



# Alfa Laval i-Dec Decanter Centrifuges

Cost-effective decanter solutions for thickening and dewatering



## Application

AlfaLaval i-Dec decanter centrifuges are ideal for the continuous thickening and dewatering of sludge from municipal and potable water, featuring dry solids and medium-to-high capacity requirements, and when the main focus is on reliability, cost-effectiveness and simple, straightforward operation.

## Benefits

i-Dec decanters meet key performance criteria for thickening and dewatering sludge in a particularly cost-effective way, with the added benefit that they are easy to operate. Like other Alfa Laval decanters, i-Dec units provide high quality, robustness and easy serviceability. The innovative design – incorporating several patented solutions – provides multiple benefits, including a small footprint, low cost of ownership and low noise while in operation.



### FlightProtect

Wear-protection coating for conveyor flights, preserving the integrity and prolonging the lifetime of the flights.



### DeepPond

Deep pond operation provides larger separation volume, resulting in improved separation performance and energy efficiency.

## Decanter design and functionality



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

### Design and serviceability

The rotating assembly of these decanter centrifuges is mounted on a compact, in-line frame, with main bearings at both ends. Vibration dampers are mounted under the frame. The rotating part is enclosed in a casing with a cover and a bottom section with integrated outlets for both solids and the liquid being removed.

i-Dec decanters are designed with good serviceability in mind such as easy assembly/disassembly, easy access to cleaning and lubrication and field replaceable wear parts. Spare parts are available in OEM quality and as specific service kits.

### 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 the 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. A special patented Liquid-Lock conveyor design accelerates light particles before discharge to ensure optimum separation. This also contributes to the small footprint of the unit.

Separation takes place throughout the entire length of the cylindrical part of the bowl. Relatively low G-force is needed for the i-Dec decanter to deliver good performance in terms of capacity and cake dryness. This contributes to low power consumption.

The clarified liquid leaves the bowl by flowing out of the casing via special patented energy-saving PowerTubes that enable the effluent to discharge at lower speeds. The cake leaves the bowl into the casing through the solids discharge openings.

### Materials

The frame is made of mild steel. The bowl, conveyor, inlet tube, outlets, cover and other parts in direct contact with the process media are all made of AISI 304 stainless steel, but are also available in AISI 316 as an option. The discharge ports, conveyor flights and feed zone are protected with special materials that are highly resistant to erosion.

### Drive system

i-Decdecanter bowls are driven by an electric motor and a V-belt drive. Power is transferred to the conveyor via a planetary gearbox. The motor can be driven by a variable frequency drive (VFD). The conveyor can be driven directly by a counter-shaft transmission or a back drive motor. An optional VFD system optimizes the differential speed without changing belts or pulleys, providing an overall reduction of the power consumption. Operation can also be pre-set to a suitable set of parameters.

### Options

- Bowl material: AISI 316 stainless steel
- Main drive motor: floor mounted (standard, see illustration) or frame mounted (optional)

### 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.

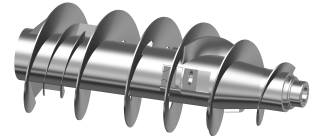
## Features

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### LiquidLock



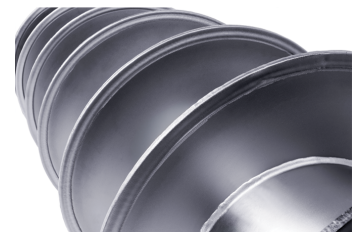
A special device that accelerates floating solids from the surface into the solids layer. This results in liquids leaving the decanter being of better quality.



### FlightProtect



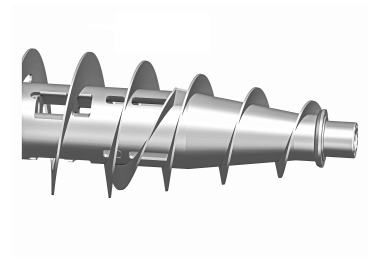
FlightProtect is an application-specific wear-protection coating for conveyor flights that preserves the integrity of each flight and prolongs its service life.



### ActiveBaffleDisc



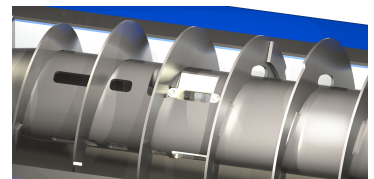
The twisted design of the baffle results in better performance and throughput. There is a specific positive impact on solids stuck to the bowl wall during sludge transport towards the outlet zone.



### FeedProtect



Feed zone with wear protection. Easily replaceable wear inserts protect against abrasion and erosion, ensuring low service costs and long uptime.



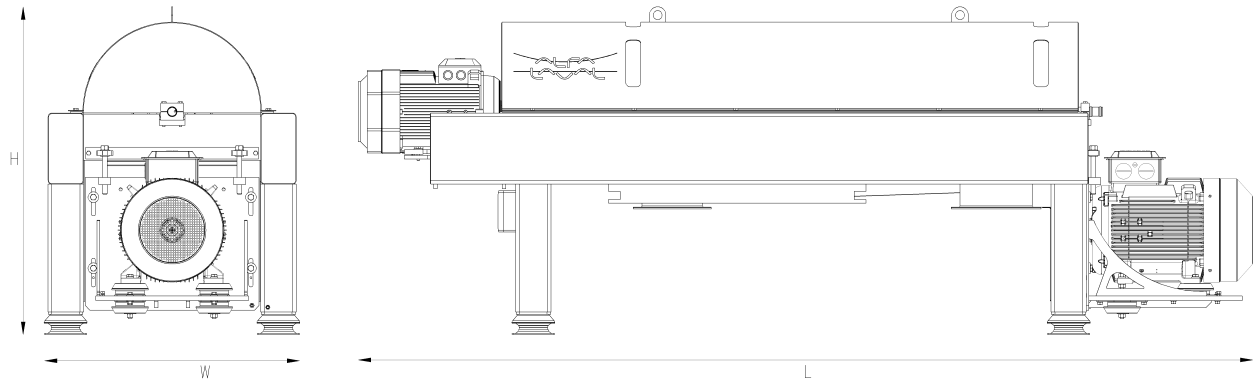
### PowerTubes



Adjustable outlets to regulate the pond level are designed to release the liquid tangential to the rotational direction. This supports the bowl rotation and thereby recovering energy and minimizing power consumption.



Dimension sketch and technical data



Technical specifications

Designation	i-Dec 40	i-Dec 49	i-Dec 57
Length (L)	3057 mm	3460 mm	3796 mm
Width (W)	870 mm	960 mm	1050 mm
Height (H)	1016 mm	1319 mm	1703 mm
Maximum weight	1200 kg	1600 kg	2100 kg
Main drive size	18,5-30 kW	22-37 kW	37-55 kW
Back drive size	5,5 kW	11 kW	15 kW
Back drive control	VFD*	VFD*	VFD*
Lifting lugs	No	No	Yes

\* Back drive can be with a variable frequency drive motor, or counter shaft driven without motor.  
The main drive can be frame mounted as shown, or supplied as a loose floor mounted motor

Additional info

For information about service space requirements, please consult the dimensional drawing when defining the area needed around the decanter and the space for needed opening the cover
<b>Drain Zone:</b> for individual/specific connections, please consult the dimensional drawing

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