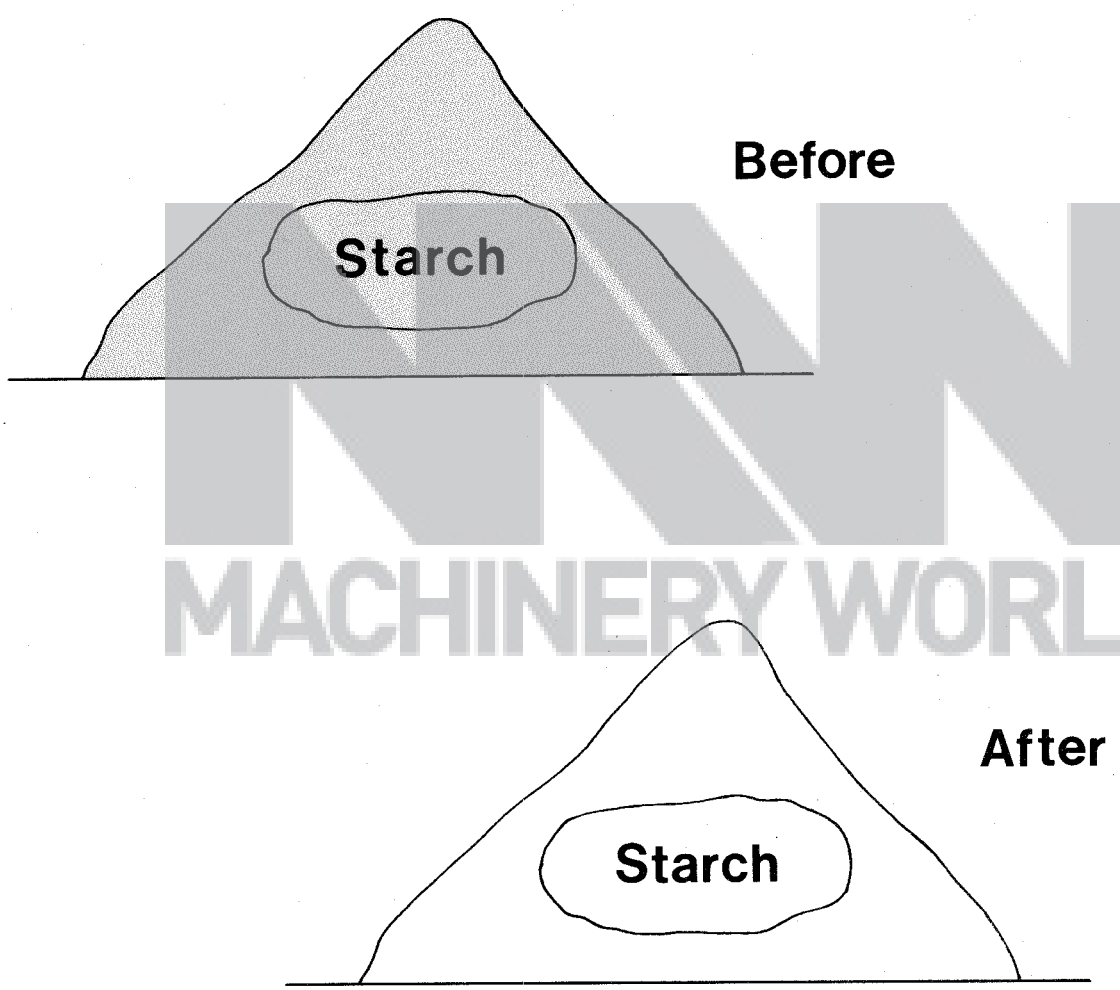
ALFA-LAVAL

Alfa-Laval TX310

- A Proven Workhorse For Starch Separation



WHAT MAKES A STARCH SEPA

THE TX 310 – A PROVEN WORKHORSE

For many years the tapioca industry has been using Alfa-Laval TX 310 separators. (Figure 1) The machine's popularity lies mainly in its simplicity of design, reliability, low maintenance and outstanding performance. What perhaps is not well known, however, is the reason behind the TX 310's superb efficiency – its powerful washwater system.

The Alfa-Laval TX is a high-speed starch separator with a hollow spindle and built-in high pressure washwater system. Other separator types used for tapioca starch refining rarely incorporate a high pressure washwater system but simply mix washwater into the feed. Such machines are usually referred to as SX separators.

THE TX PRINCIPLE – HIGH PRESSURE WASHWATER

The fact that the TX has a separate inlet for washwater does not mean that extra water is being used. On the contrary, the separate inlet system simply allows the washwater to reach the high pressure/high concentration zone of the bowl without contamination. (Figure 2) Efficient displacement of the fruitwater by freshwater takes place right in the zone of the bowl where the starch has reached its highest concentration.

For the layman, this process can be compared to doing the laundry. To efficiently rinse one's clothes, you first squeeze out as much dirty water as possible before adding fresh rinsing water, right? You would not mix the fresh and dirty water together, and consider that an adequate rinsing cyclone. But this is in fact what happens in some separators when the freshwater is mixed directly into the feed.

The TX has a built-in water pump so that wash-water can be fed into machine at low pressure and then high pressurized through pumping to ensure the water penetrates the starch close to the nozzles.

The starch particles mixed with injected fresh-water are then discharged through the nozzles, while the fruitwater with its solubles are dis-charged over a special centripetal pump at the top of the bowl referred to as the paring disc.

The TX thus not only concentrates the starch milk, it also carries out an efficient washing.

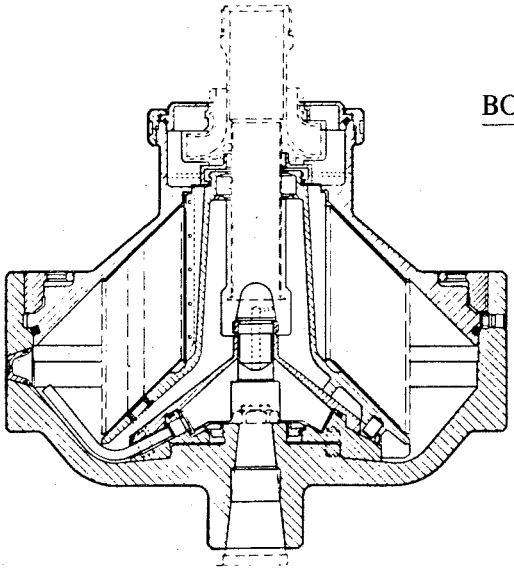


FIG. 2

THIS IS WHY YOU SHOULD I

FEATURES	BENEFITS
– Built in direct drive wash water pump	Lower power consumption since no separate pump for wash water is needed.
– Special wash water system	High starch quality is obtained. With wash water injected close to the nozzles by specially designed wash water tubes, it is possible to obtain a high displacement effect, i.e. the clean wash water displaces the high-soluble liquids (fruitwater) in which the starch is suspended resulting in higher starch quality.
– Friction clutch design	Eliminating need for expensive control torque motor. Friction blocks can be removed without dismantling the complete clutch thus enabling easy maintenance.
– Continuous operation	Less down time and higher productivity.

FEATURES	
– 100% full proof automatic lubricating system. (Splash lubrication)	Low ma
– Compact design	Low ins
– Direct gear drive	Low p
– Heavy duty frame	Special speed u
– Heavy duty epoxy enamel finish frame components	No rust
– High quality material	More re

RATOR A STARCH SEPARATOR

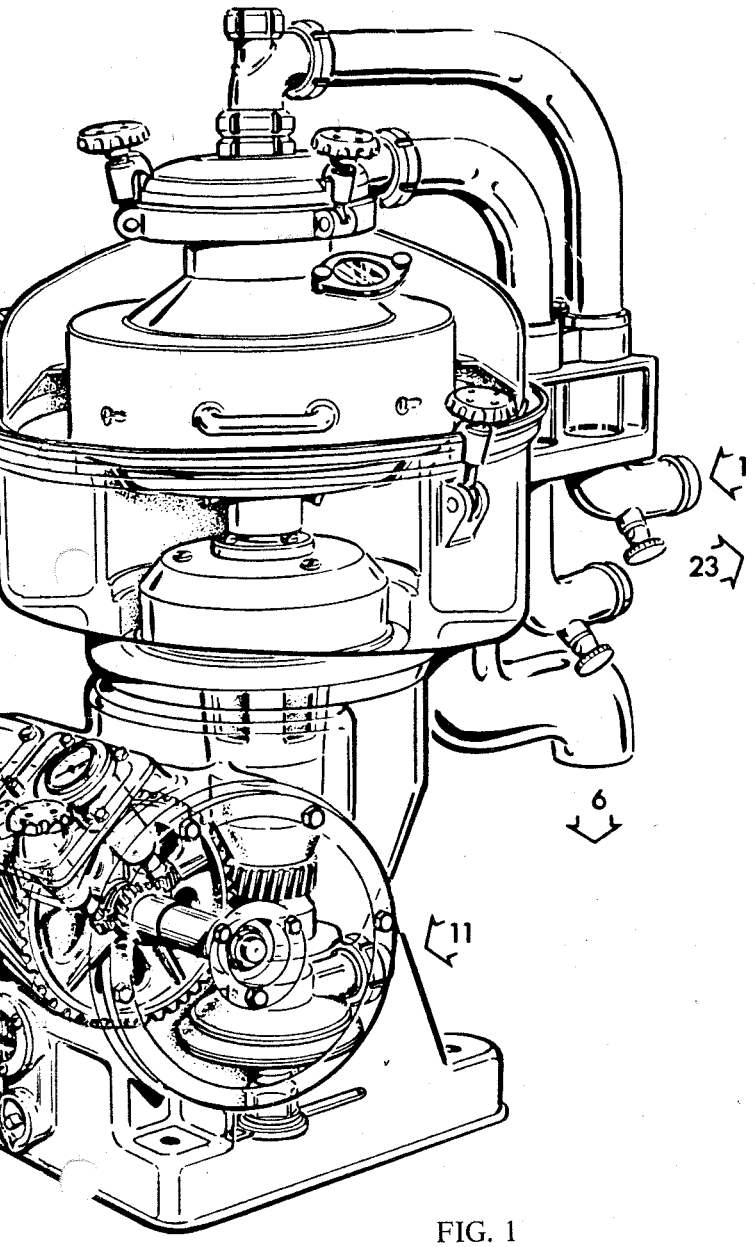


FIG. 1

SPIN OFF EFFECT – FIBRE REMOVAL

The high pressure water injected in the bowl also generates a flush effect which is extremely useful for fibre removal. The unwanted light fibres (brown particles) in the starch milk enters the machine and are concentrated together with the starch. For high quality starch, it is important that the fibres are removed. Since they are lighter than starch, the high pressure water injected in the concentration zone of the bowl stir up and flush away the fibres.

NEW OPTION – LOW-FLOW WASHWATER TUBES

An increasing demand for higher concentration and reduced washwater consumption has led to recent improvements of the TX's standard washwater system. The basic principle behind the change is carefully controlled injection of freshwater in the bowl. By using a special nozzle system, it has become possible to operate the TX separator with considerably reduced amount of water and still maintain a satisfactory washing efficiency.

DIRECT POWER DRIVE

Rarely mentioned, yet vital to the TX 310's performance is its heavy duty direct power drive. The direct drive offers total reliability and no excessive power consumption. Tests after tests have proven the TX direct gear drive superior to most other transmissions, such as the belt drive, fluid clutch, etc.

The TX 310 is indeed a proven workhorse. The first TX sold in Southeast Asia has been in operation for more than 20 years and is still strong – a record of 100,000 hours + of operation!

EST IN ALFA-LAVAL TX 310

BENEFITS
enance cost of bearing.
lation cost and space savings
er consumption and less down time
sign to carry motor up to 50 hp and 5000 rpm.
d easy to clean
bility, long machine lifetime

FEATURES	BENEFITS
Flexible bowl distribution design	High flexibility. Separator can be used at any washing stage by plugging or opening the holes in the distributors.
Effluent discharge system – Paring disk design	No separate pump is needed at the separator effluent outlet due to the effluent being discharged under pressure by a pump at the top of the bowl.
Bronze sludge receiver	No contamination of product.
All liquid wetted parts are made of stainless steel	Low maintenance cost, no rust and hygienic.
High speed operation (max. 5000 rpm)	High separation capacity and efficiency results in high concentration and high quality of product.

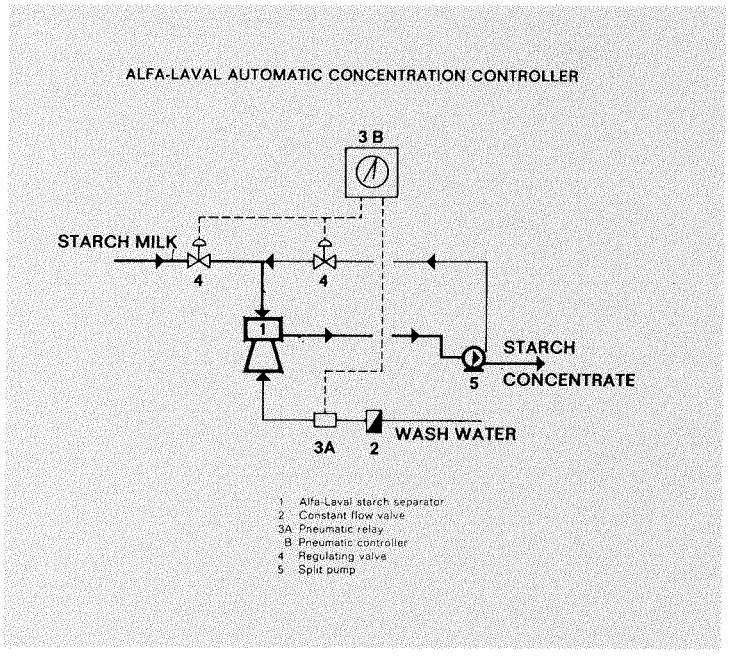


Figure 3 Alfa-Laval automatic concentration controller

AUTOMATIC OPERATION – FUTURE POTENTIAL

The TX washwater system offers a unique possibility to measure and control the concentration of the starch milk ejected from the nozzles. This feature, still not exploited in South East Asia, offers enormous potential for labour saving and quality improvement. The system is only applicable on separators of TX type. (Figure 3)

Please contact Alfa-Laval for more detailed information.

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