



Clara 601 H

Fully hermetic solids-ejecting centrifuge system for the beverage industries

The Alfa Laval centrifuges for the beverage industries are available in many different sizes and configurations, each one designed and adapted to the widely varying separation tasks encountered. With a feed flow capacity of up to 55 m³/h (240 US gpm)* and very high solids handling capability Clara 601 H meets conditions common in the beverage industries. The Clara 601 H is a clarifier that provides intermittent discharge of solids in a very dry state thanks to the SmartEject system. The unique hermetic design not only gives an extremely gentle acceleration of shear-sensitive agglomerates: it also avoids pick-up of oxygen and prevents loss of volatile aromas and CO₂. A further advantage with the hermetic design is the low power consumption.

A computerized system ensures control and repeatability of the discharge volume. The machine features a combination of a high g-force, a high standard of hygiene and automated operation.

*Actual capacity depends on application

Applications

The Clara 601 H is specially designed for various process steps in the production of wine, fruit juice, tea and coffee. It is used for removing suspended solids with a particle size of 0.5–500 µm. The solids content in the feed is normally in the range of 0.1–10 % by volume, but may also be higher.

Standard design

The machine consists of a frame that has a horizontal drive shaft, worm gear, lubricating oil bath and vertical bowl spindle in the lower part. The motor is of a type suitable for variable frequency drive. The bowl is mounted on top of the spindle, inside the space formed by the upper part of the frame, the solids collecting chute, and the frame hood. The feed and the liquid discharge system also rest on this structure.



Clara 601 H complete with motor

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 approved nitrile rubber. The frame upper part and the hood are cooled with water, which reduces temperature increase of the process medium to a minimum and at the same acts as a sound dampener. The centrifuge is equipped with sensors for monitoring bowl speed and vibration level. Flushing takes place inside, above and under the bowl, and in the solids collecting ring.

Special features

The Clara 601 H is based on a unique, hermetic design concept. The hermetic, bottom-fed inlet ensures a gentle acceleration of the process liquid up to full bowl speed. This minimizes splitting of shear-sensitive particles, maximizing separation performance. An added advantage is reduced power consumption.

The hermetic outlet ensures a completely air-free separation process, ensuring that no foaming, nor oxidation of the process liquid occurs. It is fitted with a pump, eliminating the need for an external pump. The hermetic design has the inherent advantage of a low noise level. The discharge volume is adjustable. Together with the triggering system, it ensures discharge of solids with high dry matter content, thus minimizing product losses, a clean bowl and reliable operation.

The bowl casing is jacketed for cooling and sound dampening. The cooling of the solids collecting chute ensures against burning-on of solids.

The sliding bowl bottom is fitted with an easily exchangeable erosion liner for protection against possible abrasive solids.

The presence of a frequency inverter in the VFD system gives a number of advantages, including low starting current, and a short-time power supply at external power failure.

Operating principles

The feed is introduced into the rotating centrifuge bowl from the bottom via the hollow bowl spindle (1) and accelerated in a distributor (2) before entering the disc stack (3). The separation takes place between the discs.

The liquid phase moves towards the centre of the bowl where it is pumped out under pressure by means of a built-in pump (4). The heavier solids phase is collected at the periphery of the bowl where it is discharged intermittently via the centrifuge cyclone.

The solids are discharged by a hydraulic system below the separation space in the bowl, which at certain intervals forces the sliding bowl bottom (5) to drop down thus opening the solids ports (6) at the periphery of the bowl. The triggering system functions by outlet turbidity and/or timer.

Basic equipment

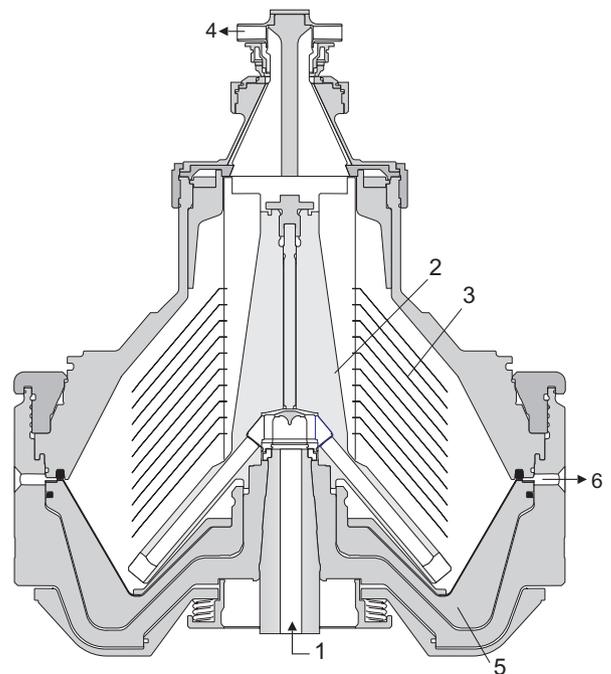
The Clara 601 H is normally delivered as a complete system to simplify installation and start-up. The system includes valve modules for process and service liquids, frequency inverter and control system. The centrifuge includes motor, set of tools, speed sensor, vibration sensor, vibration-dampening feet, and standard set of spares.

Options

The disc stack is available in two different diameters, giving different solids space volumes, and with two different disc spacings. The frame can be delivered in two executions: painted or clad with stainless steel. In the latter case, the motor has a stainless steel cover.

Optional extras

The Clara 601 H is available with a cover-interlocking kit to make it impossible to start the centrifuge unless it is properly assembled, and additional service kits.



Typical bowl for a fully hermetic solids-ejecting clarifying centrifuge. The details illustrated do not necessarily correspond to the centrifuge described.

Material data

Bowl body, hood and lock ring	s.s. 1.4418
Solids cover and frame hood	s.s. 1.4401 UNS 31600
Bottom frame	Cast iron, with or without cladding with stainless steel 1.4301 UNS 30400
Inlet and outlet	stainless steel 1.4401 UNS 31600
Gaskets and O-rings	Nitrile rubber ¹⁾

¹⁾ In accordance with FDA 21 CFR§177.2600

Shipping data (approximate)

Centrifuge incl. bowl and motor	2,550 kg (5,600 lbs)
Bowl	1,150 kg (2,500 lbs)
Gross weight	2,800 kg (6,200 lbs)
Volume	10 m ³ (350 cuft)

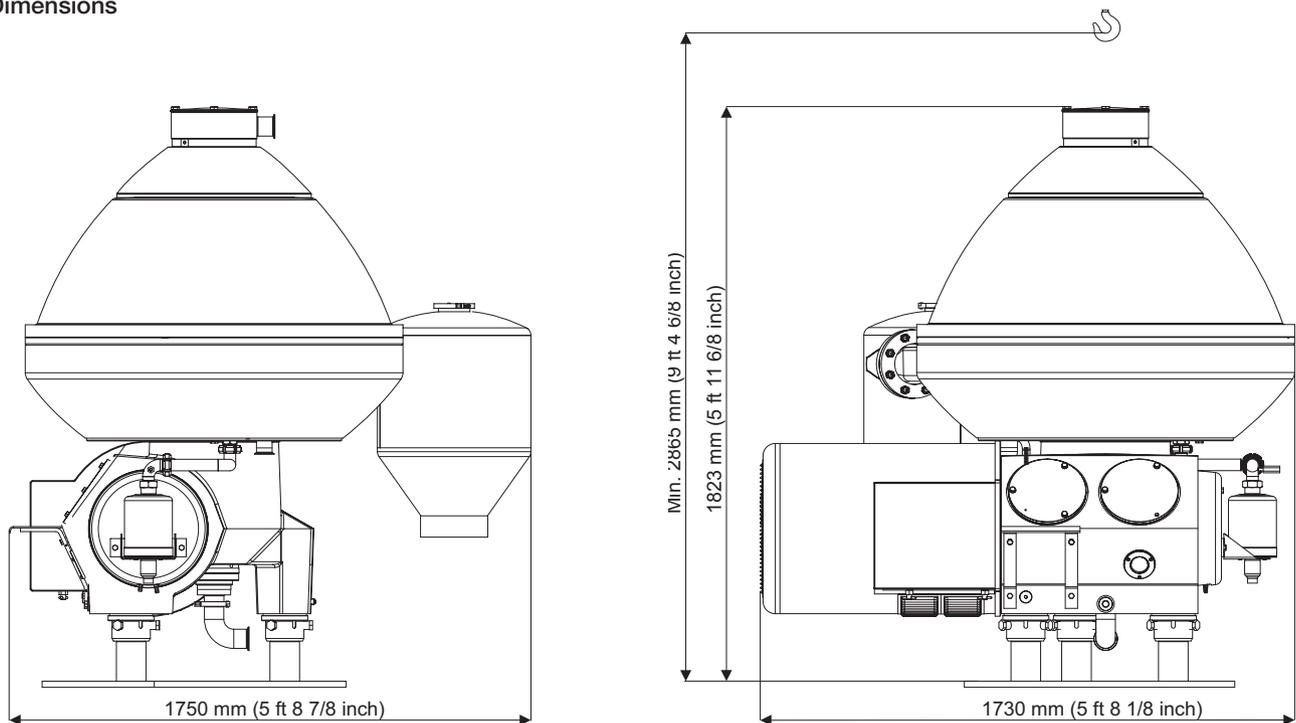
Technical specifications

Throughput capacity	max. 55 m ³ /h (240 US gpm)
Bowl speed	4,800 rpm
Bowl volume	59 l (15.6 US gal)
Sludge space volume	max. 32 l (8.4 US gal)
Motor power installed	37 kW (50 HP)
Inlet pressure at 55 m ³ /h (240 US gpm) at centrifuge inlet flange	300 kPa (44 psig) ¹⁾
Sound pressure	78 dB(A) ²⁾
Overhead hoist lifting capacity	min. 1,200 kg (2,700 lbs)

¹⁾ At 55 m³/h with outlet pressure 450 kPa (65 psig)

²⁾ In compliance with EN ISO 3744

Dimensions



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.