



CLARA 20

Multi-purpose centrifuge module for food and fermentation industries



CLARA 20 separation unit.

Alfa Laval's Clara 20 separator module is designed to be a flexible, multipurpose unit for sanitary industries such as food and fermentation. It is ideal for pilot scale or laboratory installations as well as for small scale production. The unique design of the CLARA 20 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 20 unit is delivered as a complete fully equipped system ready to install. It can be used to clarify a liquid from solids as well as separating two liquid phases.

Applications

The CLARA 20 mobile separation unit is designed for use by food and fermentation industries.

Standard design

The unit consists of a stainless steel skid fitted with a separator and all the auxiliary equipment needed for safe, efficient

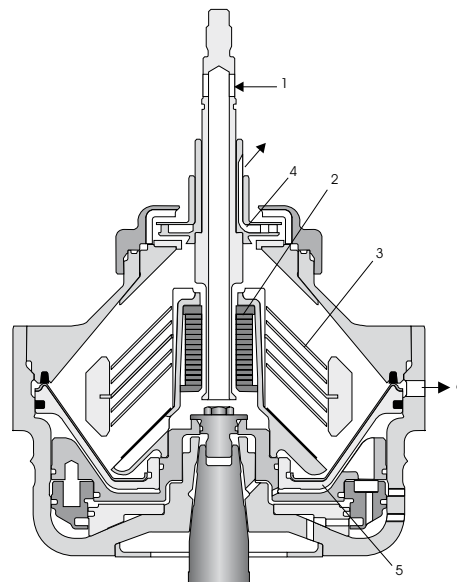
operation. It comes in two variants: a high flow version up to 4,000 l/h and a low flow variant up to 1,000 l/h.

With the exception of the separator, CLARA 20 includes:

- feed valve that is automatically closed when not in production mode.
- sight glasses at outlet.
- sample valves at both inlet and outlet.
- flow meter with volumetric totalizer.
- pressure indicator at outlet.
- regulating valve for back pressure adjustments.
- solenoid valve block for addition of operating water, and solenoid valve for automatic flushing of bowl exterior.
- A Variable Frequency Drive (VFD) starts and drives the separator motor. The VFD also has a built-in control panel to monitor and control the different functions of CLARA 20. The control panel displays information about the operation, such as operating mode and time to next discharge. It also displays alarm messages. The operator's interface is straightforward and easy to understand.

Operating principles

Separation takes place inside a rotating bowl. The feed is introduced to the rotating centrifuge bowl from the top via a stationary inlet pipe (1), and is accelerated in the distributor (2), before entering the disc stack (3). The distributor is designed especially to ensure smooth acceleration of the feed liquid. The separation of liquid-solids takes place between the discs, with the liquid phase moving through the disc stack to the centre and is led to the paring chamber, where it is pumped out of the rotor by means of a built-in paring disc (4). The solids is collected in the periphery, from where it is discharged intermittently into the solids collecting cover. The solids discharge is achieved by a hydraulic system which at pre-set suitable intervals forces the sliding bowl bottom (5) to drop down and thus opening the solids ports at the bowl periphery (6).



Options

A solids handling receiving unit can be fitted to the modul. This consists of a collecting tank and a pump. A stand-alone feed pump can also be supplied. The separator can be set up either as a clarifier in order to separate solids from a liquid or as a concentrator or purifier in order to separate two liquid phases, and possibly also solid particles.

Utilities consumption

Electric power at 4 m ³ /h	2.2 kW
Discharge and closing liquid	0.5 l / discharge

Connections

Product inlet/outlet, low flow	DN 10
Product inlet/outlet, high flow	DN 25
Water	DN 10

Dimensions & weight (approximate)

Height	1,450 mm
Width	800 mm
Length	1,500 mm
Complete module incl. bowl (net)	375 kg

Typical bowl drawing for a solids-ejecting centrifuge in clarifier executing. Drawing details do not necessarily correspond to the centrifuge described.

Technical specification

Throughput capacity, low/high flow	max. 1 m ³ /h / 4 m ³ /h
Bowl speed	9,512 rpm
Centrifugal force, inside bowl	max. 11,130 g
Bowl liquid volume	2.2 l
Sludge space volume	approx. 1.1 l
Fixed discharge volume	1.1 l
Motor power installed	3.7 kW
Starting time	3.5–4.5 min
Stopping time, with brake	3–4 min
Sound pressure	72 dB(A) ¹⁾

¹⁾ According to EN ISO 4871

Material data

Bowl body, hood and lock ring	s.s. 1.4462 UNS S31803
Solids cover and frame hood	s.s. 1.4401 UNS 31600
Frame bottom part	cast iron
In and outlet parts	s.s. mostly 1.4401 UNS 31600
Piping	s.s. 1.4407 UNS S30400
Gaskets and O-rings	Nitrile, Viton and EPDM (FDA appr.)

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