



# TETRA PAK® GDL AND RENNET DOSING UNIT

Efficient white cheese production



## APPLICATION

Tetra Pak® GDL and Rennet Dosing unit is used for batch mixing of GDL powder in concentrated cheese milk and continuous feeding of the filling machine with simultaneous in-line dosing of rennet to the mixture.

Instead of the natural, but relatively slow, acidification of the retentate or cheese milk, Glucono-delta-lactone (GDL) powder is used for very fast acidification. This results in a quick process, reducing the acidification time from 12-14 hours to 5-10 minutes. By ensuring a shorter total production time, a constant quality of final product, higher yields and a prolonged shelf life of the cheese, GDL has become a preferred acidifier in the manufacturing of white, feta-type cheeses.

## HIGHLIGHTS

- Continuous downstream flow guaranteed by queuing tanks during emptying
- Improved hygiene by elimination of GDL residues due to special agitators and cones design
- Compact design ensures easy access during production and maintenance
- Feeding of filling machine with controlled pressure
- Integrated system for preparation and precise in-line rennet dosing

## WORKING PRINCIPLE

Tetra Pak® GDL and Rennet Dosing unit consists of two mixing tanks, which are filled with retentate or cheese milk. GDL powder is manually added to one of the tanks and mixed. Product is pumped from the tanks with controlled pressure to the filling machine.

Concentrated rennet is manually dosed in the rennet tank, where it is diluted with process water. A certain quantity (based on the flow of the product) of rennet is pumped towards the filling machine where it is mixed in-line with the product.

Tetra Pak® GDL and Rennet Dosing unit is operated from the operator interface, which shows all process values and the status of the equipment, and from where the parameters for production and cleaning are set. The operator starts the sequences, which then start the plant, stop the plant, start the production, stop the production, and start the cleaning.

## BASIC UNIT

Tetra Pak® GDL and Rennet Dosing unit is a compact, platform-based unit that supports a wide range of filling machines' capacities. Units are preassembled, and are factory tested with water before delivery, thus assuring "plug and play" installation

## MAIN COMPONENTS

- 2 x GDL mixing tank with level transmitters
- Rennet tank
- Frequency-controlled rotary lobe pump (for product)
- Frequency-controlled gear pump (for rennet)
- Frequency-controlled centrifugal CIP pump
- Automatic butterfly and SSV valves
- Frame
- Flow meters for product and rennet line

## CONTROL PANEL

- Tetra Pak® GDL and Rennet Dosing unit is controlled by Siemens PLC. This is fitted in a cabinet located on the platform. A motor control cabinet is situated on the frame.
- Tetra Pak® GDL and Rennet Dosing unit is prepared for easy integration with Tetra PlantMaster or other supervisory systems.

## CAPACITY

3 alternatives:

GDL 300: Range 700-2970 l/h, for 80-330 ml packs

GDL 500: Range 3000-4000 l/h, for 500 ml packs

GDL 1000: Range 6000-8000 l/h, for 1000 ml packs (on special request)

## CONSUMPTION DATA

### Electrical power

5-7 kW depending on capacity 400 V, 50 Hz

### Required CIP supply at 300 kPa (3 bar)

Flow 8000 l/h

### Required water supply for CIP pre-flush at 300 kPa (3 bar)

Flow 5000 l/h

### Required water supply Rennet dilution at 300 kPa (3 bar)

50 l/h (to fill rennet tank)

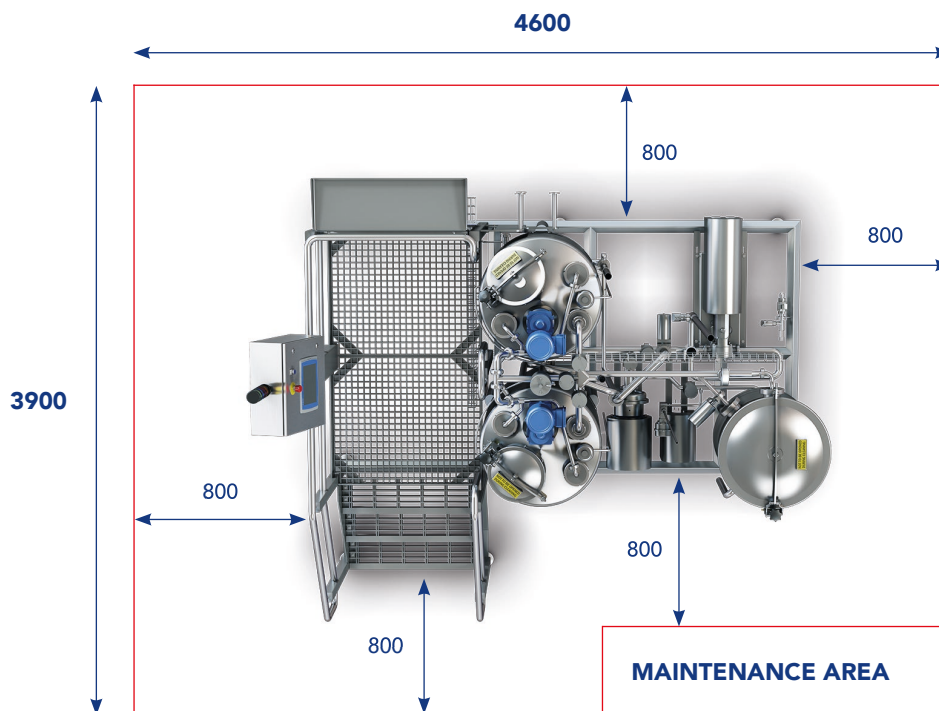
### Required water supply for flushed seal at 50 kPa (0.5 bar)

30 l/h

### Compressed air

Control panel 200 NI/h at 600 kPa (6 bar)

## LAYOUT



**GDL 300:** 3900 x 4600 x 2840 (WxLxH\*)

**GDL 500:** 4200 x 4800 x 2840 (WxLxH\*)

**GDL 1000:** on request

\*Height of the unit