



i-DW decanters

Decanter range for efficient sludge dewatering



Applications

The range of Alfa Laval i-DW decanter centrifuges is ideal for continuous thickening and dewatering of sludge from municipal and industrial wastewater treatment as well as potable water, when the main focus is reliability, cost-efficiency and simple operation with medium to high capacity and dry solids.

Benefits

i-DW decanters meet fundamental performance criteria in a cost-efficient way and are easy to operate. Like other Alfa Laval decanters they offer high quality, robustness and easy serviceability. The innovative design, incorporating patented solutions, provides a number of benefits:

- Small footprint
- Low power consumption
- Low cost of ownership
- Fully enclosed process sections
- High performance thanks to liquid lock design
- Low noise emission
- Alfa Laval certified technology

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 Liquid Lock conveyor design (patent pending) accelerates light particles before discharge for optimum separation. It also facilitates the small footprint.

Separation takes place throughout the entire length of the cylindrical part of the bowl. Relatively low G-force is needed for the i-DW 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 Power Tubes that enable lower speed of discharged effluent. The cake leaves the bowl through the solids discharge openings into the casing.

Process optimization

Alfa Laval i-DW decanters can easily be optimised to suit specific requirements by adjusting

- bowl speed to obtain the G-force required for the most efficient separation
- conveyor speed for the most efficient balance between liquid clarity and solids dryness
- pond depth in the bowl for the most efficient balance between liquid clarity and solids dryness.

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 placed 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-DW 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

Materials

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. The bowl can also be supplied in AISI 316 (optional). The discharge ports, conveyor flights and feed zone are protected with materials that are highly resistant to erosion. The frame is made of mild steel.

Drive system

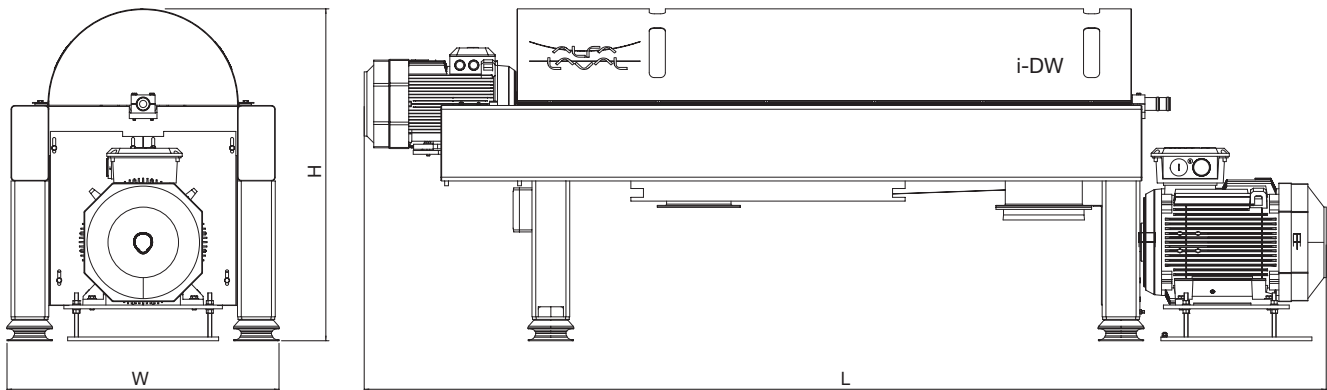
i-DW decanter bowls are driven by an electric motor and a V-belt drive. Power is transferred to the conveyor via a planetary gearbox. The Variable frequency drive (VFD) system optimizes the differential speed without changing belts or pulleys for an overall reduction of the power consumption. Operation can also be pre-set to a suitable set of parameters.

Control system

i-DW decanter centrifuges are as standard delivered with Alfa Laval's Basic Core Controller (BCC). This control package is capable of fully controlling the decanter operation, ensuring the most efficient performance and keeping costs for installation, commissioning, operation and maintenance to a minimum. The controller is also designed to measure the temperature of the bearings, and to monitor vibration level.

Options

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



Technical specifications

Model	i-DW 40	i-DW 70	i-DW 90
Dimensions (L x W x H)	3,057 X 870 x 1,016 mm	3,450 x 960 x 1,703 mm	3,796 x 1,050 x 1,319 mm
Weight	Approx. 1,200 kg	Approx. 1,600 kg	Approx. 2,100 kg
Main speed	3,400 rpm	2,900 rpm	2,500 rpm
Main drive motor	18.5-30 kW	22-37 kW	37-55 kW
Back drive generator	5.5 kW	11 kW	15 kW

Alfa Laval reserves the right to change specifications without prior notification.

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