Tetra Pak® High Shear Mixer

Vacuum batch units B200-800V and B300-2000V

Highlights

- Produces high and low viscosity products
- Line solution for emptying and rinsing barrels and concentrate tanks
- Low raw material losses
- Fully automated
- Minimal air incorporation
- Gentle blending of particles

Application

The vacuum batch unit provides high-shear mixing of both high and low viscosity products, dissolving powder stabilisers, such as pectin and gums, and sweeteners.

The efficient mixing system produces homogeneous and lump-free products, ready for further processing into for example sweetened condensed milk, high solids infant formula slurries and tube feeds.

The optional dynamic stator enables no shear and high shear in the same machine.

Working principle

The main component is a vacuum mixing tank with a bottom-mounted batch turbo unit. The turbo unit has a rotor and perforated stator to ensure optimal wetting and processing.

A preset amount of cold or pre-heated liquid is fed into the mixing tank. The vacuum drives powder/liquid transport into the tank below liquid level. This ensures optimal wetting of powders, improving mixing and promoting high product quality. Mixing under vacuum deaerates the product and reduces the foam-related problems that can arise when air is added with powder ingredients.

When the desired composition is obtained, the product is discharged into a batch tank and a new batch can be prepared in the mixer.

Continuous processing can be achieved using two or more batch mixers, arranged for alternative filling and emptying. If high-capacity drum-emptying is used, the concentrate can be emptied directly into the batch tank.

The mixer can also be used for recirculation mixing by choosing the optional level control. In this case, the product is pumped from the batch tank to the mixer and then back to the batch tank, keeping a constant level in the mixer.

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Basic unit

Main components

- Vacuum vessel
- High-shear turbo unit with water-flushed seal
- Vacuum system
- Funnel for addition of minor ingredients
- 3 liquid/powder inlets
- 1 product inlet
- 1 spare inlet
- CIP
- Sight glass

Materials

All parts in contact with the product are made from stainless steel AISI 316L. Other parts are made from AISI 304.

Optional equipment

- Dynamic stator for gentle blending of particles
- Propeller for the turbo unit
- Water heating system
- Flow meter on inlet
- Inlet pump
- Outlet pump
- Outlet pump for viscous products
- Level control for recirculation use
- Powder hoppers, 100, 200, 350 and 2 000 litres
- Powder valve SPV-05
- Relay panel
- PLC control panel, Siemens S7 or Allen Bradley
- Control panel with distributed I/O, Siemens or Allen Bradley
- Non-standard power supply, e.g. 3x200 V, 3x575 V
- Speed control for mixing unit
- Air cooler for PLC cabinet
- Suction lance
- Concentrate charge system

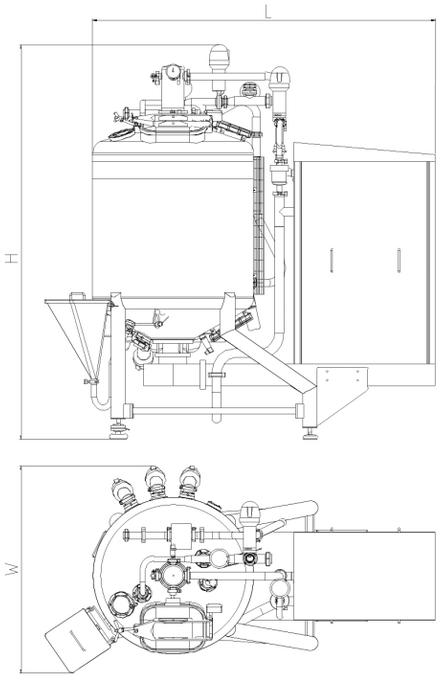
Technical data

Processing parametres	B200-800V	B300-2000V
Electricity 380-480 V, 50/60 Hz, kW	35.5/39.8	60.5/68.3
Seal water (mixer + vacuum pump), l/h	160	160
Instrument air, Nl/min	100	100
Batch capacity , l/h	800-3 200	2 000-8 000
Number batches, h	1-4	1-4
Typical output capacity (recirculation), l/h	18 000	28 000
Typical capacity (recirculation), l/h	20-30 000	30-40 000
Dry matter, %	≤ 80	≤ 80
Viscosity, cP	≤ 5 000	≤ 5 000
Mixing temperature (no vacuum)	≤ 90°C	≤ 90°C
Mixing temperature (vacuum)	≤ 70°C	≤ 70°C
Oil addition rate, kg/min	≤ 60	≤ 120
Powder*, kg/min	≤ 125	≤ 175

Dimensions		
Lenght, mm	2 700	3 050
Width, mm	1 500	1 800
Height, mm	2 800	3 100

* All product capacities depend on viscosity and circulation flow. The amount of powder added depends on the type and quality of the powder. Milk powder, flavour, sugar, emulsifiers and stablisers.

Dimensions



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