

Alfa Laval Prodec Oil Decanter Centrifuges

Crude Palm Oil



Application

The Alfa Laval Prodec Oil range of decanter centrifuges was developed specifically to ensure the efficient extraction of oil in the crude palm oil clarification process. They are specially designed to operate well in the tough, demanding palm oil mill environment. This decanter centrifuge range meets the needs of almost every size of palm oil mill, with processing capacities from 30 to 90 tons of fresh fruit bunches per hour.

Benefits

Prodec Oil decanter centrifuges are very robust and provide multiple operating benefits. Critical areas inside the unit are protected by wear-resistant tungsten carbide tiles and bushings. An improved conveyor design results in low oil losses in the solids and heavy phases. Savings of as much as 30% on power consumption are made possible by an innovative liquid outlet design.

Key features



FlightGuard

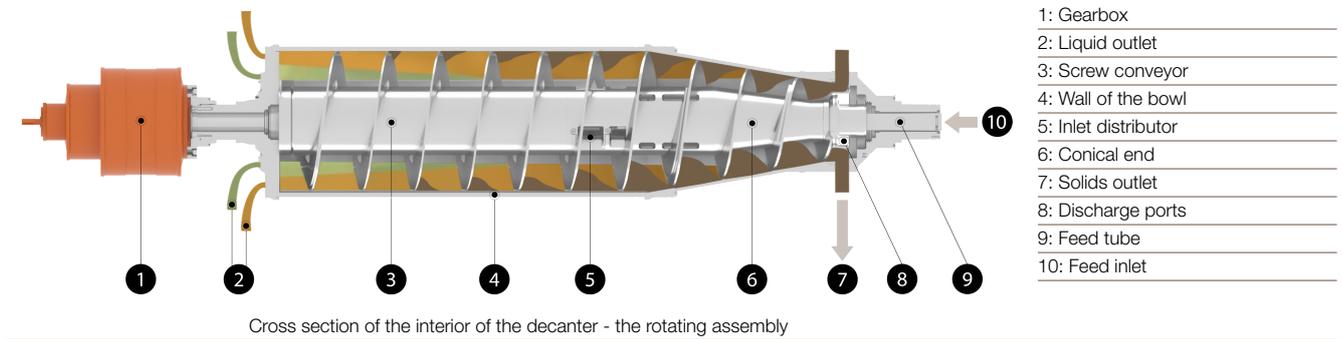
Protection tiles, welded to the conveyor flight, providing wear resistance in highly abrasive applications and securing high uptime.



FeedProtect

Easily replaceable wear inserts protect against abrasion, ensuring high uptime.

Decanter design and functionality

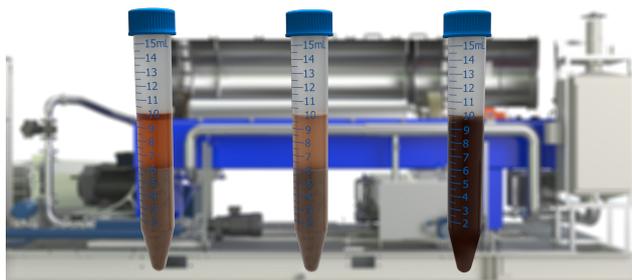


Working principles

The incoming feed is effectively separated into a light phase (2), a heavy phase (2) and solids (7). The incoming product is fed into the bowl through an inlet tube (10) and is accelerated by the inlet rotor (5). Separation takes place in a horizontal cylindrical bowl equipped with a screw conveyor (6) that is purpose-built for excellent wear resistance and efficient oil recovery. Centrifugal force separates the oil (the light phase) from the feed, making it accumulate at the liquid surface. At the same time, the water (the heavy phase) settles in the middle. The heavier solids settle on the inner wall of the bowl. Oil extraction takes place along the entire length of the cylindrical part of the bowl.

Operating results

The Alfa Laval Prodec decanter has proven to achieve low oil content in the solids and in the heavy phase when operating as a concentrator, and equally low solids oil content and a very high oil purity when operating as a purifier.

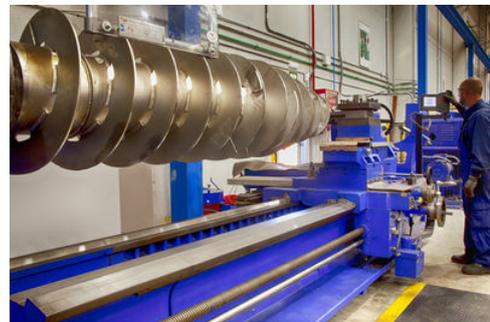


Example
For the D3PRO undiluted process (from left): feed, heavy phase and light phase.

Where to install

The Prodec Oil decanter can be used in the conventional clarification process to recover oil in the settling tank's underflow. In the D3PRO Undiluted Clarification station, the Prodec Oil decanter is used to replace the large settling tank. It then efficiently separates the undiluted crude pressed palm oil into solids featuring a low oil content, and a very clean light phase that goes directly to the vacuum dryer. and a heavy

phase with low oil content that is then polished still further using a high-speed separator.



Repair centres for decanters are located in every major palm oil market.

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

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.



EasyLift



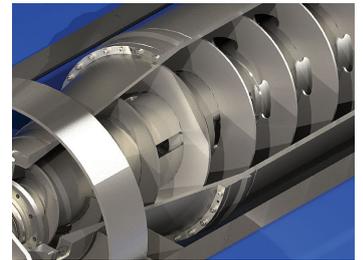
The patented spring-loaded hinged design makes it easy to open even the heaviest cover by hand. This also helps ensure quick, safe access for maintenance and service.



Duplex



Superior materials featuring particularly high strength have been selected for the critical parts of the decanter. The solution has been specially tailored to deal with challenging operating conditions in demanding applications, and to enhance the service life of the unit.



3 Phase Power Tube



Power tubes installed in the three-phase application serve two purposes. Firstly, they recover any power losses. Secondly, it is easy to make adjustments between the phases. Installation flexibility helps make sure of effective separation between the liquid phases.

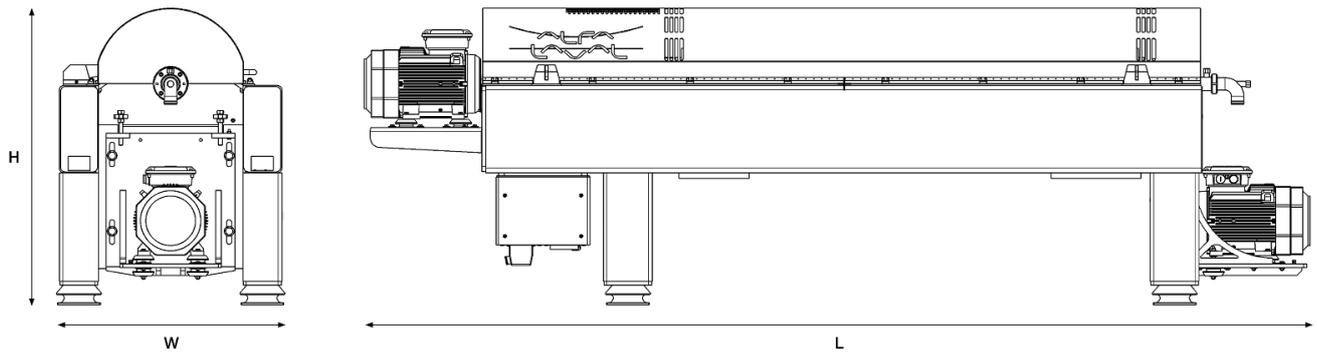


360 Degrees interphase sealing



The 360-degree seal uses a fixed O-ring located on the frame to seal the cover tightly when it is closed. This feature also prevents any re-mixing of separated liquids, as well as further improving the overall efficiency of decanter operations.





Technical Specification

Countershaft

Designation	Prodec 36	Prodec 43	Prodec 50
Gross Weight	2250 kg	3650 kg	4470 kg
Length (L)	3545 mm	5008 mm	4828 mm
Width (W)	1030 mm	1060 mm	1190 mm
Height (H)	1351 mm	1382 mm	1719 mm
Main Drive / Back Drive Options	22 kW **Y-D	45 kW **Y-D	55 kW **Y-D
Gearbox Options	Planetary 2.5 kNm	Planetary 2.5 kNm	Planetary 4.5 kNm
Nominal Capacity	Up to 15 m ³ /hour	Up to 27 m ³ /hour	Up to 35 m ³ /hour
*Variable frequency drive			
**Star – Delta			

Technical Specification

Basic

Designation	Prodec 36	Prodec 43	Prodec 50
Gross Weight	2550 kg	3750 kg	4900 kg
Length (L)	4254 mm	5008 mm	5563 mm
Width (W)	1030 mm	1060 mm	1190 mm
Height (H)	1351 mm	1382 mm	1719 mm
Main Drive / Back Drive Options	22 kW / 5.5 kW *VFD	45 kW / 5.5 kW *VFD	55 kW / 11 kW *VFD
Gearbox Options	Planetary 2.5 kNm	Planetary 2.5 kNm	Planetary 4.5 kNm
Nominal Capacity	Up to 15 m ³ /hour	Up to 27 m ³ /hour	Up to 35 m ³ /hour
*Variable frequency drive			
**Star – Delta			

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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