



Tetra Pak® High Shear Mixer

Vacuum recirculation units R200-200V, R200-800V and R300-2500V



Highlights

- High shear mixing
- High capacity
- Energy efficient
- Low raw material losses
- Fully automated
- Minimal air incorporation
- Self pumping

Application

This Tetra Pak® High Shear Mixer is designed for a wide range of applications in the dairy, beverage and food industry. The unit is fully automated to ensure an efficient and reliable mixing process.

The efficient mixing system produces homogeneous and lump-free products, ready for further processing.

Working principle

The main component is a vacuum mixing tank with a turbo unit, located in a pump housing at the centre outlet of the tank. The turbo unit with a rotor and perforated stator ensures optimal wetting and processing.

Mixing under vacuum de-aerates the product and reduces foam-related problems. The vacuum is also used to drive powder/liquid transport into the mixing tank below liquid level. This ensures optimal wetting of powders, improving mixing and promoting product quality.

Powders and liquids are added automatically into the mixer during circulation. The process continues until all products have been added, and the mix is homogeneous. The automatic level control maintains an optimum level in the mixer, optimizing the rate of powder addition and securing efficient mixing.

The rotor draws ingredients into the in-line mixing unit and pushes them out through the holes in the perforated stator. During this process, impeller wings at the bottom of the rotor subject the product to high shear. As the in-line mixing unit is placed beneath the mixing tank, the product passes the mixing unit at least once.

Tetra Pak® High Shear Mixer

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
- Automatic level control
- 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.

Options

- Inlet pump
- Outlet pump
- Propeller for the turbo unit
- 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 parameters	R200-200V	R200-800V	R300-2500V
Electricity 380-480 V, 50/60 Hz, kW	20.7/23.9	35.5/39.8	60.5/68.3
Seal water, mixer + vacuum pump, l/h	160	160	160
Instrument air, NI/h	100	100	100
Processing parameters			
Final product, l/h	≤ 15 000	≤ 20 000	≤ 30 000
Circulation, l/h	18-25 000	25-35 000	40-50 000
Viscosity, cP	≤ 300	≤ 300	≤ 300
Mixing temperature (no vacuum)	≤ 90°C	≤ 90°C	≤ 90°C
Mixing temperature (vacuum)	≤ 70°C	≤ 70°C	≤ 70°C
Oil addition rate, kg/min	≤ 30	≤ 60	≤ 120
Powder*, kg/min	≤ 75	≤ 100	≤ 175

Dimensions

Length, mm	2 085	2 850	3 400
Width, mm	1 400	1 500	2 000
Height, mm	2 180	2 800	3 550

* 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 stabilisers.

