Tetra Pak®
Continuous Sugar Dissolver

Smart, flexible solution with hydraulic conveying

Application

Tetra Pak® Continuous Sugar Dissolver is designed for continuously dissolving and crystalline sugar in water up to a concentration of 65 °Brix with output capacities of 7 000, 15 000 and 25 000 litres per hour.

Highlights

- Hydraulic conveying cuts costs and enables flexible placement
- Patented injector technology and efficient radial jet mixer enable lower dissolving temperatures
- ±0.1 °Brix accuracy guaranteed
- Energy-efficient heat exchangers secure long-term sustainability
- Optional pre-filters prevent damage, enable handling of low quality sugar

Working principle

Granulated sugar is fed into the vacuum of our patented injector, which is activated by the main slurry recirculation pump. This allows instant wetting and dosing of sugar inline, to reach the nominal sugar concentration in the dissolving system. The inline °Brix monitoring coordinates a preheated water supply to balance the sugar concentration at the nominal concentration value, while adding water into the system.

The recirculation pump maintains agitation in the dissolving tank with the radial jet mixer and guides the slurry to the dissolving chamber containing a gap cartridge system. This system blocks undissolved sugar crystals and returns the slurry back to the dissolving tank.
Dissolved sugar crystals pass through the small gaps of the cartridges and are purged to the plate heat exchanger.

The sugar solution may here pass through an optional bag filtration system, where fine pollution is filtered out by a micron mesh before reaching the production line and the plate heat exchanger. The pasteurization and cooling of the sugar solution takes in the plate heat exchanger, utilizing energy regenerating sections. Then, the sugar solution enters the production line with a constant temperature of 25 °C.

Tetra Pak Continuous Sugar Dissolver is skid-mounted with the dissolving tank next to the frame.
The unit is equipped with a PLC and is pre-tested with water prior to delivery.

Main components

The module is supplied in three different variations:

- Base dissolver + hydraulic conveying
- Base dissolver + hydraulic conveying with lower outlet temperature
- Base dissolver + hydraulic conveying with pasteurizer

Base dissolver + hydraulic conveying

- Frequency control of external dosing equipment
- Dissolving tank
- Recirculation pump
- Water heater – to heat incoming water, including steam control equipment
- Several butterfly and regulating valves
- Advanced °Brix set-point control including refractometer
- Dissolving chamber including gap cartridges
- Stainless steel panel with PLC, including main switch
- Ethernet communication
- Hydraulic conveying including injector

Base dissolver + hydraulic conveying with lower outlet temperature

- Plate heat exchanger with cooling media supply
- Thermometers
- Pressure gauges

Base dissolver + hydraulic conveying with pasteurizer

- Plate heat exchanger with hot water circuit heat regenerative sections and cooling media supply
- Centrifugal booster pump
- Thermometers
- Pressure gauges

Other options

Pasteurizer

- Pressure surveillance for plate heat exchanger
- Tower water cooling including an extra section in plate heat exchanger plus valves
- Magnetic flow meter on dissolver outlet (required with plate heat exchanger)
- Tank sanitization (if using pasteurizer)
- Additional refractometer on production outlet

Other

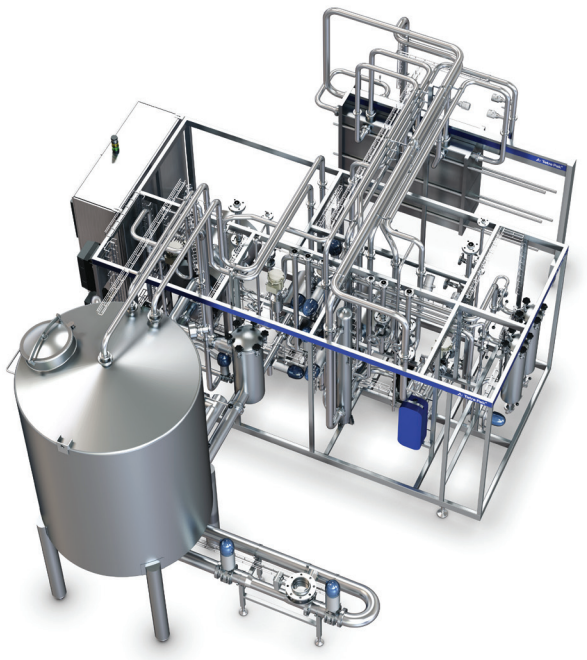
- Bag filters (two or four) with 50 micron mesh
- Pre-filters (one or two) 8 mm mesh
- Sugar treatment on request

Control panel

Tetra Pak Continuous Sugar Dissolver is controlled by PLC. This is fitted in a cabinet located in the base framework. A touchscreen gives the operator full control of the recipe and the module.

Control panel options:

- Human machine interface (HMI)
- Air cooling unit on control panel



Materials

- Product contacted materials AISI 316L, surface Ra 1.6 µm
- Framework structures AISI 304L
- All materials in contact with the product are food compliant

Technical data

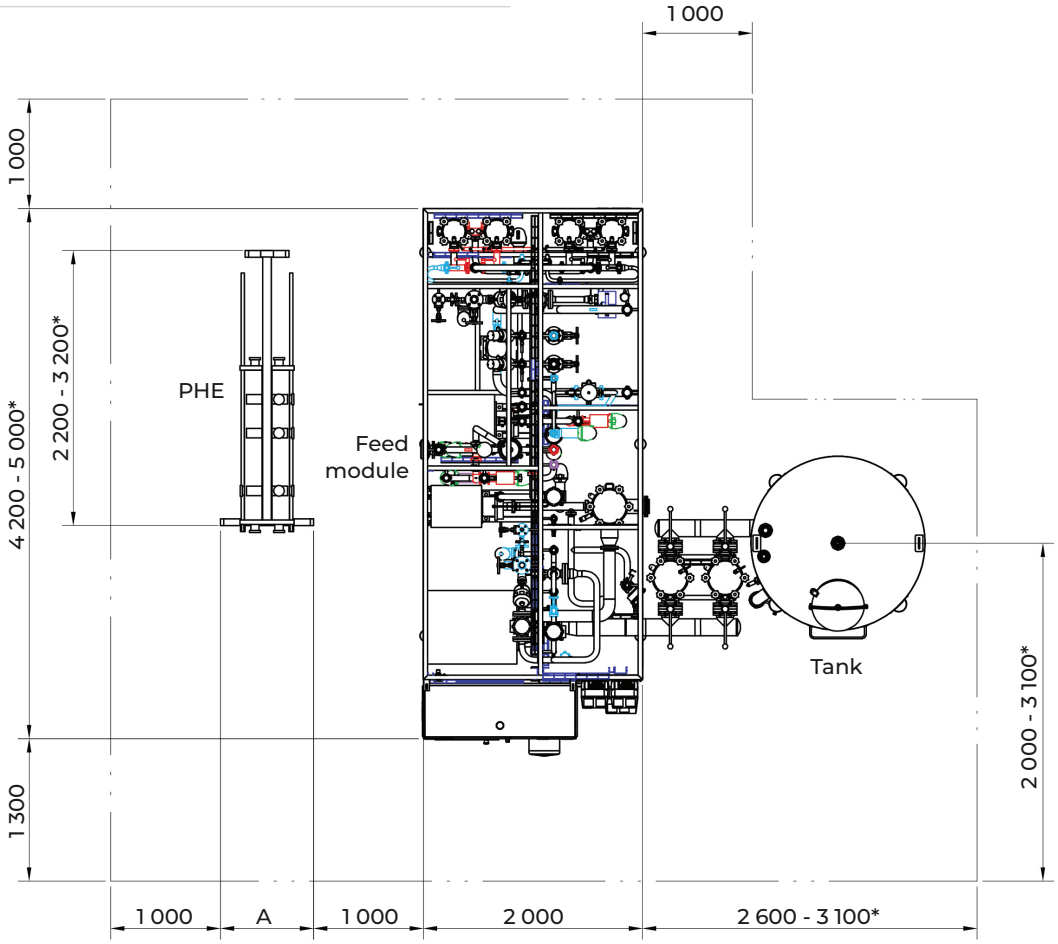
Output capacities	7 000 litres per hour
	15 000 litres per hour
	25 000 litres per hour
Max °Brix	65 °Brix
Dissolving temperature for 65 °Brix Lower temperature can be used for lower Brix	40 °C
Outlet temperature	25 °C

Consumption data

Compressed air	
Delivery pressure	6 bar
Electric Energy	
Panel (other supply voltage or frequency available)	400 V 50 Hz

Layout

All dimensions indicated in millimetres.



Tetra Pak®
PROTECTS WHAT'S GOOD