

THE BIG SQUEEZE: SAVE WATER, SAVE ENERGY

Here's how to reduce operating costs by **67%** and water consumption by **50%** in juices, nectars and still drinks (JNSD) production

THIS IS HOW JNSDs ARE MADE TODAY

ENTIRE PRODUCT STREAM IS PASTEURIZED

Concentrate is first blended with water to give the final beverage, which is then pasteurized in its entirety.

THE PROBLEM

- Pasteurizing the entire beverage volume requires lots of energy.
- Large volumes mean large product losses in changeovers.
- Cleaning in place (CIP) and sterilization in place (SIP) require lots of water, energy, and other resources.



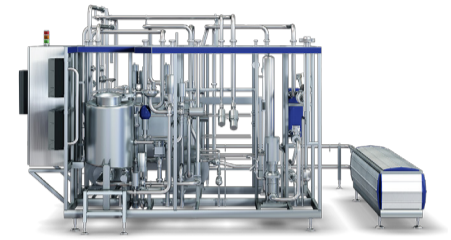
MIXING TANK



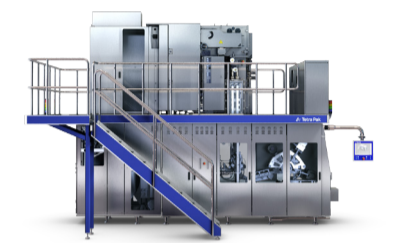
ASEPTIC TANK



MIXER



PASTEURIZER



FILLING LINE



THE REVOLUTIONARY NEW CONCEPT FROM TETRA PAK®

ONLY CONCENTRATE STREAM IS PASTEURIZED

TETRA PAK® HIGH SHEAR MIXER



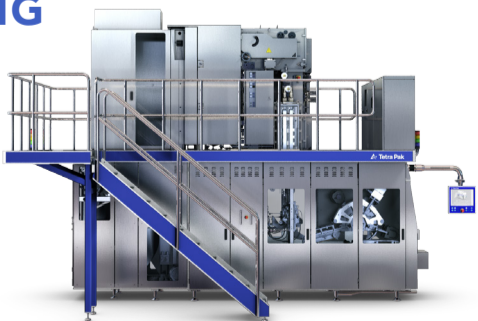
PRE-MIX TANKS



TETRA PAK® PASTEURIZER B



TETRA PAK® ASEPTIC TANK LV COMBINED WITH ASEPTIC BLENDING FUNCTION



TETRA PAK® A3 COMPACT FLEX

There is, in fact, no need to pasteurize the entire beverage volume, which demands large amounts of energy. Because water is a clear liquid, and free from particles and pulp, it can be purified using UV light treatment and filtration instead. So Tetra Pak reimaged the JNSD line by splitting it into two separate streams – one for concentrate and one for water – and the streams are treated differently before blending.

THE BENEFITS

- No need to pasteurize large water volumes.
- UV treatment and filtration purify the water using far less energy.
- Only the concentrate portion – a smaller volume – is pasteurized.
- The required log reductions for food safety and food spoilage are still achieved.

50%
LESS WATER

67%
LESS ENERGY



HERE'S HOW WE CALCULATED

Energy: If the concentrate-to-water ratio is 1:4, energy use can be cut by **67%** or more. Assuming a system with 32,000 litres/hour capacity, steam €30 per tonne, with electricity costing 15 cents per kW/h, the annual operating costs are approx **€138,000**. Water treatment with filtration and UV estimated at €12,000, heat treatment of concentrate at €34,000: annual operating cost approx. €46,000. Result: Energy consumption is reduced by **67%**, giving an annual saving of **€92,000**. **Water:** The system volume in the new JNSD line concept is half that of the current solution. So the amount of water required for product changes, cleaning in place, and sterilization in place can be easily reduced by **50%**. **CURRENT SOLUTION:** System volume: 2,000 litres. Total = **96,000 l/week**. **NEW TETRA PAK JNSD LINE CONCEPT:** Water treatment with system volume: concentrate 700 litres, water + 300 litres. Total = **48,000 l/week**.