Tetra Albrix™

Continuous sugar-dissolving unit

Future-proof efficiency

Welcome to future-proof efficiency in sugar dissolving with the newest generation of our Tetra Albrix. The new design maximizes output and delivers huge savings – cutting heating energy costs by 42%, cooling energy costs by 55%, and CO_2 emissions by 62%. Raw material costs are also greatly reduced thanks to higher accuracy.

Application

Tetra Albrix is a dissolving unit for continous dissolving and pasteurisation of granulated sugar with a concentration of up to 67 °Brix.

Highlights

- Higher operational efficiency – cuts heating energy costs by 42%, cooling energy costs by 55%, CO_2 emissions by 62%, and raw material costs thanks to greater accuracy
- Uncompromising food safety and quality
- Future-proof flexibility with unique modular design
- Perfect fit in our complete customized line solutions
- New cross-flow filter for more efficient dissolving, lower energy consumption, and lower raw material costs
- Advanced °Brix set-point control for exact dosing and huge cuts in energy and raw material costs
- Continuous automatic control minimizes manual handling and cuts operator costs

Working principle

Incoming treated water is preheated in a separate water heater and fed into a dissolving tank. Granulated sugar is continously conveyed from hopper to dissolving tank. In order to maintain agitation in the dissolving tank, a pump circulates the sugar/water slurry.

The slurry is pumped through a cross-flow filter, which separates dissolved sugar from sugar crystals. Sugar crystals return to the dissolving tank, while dissolved sugar passes through to an optional pasteurizer, optional decolourizing system, and to a final destination tank.

An optional pasteurizer reduces energy consumption, enabling regeneration in the plate heat exchanger (PHE) and cooling the sugar solution to 25 °C.

The advanced °Brix set-point control ensures exact dosing, optimizes dissolving temperature, and results in huge cuts in both energy and raw material costs. The advanced °Brix set-point control system combines flow and density measurement control systems to achieve quick and accurate recovery from disturbances in °Brix level, caused for example, by insufficient sugar or water flow. The system ensures that outgoing °Brix is on target.

The Tetra Albrix is automatically controlled during start up, production, shut down, and CIP.

Concept

The Tetra Albrix is skid-mounted with the dissolving tank next to the frame. The unit is equipped with PLC and operator interface HMI is pre-tested with water prior to delivery.

Main components

The module can be supplied in three different variations:

- Dissolver
- Dissolver & pasteurizer
- Dissolver & pasteurizer & control of active carbon treatment

Basic Unit – dissolver

- Frequency control of external sugar screw* (see note below)
- Mixing vessel
- Water heater – to heat incoming water, regulating valve, steam valve, magnetic flow meter
- Advanced °Brix set-point control
- Density meter
- Cross-flow filter
- Filter at tank outlet for cleaning and pump protection
- Stainless steel panel with PLC and operator interface (Siemens S7 or Allen Bradley Control Logix) including main switch, start/stop for mixing

Additional equipment required with dissolver + pasteurizer

- Tetra Plex plate heat exchanger
- Steam valves and steam traps
- Valves and piping

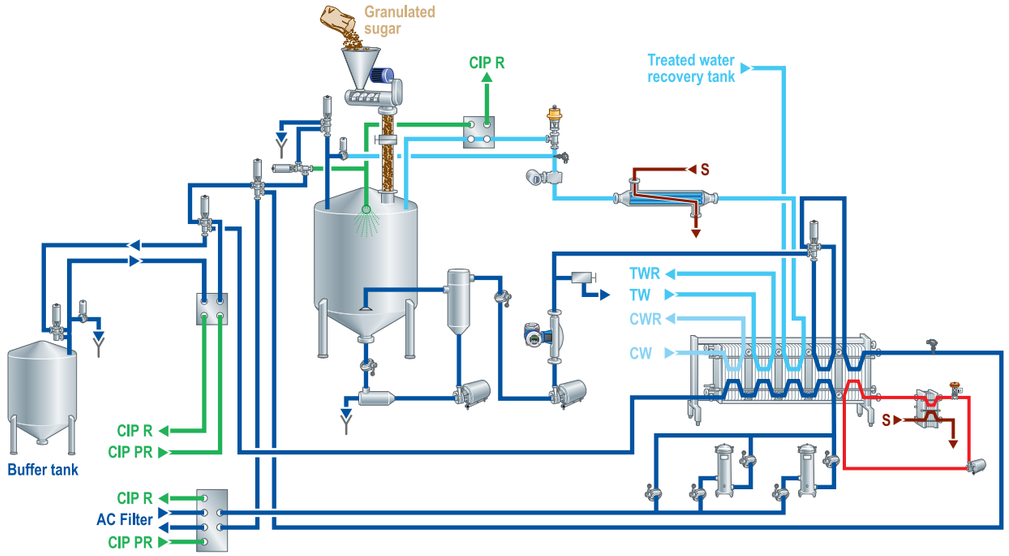
Optional equipment with dissolver+ pasteurizer

Hot water circuit

- Plate heat exchanger with CB
- Centrifugal stainless steel CRN pump
- Two thermometers
- Pressure gauge
- Combined make-up water and safety valve
- Air venting valve
- Control valve for water circulation

Enhanced energy efficiency option

- Improved regenerative
- Recommended for 62 °Brix



This illustrates the typical working principle for the Tetra Albrix dissolver + pasteurizer + control of decolorizer.

Additional equipment required with dissolver + pasteurizer + control of decolorizer

Mass flow meter

- Mass flow meters instead of magnetic flow meters on incoming water
- When using reverse osmosis water or sweet water is recovered, this option is mandatory

Tower water cooling

- Extra section in the PHE + valves (included in the third model – dissolver + pasteurizer + control of decolorizer)

Other optional equipment and features

- Uninterrupted power supply (UPS)
- Sugar inlet valve – if not supplied by powder conveying supplier
- Automatic control of destination tank

Cartridge filters for sugar

- Two catridge filters, 25 micron
- Shut-off valves
- Pipes and fittings

Bag filters for sugar

- Two bag filters, 25 micron
- Shut off valves
- Pipes and fittings

Pressure supervision on filters

- Pressure transmitter with alarm

Ethernet communication

- With supervisory automation system

Control room solution

- Tetra PlantMaster Machine Edition (ME) user interface
- Application software for remote handling of branded processing units

Air cooling unit in control panel

- Compressor

** The Tetra Albrix includes frequency control of the sugar screw but it does not include the sugar screw itself.*

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Tetra Pak