



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 of 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.

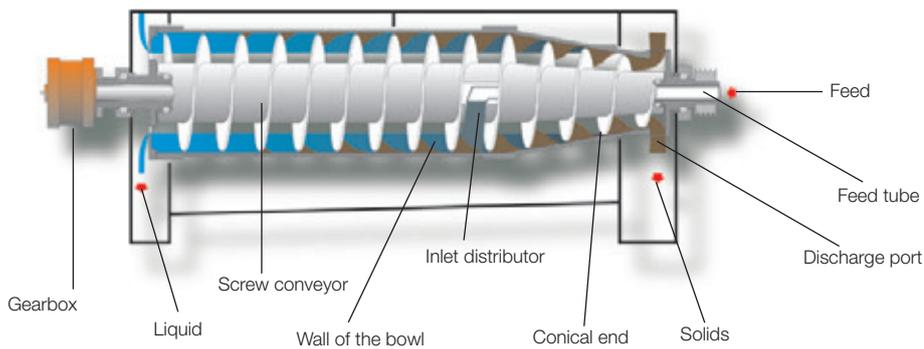
The bowl, conveyor, casing, inlet tube, outlets and other parts that come in contact with the process media are made of AISI 316 and duplex stainless steel.

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.

2Touch controls add value

Every STNX decanter centrifuge is equipped with a pre-installed, factory-tested 2Touch control package. The system is designed for SCADA/DCS system integration.

The combination of 2Touch control system and STNX separation technology ensures that you get the most out of any STNX installation, while keeping installation, commissioning, operation and maintenance costs to a minimum.

The system monitors temperature and vibration and also features adaptive controls, which allow intelligent and smooth adjustment of the torque and speed of the conveyor.

Additional enhancement packages are available for the 2Touch control package. These include:

- Automatic clean out in the event of a blackout or complete power failure
- Maintenance and training aids, including manuals in PDF format and videos about routine maintenance procedures
- Process module for continual polymer regulation and dosing optimization
- Remote monitoring, response and reporting

Process optimization

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

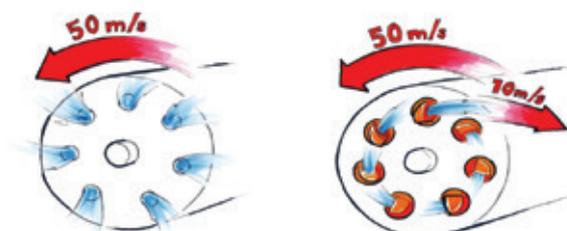
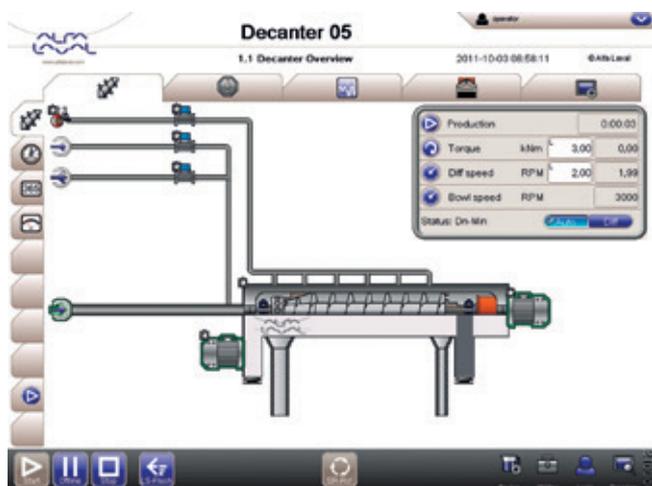
- bowl speed to obtain the required G-force for optimized separation
- conveying speed to optimize the balance between liquid clarity and solids dryness
- pond depth in the bowl to optimize the balance between liquid clarity and solids dryness
- feed flow – the STNX design is capable of handling a wide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

Power consumption becomes power reduction

The bowl can be equipped with specially developed power plates or tubes that harness and exploit hydraulic energy to reduce power consumption still further.

Some of the discharge velocity from the centrate is captured and re-directed by these patented power plates in order to contribute to the bowl rotation. This results in a reduction in the velocity of the discharged liquid, which in turn reduces overall power requirements by 15-20%.

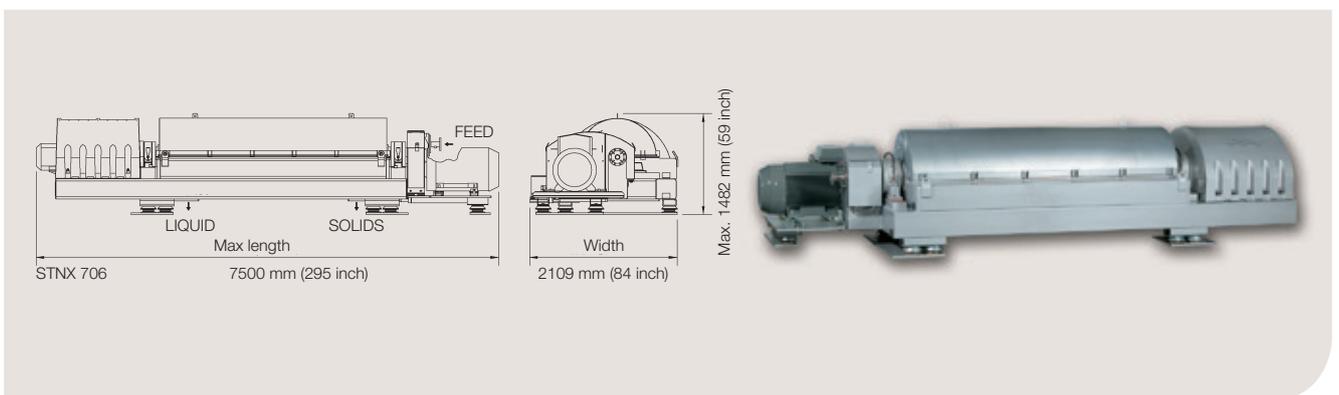
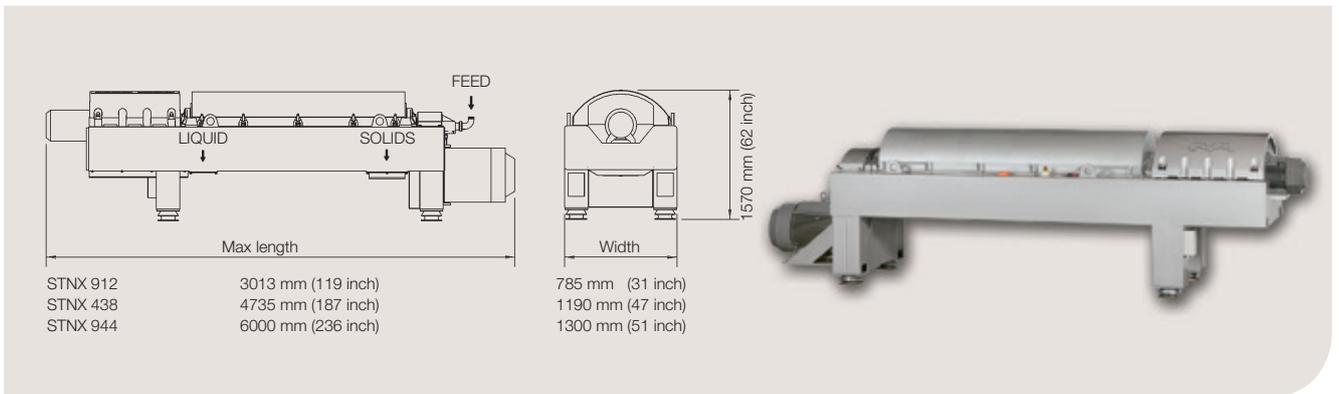
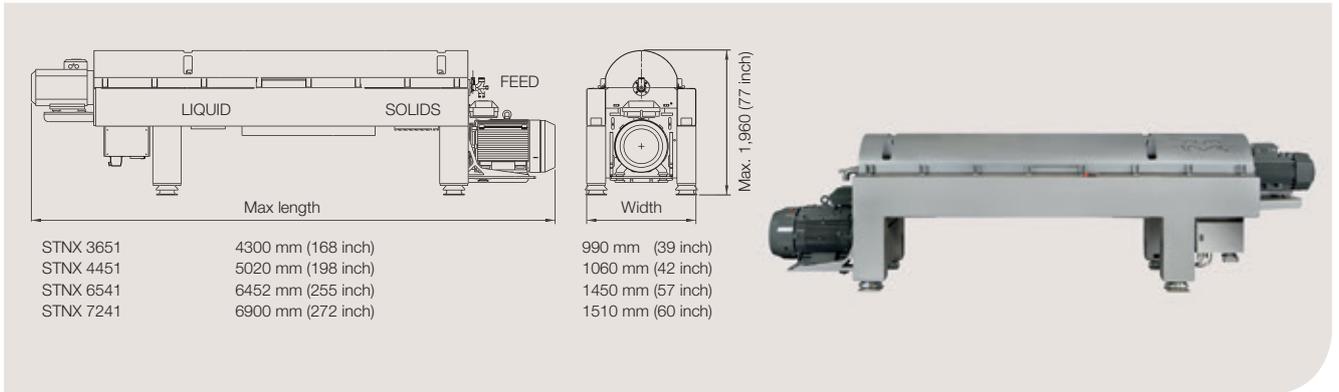
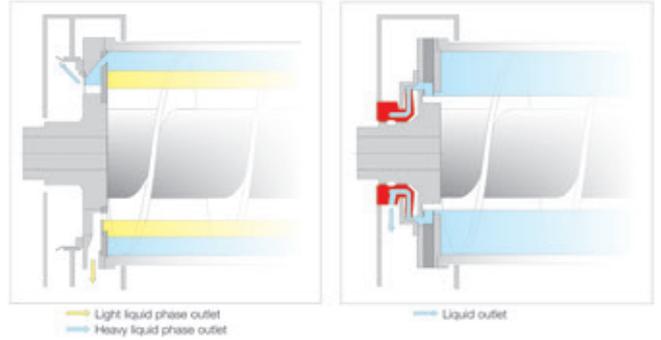
Reduced power consumption supports sustainable production and helps you live up to new environmental regulations – such as such as reductions in allowable CO₂ emissions.



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.



Technical specifications

Design	Bowl Diameter (mm)	Max. Bowl speed (rpm)	Max. G-force	Weight (kg)	Installed power (KW)	Sound Pressure Level ¹ (dB(A) re. 20µPa)
STNX 912	280 (11 inch)	4400	3030	1500 (3300 lbs)	18.5-26 (25-35 hp)	81
STNX 3651	360 (14 inch)	4200	3550	2300 (5071 lbs)	22-48 (35-70 hp)	82
STNX 4451	440 (17 inch)	3800	3551	3200 (7040 lbs)	15-66 (20-80 hp)	81
STNX 438	480 (19 inch)	3650	3574	5000 (11000 lbs)	44.5-90 (70-120 hp)	85
STNX 944	575 (23 inch)	2900	2703	7000 (15400 lbs)	75-160 (100- 200 hp)	86
STNX 6541	650 (25 inch)	3100	3491	6500 (14300 lbs)	83-205 (109-273 hp)	83
STNX 7241	720 (28 inch)	2900	3384	8600 (18959 lbs)	100-296 (134-395 hp)	84
STNX 706	740 (29 inch)	2800	3243	13000 (28860 lbs)	132-250 (150-300 hp)	89

¹Declared 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.

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

How to contact Alfa Laval

Up-to-date Alfa Laval contact
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at www.alfalaval.com