



STNX decanter centrifuge

High-performance decanter centrifuge for starch production



Applications

Alfa Laval STNX decanter centrifuges are used for a wide range of different starch processing operations. These include dewatering heat-coagulated potato protein and maize gluten, 2-phase and 3-phase wheat starch and protein splitting, and fruit juice separation and fibre dewatering in the potato and tapioca starch industries.

The STNX range provides the starch industry with the most cost-effective, high-performance solution, with the lowest power consumption and life cycle costs available.

Design

Alfa Laval designed the STNX range of decanter centrifuges with a focus on performance, easy access, reliability and low noise levels.

The rotating assembly is supported on a compact welded box beam frame with main bearings at both ends. The in-line motor is flanged or foot-mounted on the decanter with adjustable brackets for belt tension adjustment. The bowl is driven at the conical end by an electric motor using a V-belt transmission.

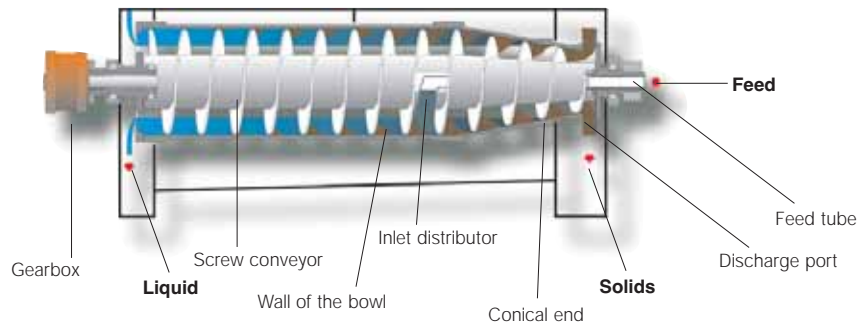
The bowl, conveyor, casing, inlet tube, outlets and other parts that come in contact with the process media are made of AISI 316 and duplex stainless steel.

Operating principles

Separation takes place in a horizontal cylindrical bowl equipped with a screw conveyor. The product is fed into the bowl through a stationary inlet tube and is then smoothly accelerated by an inlet rotor. Centrifugal force immediately makes the solids build up on the wall of the bowl.

The conveyor rotates in the same direction as the bowl, but at a different speed, thus moving the solids towards the conical end of the bowl. The solids leave 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 over adjustable plate dams into the casing.



Direct Drive

Direct Drive is a unique system developed by Alfa Laval for automatic control of the differential speed between the bowl and the conveyor. This makes it easy to maintain the best possible balance between liquid clarity and solids dryness, irrespective of variations in the feed.

Direct Drive comprises a new type of gearbox and variable frequency drive, which do not expose the bowl drive to parasitic braking power loss. The electrical installation is straightforward, power consumption is kept to a minimum, and accurate control is achieved within a wide range of differentials.

Decanter Core Controller (DCC)

The decanter is controlled by a dedicated control system with a central processor, featuring a graphic interface. The DCC controls the Direct Drive, dependent on the solids load in the bowl. A number of parameters related to the decanter are also monitored in order to ensure easy, safe and reliable operation – even when performing at maximum levels. External bus options for control equipment from several major manufacturers enable customers to integrate the decanter centrifuge into their own systems.

Process optimization

The STNX decanter centrifuge can be adjusted to suit specific requirements by varying the

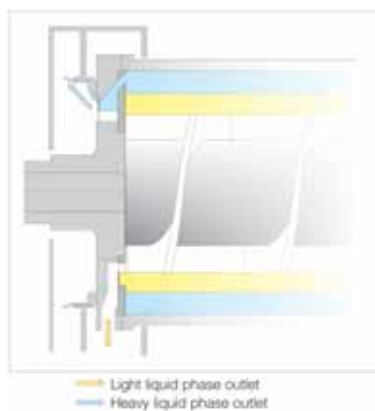
- bowl speed to obtain the required G-force for optimized separation
- conveying speed to optimize the balance between liquid clarity and solids dryness
- pond depth in the bowl to optimize the balance between liquid clarity and solids dryness
- feed flow – the STNX design is capable of handling a wide range of flow rates.

Options

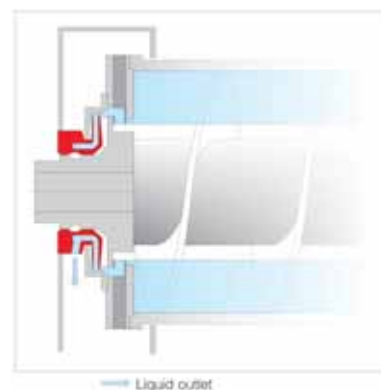
Alfa Laval STNX decanter centrifuges are available with a range of unique design options. These include a paring disc to minimize foam, plough tiles to improve process performance and reduce operational conveyor torques, pulp wash facilities, process rinse features and full cleaning-in-place (CIP), as well as FDA-approved elastomers and seals. All STNX decanter centrifuges are available in 3-phase versions suitable for the splitting process. They are ATEX-compliant and are also available for zones 1, 2 and 22.



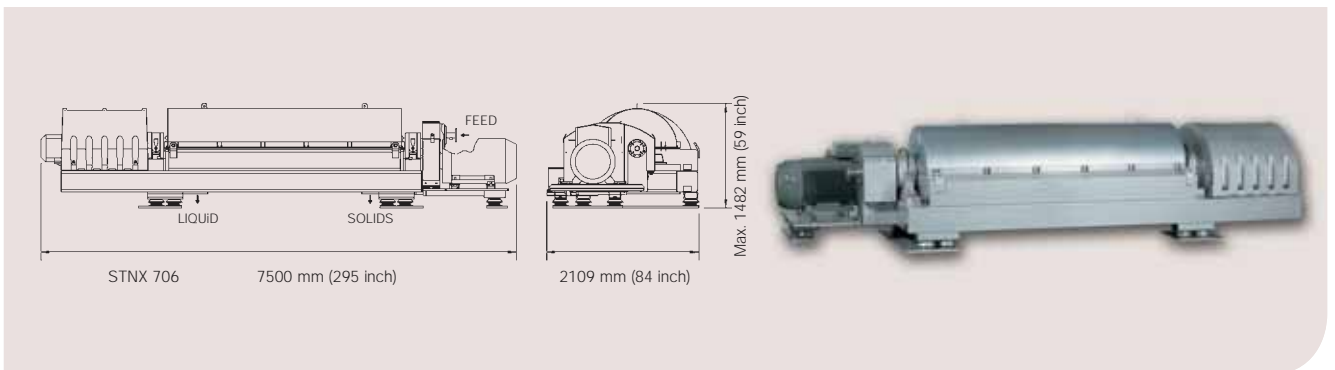
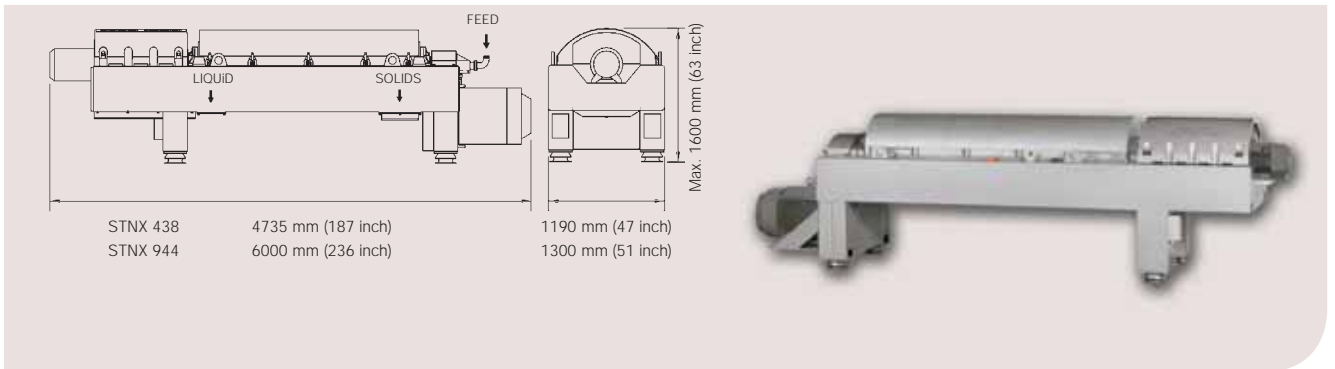
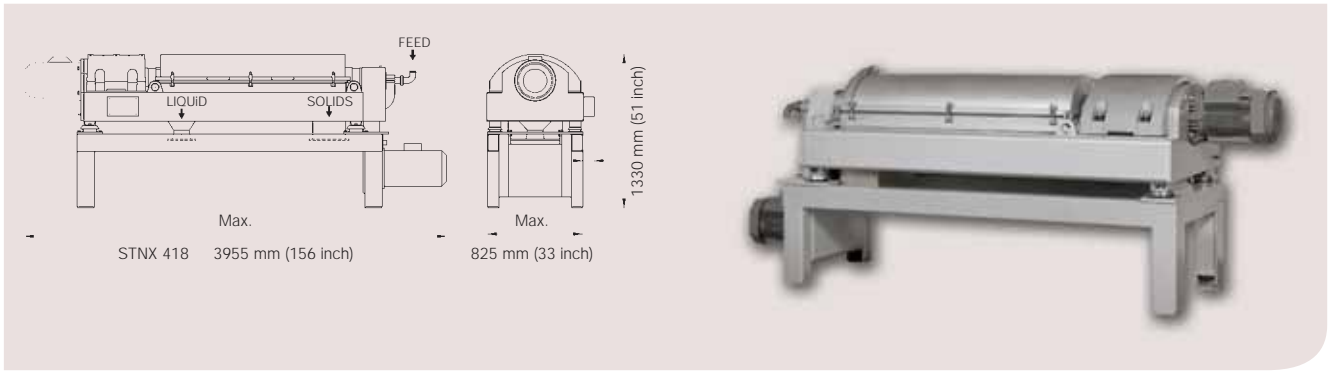
Screen for Decanter Core Controller (DCC)



Three-phase design



Paring disc design



Technical specifications

		STNX 418	STNX 438	STNX 944	STNX 706
Bowl diameter	mm	353 (14 in)	480 (19 in)	575 (23 in)	740 (29 in)
Max. bowl speed	rpm	4000	3650	2900	2800
Max. G-force		3157	3574	2703	3243
Weight	kg.	2200 (4840 lbs)	5000 (11000 lbs)	7000 (15400 lbs)	13000 (28860 lbs)
Installed Power	kW	15 – 37 (20 – 40 hp)	45 – 110 (60 – 150 hp)	75-160 (100- 200 hp)	132 – 250 (150-300 hp)
Sound Pressure Level ¹	dB(A) re. 20µPa	82	85	86	89

¹ Declared A-weighted emission sound pressure level in free field over a reflecting plane at 1 m. distance from the decanter operating at maximum bowl speed, tested with water and closed outlet.