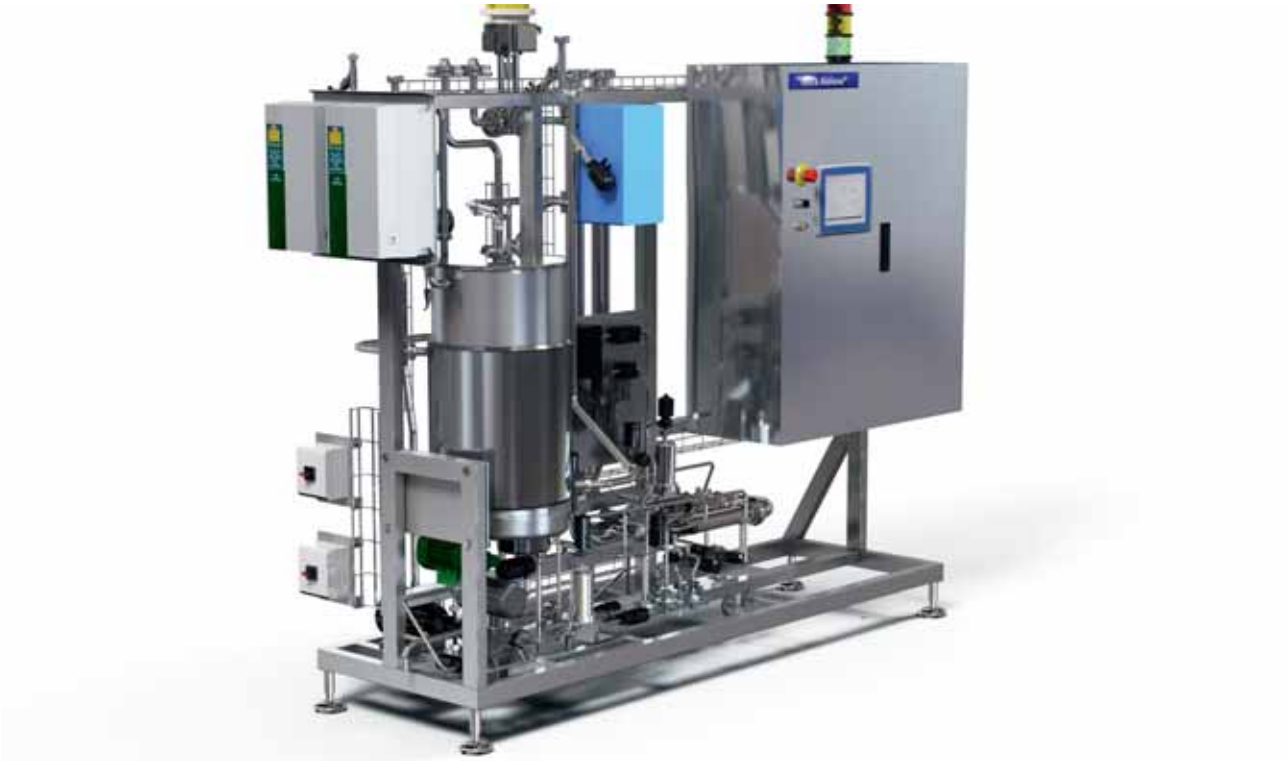
Tetra Aldose®

Aseptic in-line dosing



Application

Aseptic dosing of true solutions and suspensions containing particles smaller than 0.22 microns into aseptic systems. Examples of ingredient(s) that are suitable for aseptic dosing by a Tetra Aldose unit include: Enzymes, vitamins, aromas, flavourings, colourings and salt solutions, i.e. products not suitable for sterilisation by heat. The Tetra Aldose can also be used to achieve a sweeter taste in unsweetened milk products. The Tetra Aldose is fully automatic and can serve one or several fillers as well as an aseptic tank.

Working principle

The ingredient(s) to be dosed is stored in the tank on the unit. This ingredient(s) is pumped through pre-filter to remove larger particles, then through a sterile filter to remove bacteria and spores and then continuously dosed under aseptic conditions into the main flow.

The ingredient(s) to be dosed is pumped by a positive displacement pump with speed control for accurate dosing. A flow transmitter controls the amount to be dosed and an aseptic valve cluster control the start and stop of dosing. The ingredient(s) is mixed into the main flow by a Tetra Aline in-line mixer.

The Tetra Aldose unit can be connected at various stages to an aseptic process; downstream the steriliser in a UHT plant, upstream an Aseptic tank.

The filter and entire pipe work, up to the dosing valve, are pre-sterilised before production by steam at 121°C for 30 minutes. After sterilisation the unit is cooled down with air. After production a CIP (Cleaning In Place) is performed. The Tetra Aldose is equipped with an internal automatic CIP. A CIP sequence normally contains both caustic and acid cleaning.

The dosing process, pre-sterilisation and CIP are supervised from the control panel. The Tetra Aldose control system is prepared for connection as a slave unit to a central control system, or other modules such as Tetra Alsafe or filling machine.

Basic unit

Product model

- 85 l ingredient(s) tank equipped with an accurate level transmitter
- Positive dosing pump with frequency converter
- Flow measuring device
- Pre-filter
- Sterile filter, maximum pore size 0.22 micron
- Pressure transmitters before pre-filter and sterile filter
- Dosing valve arrangement
- Static in-line mixer
- Valves, pipe work, steam traps, temperature transmitters, internal electric wiring etc.
- Control panel with Allen-Bradley Compact Logix or Siemens S7 PLC system and Ethernet communication are included.
- Human Machine Interface (HMI) type TPOP

The unit is pre-assembled on a stainless steel frame and water tested in our factory before delivery.

All product-wetted parts are made of acid proof AISI 316 stainless steel. Frame and control panel cabinet are of AISI 304 stainless steel.

Processing Parameters

Dosing range (l/h) 5-50 or 25-150

Selection of options

- Filters for air and steam.
- Two freestanding pneumatic transport pumps for feeding concentrated acid/lye to the ingredient tank.
- Uninterrupted Power Supply (UPS)
- Air cooler with compressor for control panel
- Communication with supervisory system via Ethernet.
- Valve arrangment for automatic by-pass of the flow transmitter during CIP.
- Automatic hot water set for the CIP including CB unit and steam control valve.
- Cooling jacket on the ingredient tank.
- Frequency controlled magnetic mixer for gentle agitation of the ingredient(s).

Technical data

Approx. consumption data

Steam (3 bar)	10 kg/h
Rinsing water (3 bar)	200 l/h during CIP rinsing
Instrument air (6 bar)	5 Nl/min.
Electricity (380V/50Hz)	1,9 - 2,1 kW
Ice-water*) (1 bar, 2°C)	100 l/h during production
Foot print	2 100 x 700

**) Note: Optional - only when option 35, Cooling jacket on the ingredient tank, is selected.*

Shipping data

Net weight, kg	300
Gross weight, kg	600
Volume, m³	6,8
Length x Width x Height	2 400 x 1 200 x 2 400 mm

Flowchart