

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.



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



| 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 |

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 & Connected Services

Decanters come with control solutions for various operating needs, from basic to advanced functions. Alfa Laval's automation helps achieve specific process performance goals with easy adjustments, real-time feedback, and automated cleaning. Decanters can also be connected online with IoT hardware, offering remote support and condition monitoring features for data-driven decisions, ensuring more uptime and lower ownership costs.

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 d | ifferential 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 d | rive | | | , |

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

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