a medium sized member of the CLARA family and features the Alfa Laval SmartEject self-triggering system, which provides intermittent discharge of solids that have a high dry matter content.

The CLARA 200 is also equipped with Oxy-Stop, a hydro hermetic seal that ensures minimal oxygen pick-up in the clarified liquid.

Applications

The Alfa Laval CLARA 200 mobile separation unit is specially designed for use in the wine and beverage industries, and is particularly suitable for clarifying the following products:

- white grape must (free run and press juice).
- young wine (still and sparkling).
- matured wine.
- fruit juices (deciduous, citrus and tropical).
- coffee and tea extract.

Special features

A specially designed variable frequency drive (VFD) system provides benefits that include low starting current, and a short-time power supply (UPS). The UPS helps the control system to stop the separator in a controlled fashion to avoid damage and product loss in case of external power failure.

The special geometry of the bowl ensures gentler acceleration for shear-sensitive agglomerates and particles. Combined with a new patented disc stack design (1), these significant improvements of the fluid dynamics lead to maximum separation efficiency, at the same time as reducing power consumption.

The CLARA 200 is also equipped with Oxy-Stop (2), a hydro hermetic seal that ensures minimal oxygen pick-up. CLARA 200 can also be equipped with a seal mechanism that makes it possible to clarify sparkling wines under pressure. The centrifuge has a built-in paring disc for the separated product, eliminating the need for an external pump.

The top part of the frame and the frame hood are jacketed for cooling and sound dampening. The sliding bowl bottom is fitted with an easily exchangeable erosion liner for protection against possible abrasive solids.

Standard design

This mobile unit consists of a stainless steel skid fitted with a disc stack centrifuge and all the auxiliary equipment needed for a safe, efficient operation. This includes:

- Feed valve that is automatically closed when not in production mode
- Sight glasses at both in- and outlet
- Sample valves at both in- and outlet
- Flow meter
- Pressure indicator at outlet
- Regulating valve at the outlet for back pressure adjustment
- A Variable Frequency Drive (VFD)

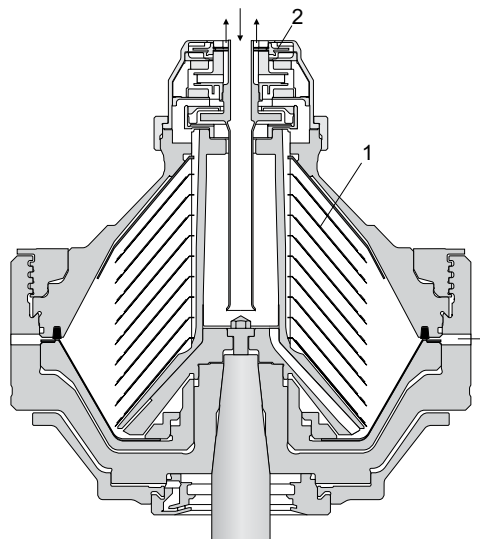
The VFD also has a built-in control panel to monitor and control the CLARA 200 unit. The control panel displays information about the operation, such as operating mode and time to next discharge. It also displays alarm messages.

The disc stack centrifuge consists of a frame that has a horizontal drive shaft, worm gear, lubricating oil bath and vertical spindle in the lower part.

The bowl is mounted on top of the spindle, inside the space formed by the upper part of the frame, the solids collecting cover and the frame hood. The feed and liquid discharge system also rests on this structure.

All metallic parts that come in contact with the process liquid are made of high-grade stainless steel. Liquid-wetted rubber gaskets are made of FDA-compliant nitrile rubber.

The frame hood and the solids collecting cover are cooled with water to minimize any temperature increase in the process medium, and also to act as a sound dampener.



Bowl principle

Flushing with water takes place both under and at the top of the bowl, as well as in the sludge outlet to keep the machine clean.

The CLARA 200 centrifuge is equipped with sensors to monitor the bowl speed and vibration level.

Options

The discharge system is either timer-triggered or controlled by the SmartEject self-triggering system. This ensures discharge of solids with a high matter of dry content, and minimizes the product loss.

The timer-triggered system can also be equipped with a mechanical seal at the liquid outlet for sparkling wine. Kits are available to modify from each of the discharge systems to any other system.

The discs stacks are available with two different diameters, providing different solids space volumes.

Optional extras

The CLARA 200 is available with a cover-interlocking kit to make it impossible to start the separator unless it is properly assembled. Additional service kits are also available.

Operating principles

The feed containing the liquid and the solids is led into the unit (Fig. 1) through connection 201 and then into the centrifuge. The solids are collected in the periphery of the rotating bowl and are discharged at either preset intervals or by the SmartEject self-triggering system. The solid part is discharged from the centrifuge through a cyclone and leaves the unit from connection 222, alternatively through an integrated solids pump. The clarified liquid is pumped out of the bowl by means of a built-in paring disc pump and then passes a flow meter, a pressure indicator, a sight glass and a regulating valve. The clarified liquid leaves the unit through connection 220.

Technical specification

Hydraulic capacity	25 m ³ /h (110 US gpm)
Feed temperature range	0–100 °C (32–212 °F)
Bowl speed	7,488 rpm
Feed pressure required	0–400 kPa (0–58 psi)
Outlet pressure available	0–900 kPa (0–130 psi)
Sound pressure	79 dB(A) ¹⁾
Separator motor	22/25 kW (30/33 hp)
Feed pump motor	3.5 kW (4.5 hp)
Solids pump motor	4 kW (5 hp)

¹⁾ In compliance with EN ISO 4871.

Shipping data (approximate)

Centrifuge incl. bowl & motor	1,385 kg (3,060 lbs)
Bowl weight	300 kg (665 lbs)
Complete module incl. bowl & motor	2,200 kg (4,850 lbs)
Gross weight	2,500 kg (5,515 lbs)
Volume	9.7 m ³ (350 ft ³)

Utilities consumption

Power consumption	25 kW at 25 m ³ /h (33 hp at 110 US gpm) ¹⁾
Water consumption discharge	1 litre (0.26 US gallon)
Required water pressure	600 kPa (87 psi)

¹⁾ Applies to the Centrifuge.

Material data

Bowl body	EN 1.4418
Bowl hood and lock ring	EN 1.4418
Distributor	EN 1.4401 UNS 31600
Solids cover and frame hood	EN 1.4401 UNS 31600
In and outlet parts	EN 1.4401 UNS 31600
Frame bottom part	grey cast iron
Piping	AISA 304L
Gaskets and O-rings	Food grade Nitrile

Connections

Product inlet, outlet	DN 50 acc. to DIN 11851
Water	Hose nipple 16 mm (5/8 ") inner diam.
Solids cyclone	Pipe NW 100 acc to ISO 2037

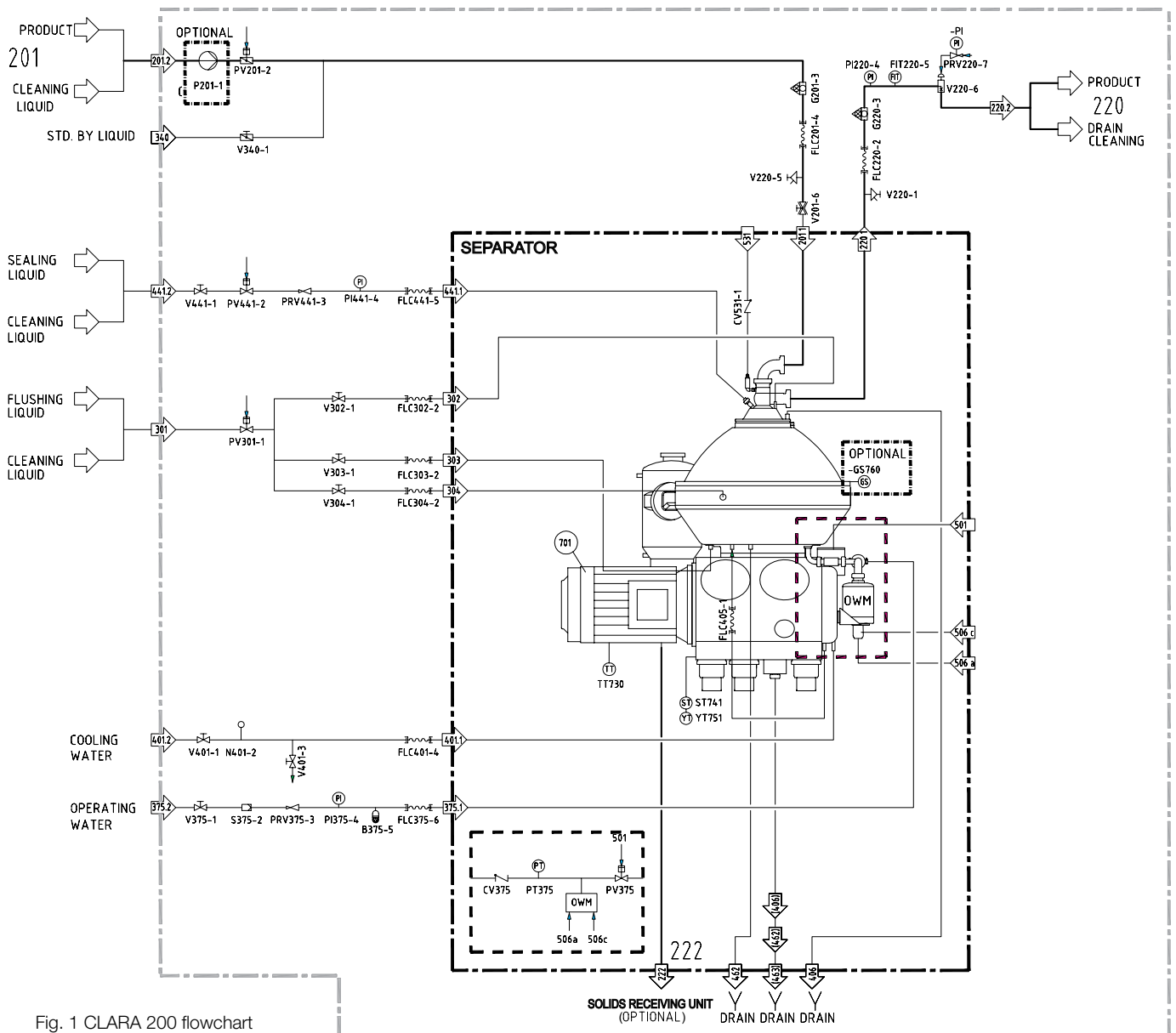
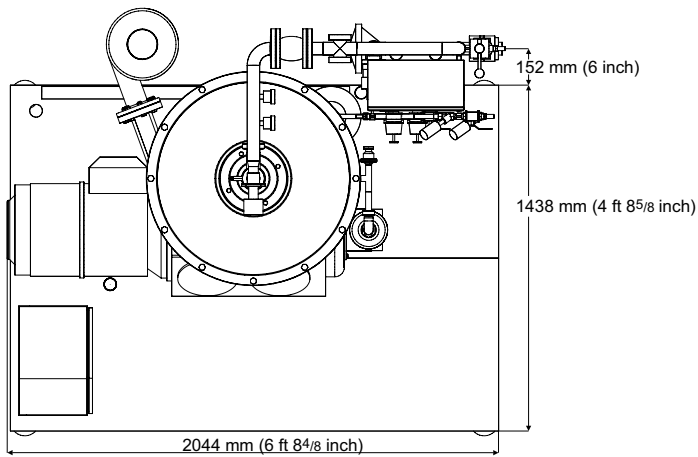
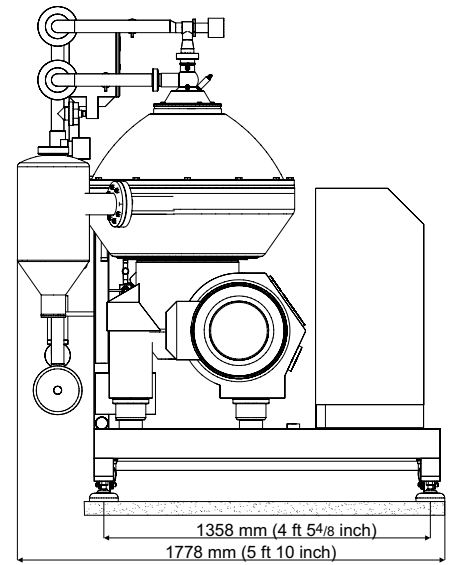
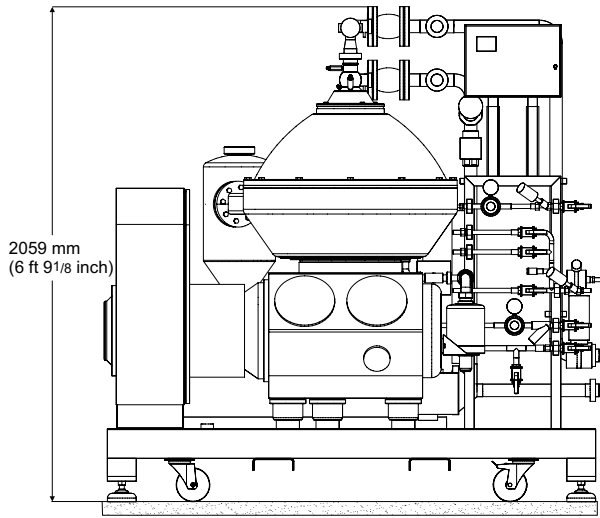


Fig. 1 CLARA 200 flowchart

Dimensions



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Alfa Laval reserves the right to change specifications without prior notification.

How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com