Alfa Laval Aldec Decanter Centrifuges

High performance for sludge thickening and dewatering

Application

The Aldec range of decanter centrifuges from Alfa Laval is designed with a focus on cost-effectiveness, reliability and easy operation. They are particularly used for thickening and dewatering sludges from municipal or industrial waste water or potable water treatment plants.

Aldec decanter centrifuges are capable of handling a wide range of flow rates. They are designed to be efficient, simple to install, easy to maintain and straightforward to operate . Installation, operating and service costs are minimal.

Benefits

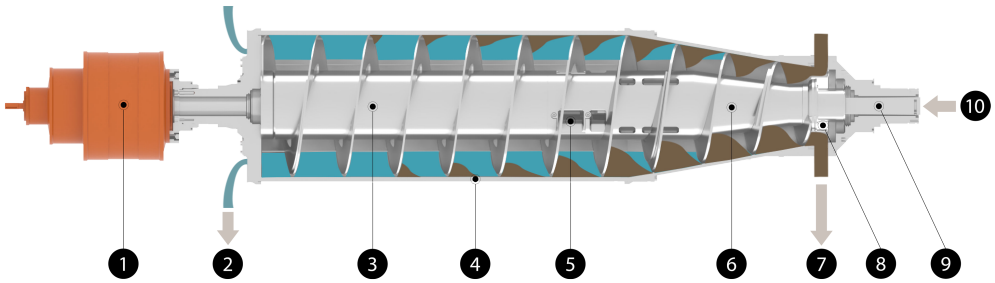
Aldec decanter centrifuges provide a series of concrete benefits.

- Reduces sludge volume, which cuts down on transport and disposal costs
- Compact, modular design saves space, resulting in high processing capacity with a small footprint
- High performance combined with low energy consumption.

Key features

FlightProtect	Wear-protection coating for conveyor flights, preserving the integrity and prolonging the service life of the flights
SolidsProtect	360° outlet with replaceable wear protection, ensuring high uptime

Decanter design and functionality



1: Gearbox
2: Liquid outlet
3: Screw conveyor
4: Wall of the bowl
5: Inlet distributor
6: Conical end
7: Cleaned slurry / Solids outlet
8: Discharge ports
9: Feed tube
10: Feed inlet

Cross section of the interior of the decanter - the rotating assembly

Design

The rotating part of Aldec decanter centrifuges is mounted on a compact, in-line frame, with main bearings at both ends. Vibration dampers are placed underneath the legs of the frame. The rotating part is enclosed in a casing with a stainless steel cover and a bottom section featuring integrated outlets for the solids and liquid being discharged.

Working principles

Separation takes place in a horizontal cylindrical bowl equipped with a screw conveyor. The feed enters the bowl through a stationary inlet tube, and is accelerated smoothly by an inlet distributor. The centrifugal force that results from this rotation then causes sedimentation of the solids on the wall of the bowl. The conveyor rotates in the same direction as the bowl, but slightly slower, thus moving the solids towards the conical end of the bowl. The cake leaves the bowl through the solids discharge openings into the casing. Separation takes place throughout the entire length of the cylindrical part of the bowl, and the clarified liquid leaves the bowl by flowing through adjustable outlet dams or tubes.

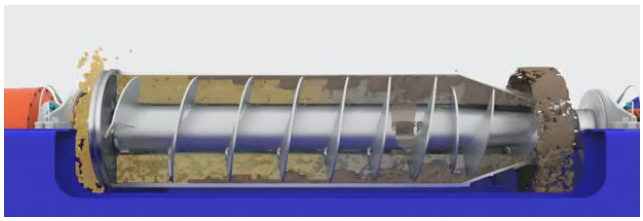


Figure 1. Steep cone configuration

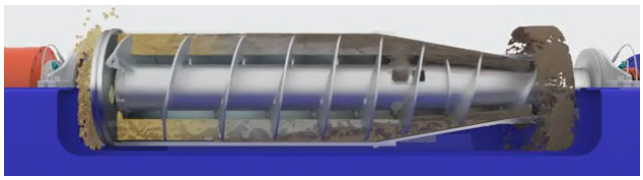


Figure 2. Shallow cone configuration

Process Optimization

Aldec decanter centrifuges can be adjusted to suit specific requirements by varying:

- Bowl speed to ensure the G-force required for most efficient separation
- Conveying speed and pond depth in the bowl to ensure the most effective balance between liquid clarity and solids dryness.

Drive system

In all Aldec decanter centrifuges, the bowl is driven by an electric motor and a V-belt transmission drive. Power is transferred to the conveyor via a planetary or Direct Drive gearbox. For smaller Aldec decanters, countershaft transmission is an option. Operation can either be pre-set to a suitable set of parameters, or the difference between the speeds of the bowl and the conveyor can be controlled automatically, with no need for changing belts or pulleys.

Service

Investing in an Alfa Laval decanter centrifuge gives you access to a Service Agreement that helps boost reliability and maximize uptime when dealing with feed stocks containing particles that cause wear on the bowl and conveyor. We provide service kits that make it easy to carry out service tasks, with skilled Field Service Engineers supporting your exact needs.

Automation

Decanter centrifuges equipped with variable frequency drives (VFD) are available with control solutions to meet specific operating requirements, from basic decanter operations to advanced functionality. Alfa Laval decanter automation can also help you achieve specific process performance goals, along with easy, automated process adjustments, real-time status feedback and automated cleaning cycles.

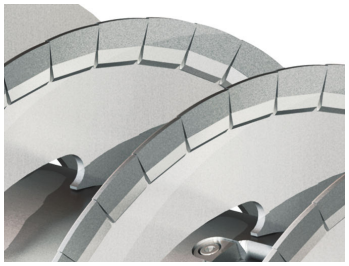
Connected Services

Decanter centrifuges equipped with automation can be fitted with IoT hardware to streamline data-driven decisions that ensure more uptime and lower cost of ownership. You can then quickly and easily access key Alfa Laval expertise, along with condition monitoring and process optimization. Please refer to the Alfa Laval website for more information.

Selected features

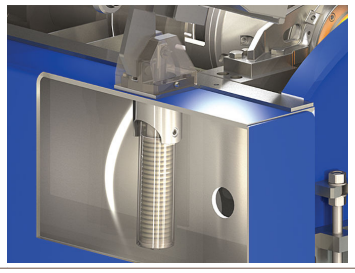
FlightGuard

FlightGuard wear protection consists of tiles welded to the conveyor, providing robust wear resistance and prolonged uptime in highly abrasive applications.



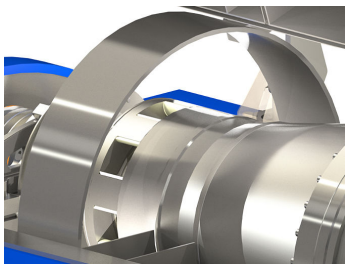
EasyLift

The patented, spring-loaded, hinged design makes it easy to open even the heaviest cover by hand. Offering safe and quick access for maintenance and service.



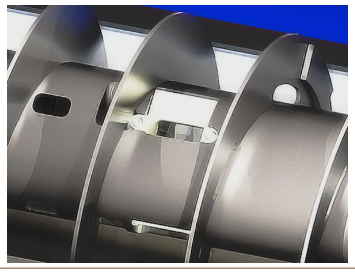
SolidsProtect

The innovative 360° outlet design ensures an even discharge of solids and minimal resistance. The outlet can handle high flow rates without blockages. SolidsProtect outlets feature replaceable wear saddles that maximize reliability and uptime.



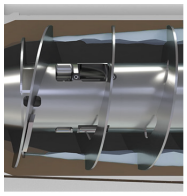
FeedProtect

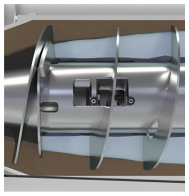
The uniquely designed FeedProtect feed zone ensures gentle product acceleration and minimal turbulence, resulting in low abrasion and power consumption. The FeedProtect design is equipped with replaceable wear-protection liners, ensuring high uptime.

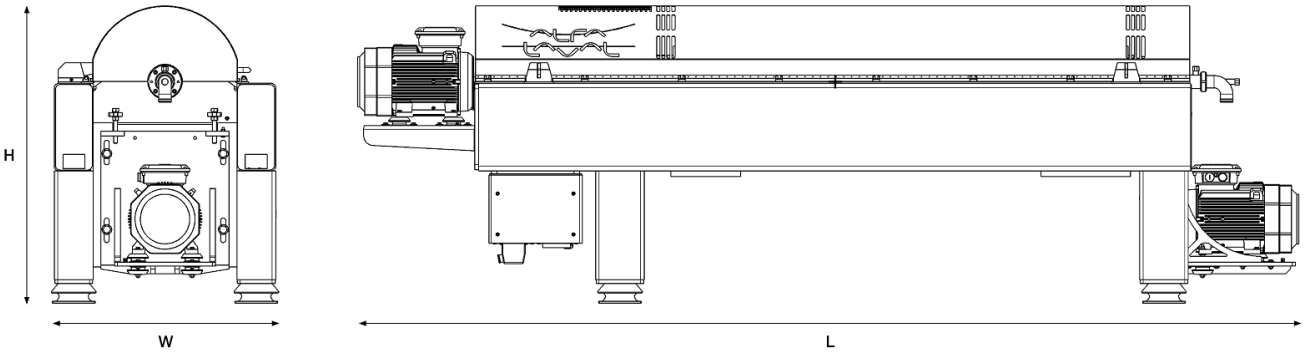


DeepPond

Increasing the pond depth inside the bowl creates a larger volume, leading to longer retention time and improved separation performance. The DeepPond design delivers high solids dryness and clean centrate, even at high flow rates.







Technical Specification

Designation	Aldec 20	Aldec 28	Aldec 28L	Aldec 36	Aldec 44
Length (L)	2150 mm	2936 mm	3216 mm	3998 mm	4749 mm
Width (W)	580 mm	780 mm	780 mm	990 mm	1060 mm
Height (H)	762 mm	930 mm	930 mm	1304 mm	1376 mm
Maximum weight	375 kg	1125 kg	1200 kg	2300kg	3200 kg
Main drive size	4-11 kW	11-18.5 kW	11-18.5 kW	11-22 kW	11-45 kW
Back drive size	3 kW	7.5 kW	7.5 kW	5.5-11 kW	5.5-15 kW
Back drive control	CS* or VFD**	CS* or VFD**	CS* or VFD**	CS* or VFD**	CS* or VFD**
***Countershaft fixed differential speed**					
****Variable frequency drive**					

Designation	Aldec 50	Aldec 55	Aldec 65	Aldec 72
Length (L)	5076 mm	5842 mm	6502 mm	6901 mm
Width (W)	1190 mm	1300 mm	1450 mm	1510 mm
Height (H)	1534 mm	1696 mm	1791 mm	1852 mm
Maximum weight	4900 kg	5000 kg	6500 kg	8600 kg
Main drive size	22–75kW	30-110 kW	37-160 kW	55-250 kW
Back drive size	5.5-22 kW	15- 30 kW	15-30 kW	22-37 kW
Back drive control	VFD*	VFD*	VFD*	VFD*
***Variable frequency drive**				

Additional info

Cover with hinge info:
Please consult the dimensional drawing when defining the area needed around the decanter for opening the cover

Drain Zone:
Individual/specific connection, please consult the dimensional drawing

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