High speed separator upgrade boosts capacity at Brazilian sugar refinery

Grupo Santa Terezinha (USACUCAR), Brazil **Case Story**

One of the two upgraded Alfa Laval separators. Together, in terms of capacity, they are the equivalent of a third machine.

At the request of sugar and ethanol producer Grupo Santa Terezinha, Alfa Laval's Service Center in São Paulo recently upgraded two Alfa Laval high speed separators to the latest specifications. The separators are installed at the company's refinery near Paranacity in Brazil. The aim was to increase capacity without adding more machines, since space in the plant is limited.

The results of the upgrade have lived up to the customer's expectations. Gilberto Gualtieri, Industrial Manager, Santa Terezinha: "Following the upgrade, the machines are more efficient. There was a noticeable increase in output with lower energy consumption. We now achieve up to 75% concentration with minimum product loss, which is very good considering the fermentation conditions."

A good opportunity

At the beginning of 2010, Santa Terezinha sent two FESX 512 separators to Alfa Laval's Service Center for routine maintenance. The Parts & Service department offered the

Grupo Santa Terezinha (USACUCAR)

Founded in the 1960s, Grupo Santa Terezinha is a large ethanol and sugar producer in Brazil's Paraná State processing a total of 16 million tonnes of sugar per year.

Its eight production units are responsible for more than a quarter of all the sugar and ethanol production of Paraná State, and it has been one of the most expansive sugar and ethanol groups in Brazil during the past few years.

The Paranacity unit has an area of 30,000 hectares, with 25,000 allotted for harvesting, 1,500 for seedlings and 3,500 for new planting. The cane sugar mill has a capacity of 1.3 million tonnes of sugar per year

company a “capacity booster” upgrading package, which involves rebuilding the FESX 512s to FESX 712 specifications.

After analyzing the proposal, Santa Terezinha decided it was a good opportunity to increase production capacity at reasonable cost and without installing more equipment.

At the Service Center the machines were dismantled, the bowl was reformed and reconfigured, the upper structure was replaced, and worn parts were renewed.

Equivalent to a third separator

Joao Rosenstock, Alfa Laval Parts & Service, Brazil says that upgrading the FESX 512 to an FESX 712 is a good investment for the customer. “It increases throughput by about 40 m^3 per hour. In terms of capacity, Santa Terezinha received the equivalent of a third machine at 40% of the cost. No additional space was needed and no new installation or infrastructure.

“Maintenance costs are the same as for the original machines and spread over a higher throughput, i.e., the cost per produced litre of ethanol goes down which, in turn, means lower total cost of ownership.”

The upgrade also results in energy savings. The FESX 512 provides throughput of 1.7 m^3 per kW, while the FESX 712’s throughput is 2.7 m^3 per kW. Joao Rosenstock: “This fact has been verified by field tests coordinated by Alfa Laval Brazil’s High Speed Separator Manager, Wanderlei Malvezi, one of the developers of this product.”

This Alfa Laval FESX 517 separator, upgraded from FESX 512, now offers lower cost per produced litre of ethanol.

With eight production units in Brazil’s Paraná State, Grupo Santa Terezinha processes a total of 16 million tonnes of sugar cane per year.

A satisfied customer

Gilberto Gualtieri, Santa Terezinha: “In addition to the higher capacity, as a result of the upgrade, the equipment is now simpler to dismantle, making it easier to access the separator bowls for cleaning. The upgrade fulfilled our aims – we are very satisfied.”

“We are very happy that Santa Terezinha is satisfied with the ‘capacity booster’ upgrade. At Alfa Laval Brazil we have been their business partner for a long time,” concludes Joao Rosenstock.

Upgrading package: FESX 512 to FESX 712

Modifications to the separator

- Completely dismantled
- Bowl reformed and reconfigured
- Upper structure replaced
- Worn parts replaced
- Machine repainted

Benefits

- Production increased by 40 m^3/h
- Energy savings (with same nozzle diameter)
  - Prior to upgrading, FESX 512S: 1.70 m^3/kW
  - After upgrading, FESX 712BX: 2.70 m^3/kW
- Higher volume of ethanol
  - with the same cost of operation
  - per m^2 of installed equipment
  - per $ spent on annual maintenance

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.