



SG2 decanter centrifuge

High-performance decanter centrifuge for DDGS production



Application

Alfa Laval SG2 decaners provide the most cost-effective, high-performance separation solution currently available for DDGS production. These decanter centrifuges are used to process high throughputs of stillage from all grain types so as to achieving a low level of suspended solids and high cake dryness, with reduced power consumption and lower life cycle costs.

Design

Alfa Laval designed the SG2 range of decaners with a focus on performance, easy access, reliability and low noise levels.

The rotating assembly is supported on a compact, in line, welded box beam frame which includes the both motors for ease of installation, quietness and low vibration. The bowl is driven at the conical end by an electric motor using a V-belt transmission.

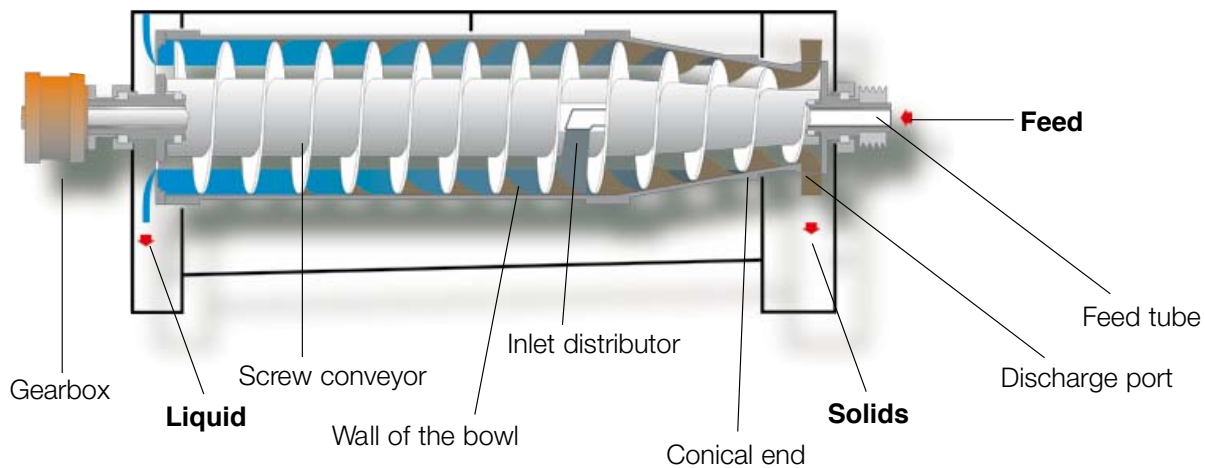
The bowl, conveyor, casing, inlet tube, outlets and other parts that come into contact with the process media are made of AISI 316 and duplex stainless steel. Parts that are subject to wear are protected with replaceable sintered tungsten carbide or weld applied tungsten carbide.

Operating principles

Separation takes place in a horizontal cylindrical bowl equipped with a screw conveyor. The product Stillage 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 lower 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 SG2 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 for optimized balance between liquid clarity and solids dryness
- pond depth in the bowl for optimized balance between liquid clarity and solids dryness
- feed flow – the Alfa Laval decanter centrifuge is designed to handle a wide range of flow rates.

Options

SG2 decanters are available in three phase design, whereby corn oil can be separated from the stillage at the same time as dewatering of the cake and clarification of the liquor. SG2 decanter centrifuges are available with a paring disc and are ATEX-compliant for zones 22.

Dimensions

Technical drawing showing side and front views of the SG2 100 and SG2 200 machines. Labels include LIQUID, SOLIDS, FEED, and Max. Dimensions are provided in millimeters and inches.

Model	Max. Length (mm)	Max. Length (inch)	Max. Height (mm)	Max. Height (inch)
SG2 100	1500	59	580	23
SG2 200	3013	119	785	31

Technical drawing showing side and front views of the SG2 300 machine. Labels include LIQUID, SOLIDS, FEED, and Max. Dimensions are provided in millimeters and inches.

Model	Max. Length (mm)	Max. Length (inch)	Max. Height (mm)	Max. Height (inch)
SG2 300	3955	156	825	33

Technical drawing showing side and front views of the SG2 400 machine. Labels include LIQUID, SOLIDS, FEED, and Max. Dimensions are provided in millimeters and inches.

Model	Max. Length (mm)	Max. Length (inch)	Max. Height (mm)	Max. Height (inch)
SG2 400	4569	180	1110	44

Technical drawing showing side and front views of the SG2 500 machine. Labels include LIQUID, SOLIDS, FEED, and Max. Dimensions are provided in millimeters and inches.

Model	Max. Length (mm)	Max. Length (inch)	Max. Height (mm)	Max. Height (inch)
SG2 500	4735	187	1190	47

Technical drawing showing side and front views of the SG2 600 machine. Labels include LIQUID, SOLIDS, FEED, and Max. Dimensions are provided in millimeters and inches.

Model	Max. Length (mm)	Max. Length (inch)	Max. Height (mm)	Max. Height (inch)
SG2 600	6000	236	1300	51

Technical drawing showing side and front views of the SG2 800 machine. Labels include LIQUID, SOLIDS, FEED, and Max. Dimensions are provided in millimeters and inches.

Model	Max. Length (mm)	Max. Length (inch)	Max. Height (mm)	Max. Height (inch)
SG2 800	7500	295	2109	84

Technical Data

		SG2-100	SG2-200
Bowl diameter	mm	200 (7.9 inch.)	280 (11 inch.)
Max. bowl speed	rpm	5300	4400
Max. G-force		3140	3030
Weight	kg	350	1200
Installed power	kW	4 (5hp)	11-18.5 (15-25 hp)
Sound pressure level ¹	dB(A) re 20 µPa	78	81

		SG2-300	SG2-400
Bowl diameter	mm	353 (14 inch.))	450 (18 inch.)
Max. bowl speed	rpm	4000	3250
Max. G-force		3157	2657
Weight	kg	2200 (4840 lbs)	3800 (8360 lbs)
Installed power	kW	20-45 (30-45 hp)	55-75 (25-60 hp)
Sound pressure level ¹	dB(A) re 20 µPa	82	79

		SG2-500	SG2-600
Bowl diameter	mm	480 (19 inch.)	575 (23 inch.)
Max. bowl speed	rpm	3650	3075
Max. G-force		3574	3039
Weight	kg	5000 (11000 lbs)	7000 (15400 lbs)
Installed power	kW	75-95 (75-100 hp)	140-225 (100-120 hp)
Sound pressure level ¹	dB(A) re 20 µPa	85	86

		SG2-800
Bowl diameter	mm	740 (29 inch.)
Max. bowl speed	rpm	2800
Max. G-force		3243
Weight	kg	13000 (28860 lbs)
Installed power	kW	(190-300 hp)
Sound pressure level ¹	dB(A) re 20 µPa	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.

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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