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Complete Cheese factory

The cheese factory is available because the Farmers Cooperation grow and a higher capacity was needed. The line was stopped in March 2024 and run till that moment on normal capacity and was well maintained.

Daily capacity of the factory:

19 Batches can be produced of 84 Cheeses = 1.596 Cheeses of 15kg per day. Resulting in approx.: 24 Tons of cheese per day = 8.500 Tons cheese yearly. Depending on milk quality this is 270.000ltr of milk input. 18 running hours of 15.000ltr/h and 6 hours for cleaning.

The Dairy includes all equipment from milk reception to cheese Packaging and a Complete whey treatment and dispatch system.

The cheese was format: 'Euroblock' standard shape cheese of 30x50x10cm weight: 15kg each cheese, vacuumpacked in standard boxes.

Type of cheese, semi hard: Gouda, Edam, Maasdam type of cheeses but also Cagliate was possible.

The Whey was treated, concentrated and dispatched to a truck.

Description of machinery:

B) Raw milk reception and Storage system

The line exists of: 3 Reception units

With: Air eliminitors, pumps

The Flowtransmitters (E&H, Magflow year: 2017), Sample valve, Temperature transmitters.

Small read out display of temperature and volumes of the tanks.

Hoses DN65

Capacity: 25.000ltr/h



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Picture of the milk reception units:





Pictures: Milk reception units

Flow transmitters.

The milk is routed to a raw milk storage department Where a swingbend panel and CIP return pump and pasteurizer feed pump forward the milk to the Pasteuriser.

This is a manual system There are 4 rawmilk tanks nr 22-23-24-26 Tanks are insulated with propellor agitator Volume of the tanks: 1 x 50.000ltr and 3 x 100.000ltr





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Picture of rawmilk tank

C) Milk treatment

C1) Milk treatment, Pasteurization, standardization and Bactofugation:

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C1.1) Milk pasteurizer skid mounted

Capacity: 15.000 l/h (nr 2 in layout) Thermal cycle: 4/6 – 72/74 – 8/10°C

The skid mounted Pasteurization Unit exists of:

- * Balance tank executed in stainless steel with automatic level control.
- * Centrifugal pump covered in stainless steel.
- * Electronic flow meter (I/h) and flow regulation valve.
- * Stainless steel plate heat exchanger plates crack tested with clip in gaskets, mounted in stainless steel covered frame, manufacturer: Alfa-Laval, type: CLIP10-RM.
- * Holding tube for 23 seconds.
- * Electric panel with:
- Stainless steel cabinet, with main switch.
- Automatic regulation of pasteurisation temperature with digital display of real and set temperatures.
- On/off switches and lights for pumps.
- Temperature recording.
- Automatic fuses.
- Signal lights with alarm bell.
- Low temperature safety device activating the flow diversion valve.
- * Hot water set, including (Heating Medium steam):

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- Steam/hot water heat exchanger.
- Steam regulation valve.
- Water pump and condense pot.
- Overpressure valve, manometer and temperature meter.
- * Pneumatic flow diversion valve which opens in case the pasteurisation temperature is below the set point.
- * Overpressure system according to EU-regulations, with booster pump, pressure measurement and recording and pneumatic counter pressure valve
- * Pressure and temperature recorder connected to digital recording, including 6 point display on electric panel.
- * The complete unit is pre-assembled on stainless steel frame, including all interconnection piping, fittings, valves and cabling.

The unit was supplied in 2003 with rebuild components by LDFE.

C1.2) Cream pasteurizer

(nr 9 in layout)

Capacity : 1,500-2,500 l/h Product : Cream 30-42%

The skid mounted Cream Pasteuriser exists of:

- Balance tank ± 500ltr executed in stainless steel.
- Lobe-rotor pump.
- Mechanical flow meter (I/h)
- Stainless steel plate heat exchanger,

brand: Alfa-Laval, type: MS6.

- Holding tube for 23 seconds.

Electric controls in central panel with:

- Automatic regulation of pasteurization temperature with digital display of real and set temperatures.
- On/off switches and lights for pumps.
- Temperature recording.
- Automatic fuses.
- Signal lights with alarm bell.
- Low temperature safety device activating the flow diversion valve.

Hot water set, including (Heating Medium steam):

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- Steam/hot water heat exchanger.
- Steam regulation valve.
- Water pump and condensate trap.
- Overpressure valve, manometer and temperature meter.
- Pneumatic flow diversion valve which opens in case the pasteurisation temperature is below the set point.
- The complete unit is pre-assembled on stainless steel frame, including all interconnection piping with separator, fittings, valves and cabling.

C1.3) Milk skimming Separator Selfcleaning

Make : Westfalia

Model : MSA130-01-076

Capacity: 15.000l/h (nr 11 in layout)

Motor: 22 kW

Weight :1,650 kg (gross)

Including:

- PLC control for water valves in electronic panel of pasteuriser
- New water valves and cabeling for electricity

and water.

- Stainless steel base frame.
- Constant pressure valve.
- Manometer on outlet.
- Flow meter for cream and flow control valve
- Constant water pressure set.
- Water filters
- Remix valve.
- Interconnecting piping with pasteurisers, butterfly valves.
- One set of tools.

C1.4) 2 Milk Bactofuges

Make : GEA Westfalia

Model : CSE140-01-177 Ecoclean
Capacity : 15.000 l/h (nr9 in layout)
Year : 1 x 2012 and 1 x 2016

Including:

- PLC control for water valves in separate per unit
- New water valves and cabling for electricity

and water.

- Stainless steel base frame.
- Constant pressure valve.
- Manometer on outlet.

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- Flow meter on Bactofugat and remix valve
- Water filters
- Interconnecting piping with pasteurisers, butterfly valves.
- One set of tools.





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C2) Ready pasteurized milk storage

(for 24 hours ripening and sampling of cheesemilk). Number is lay out 18-22 nrs in CIP controls 1-5.

Included:

The valves (make: Kiesselman) and Swingbend panels in front of the pasteurized milk tanks. Transfer pump to the pasteurizer.

There is 1 selfpriming pump Alfa-laval model: MR300 pump for CIP return. This pump is also used for loading Whey Retentate into the road tanker at end of the line with tanks. Including Filter and hose.

All piping will be left to be made new at re-installation.

Controls of CIP system tanks by MMS system. Controls of the outfeed valves by Kalt system







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C3) **Skid mounted Thermiser**

: Pasteurisation or Thermisation of milk before it enters the cheesevat. Function

Make : Kalt

: 20.000 ltr/h Capacity

Temperature cycle: $4/8^{\circ}$ C input -> $67/72^{\circ}$ C -> out at $\pm 30^{\circ}$ C direct to cheese vats.

complete with pumps, valves, Heatexchangers, holding tube

manual valve for output temperature.

+ Heat exchanger to heat water for the washwater tank on same skid. Remote I-O box.





As a program of efficiency improvement and permeate cooler/milk preheater is installed



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G Cheese department

G1) 3 Cheese vats

Function: 3 Curd preparation vats

Make : Kalt Model :KFG

Volume : 12.500 + 2x 13.000ltr

Serial nr : 1607-02 / 1098-01 / 2195-01-00

Year : 2001+2003+2005

Power : 4.4kW

Number in lay-out: 69+70+71

Complete with whey and curd outfeed valves, swingbend panel for filling and cip cleaning and its own control panel with Siemens S7-300 PLC.





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G2) Cheese curd wash water tank

Function: add warmwater to the cheesemaking process.

Volume: ± 4.000ltr

with centrifugal pump, sensors and controls.

Nr72 in lay-out.



G3) Warm whey buffer tanks

Make: Kalt, volume: 5.000ltr.

Function: To send Whey to Kalt prepresses before the curd to warm up the vats for optimal

processing.



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G4) Bulk starter

Function: Starter-Culture preparation unit

Manufacturer: Kalt Year : 2003

Frame with 2x 2.000 ltr tanks, panel and controls (nr74 in layout)

Including frame and controls.





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G5) 2 Cheese Draining system and Presses

Combined Cheese molding forming and Pressing stations.

This special Kalt system has as advantage:

Automatic and fast Filling of moulds, Forming, Pressing and cip cleaning of the moulds in 1 machine so less handling needed.

Gentle filling because below whey-level.

Exact portioning and pressing, minimum loss, Batch system

Closed system, constant temperature and pressing pressure giving an constant product.

Perfect shaped cheeses.

Make : Kalt

Model : Kassettte presse

Complete with CIP return and circulation pump Integrated controls with recepy choises (Siemens).

Internal No 2) Press for Euro block cheese press (nr 26 in layout)

Capacity: 14 rows of 6 = 84x16kg/batch

Complete with automatic empty system, outblow device and CIP return pump.

Internal No3) Press for Euro block cheese press

Year : 2011 (Nr 114 in layout)

Capacity : 14 rows of 6 = 84x16 kg/batch

Unit fed with a curd pump

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G6) Brine department

Brine department

exists of:

- 6 Brining Baths

(layout nr: 35/buffer-36-37-38-115)

Dimensions each vat approx.:

Wide: 2.66m length: 3.96m h: 149/159+ feet: 170/180

- Frames between the vats.
- Brine Racks max 12 Racks per bath
- Brine filtration system with tank, Prefilter and main Filter (Mahle with stone), Pumps, valves. UV light filters. (47)
- Brine cooling system with pump, heat exchanger and valves (control box)
- Overhead cranes
- Rack washer (49)

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Brine cooler and filter system

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G7) Whey treatment department

G7.1) Whey buffer tank no 12, (nr18 in layout) Horizontal, insulated, sensors and valves. Pumps. Infeed valves from kalt system and controls Outfeed valves from MMS system and controls.

It is recommended to install 2 warm buffertanks, so you can switch between the tanks during pump of Whey, Tanks-Valves-pump needed (can be offered optional).



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G7.2) Rotary Whey filter

Function: Take out curd particles from the whey

Make: Ama Filter

: 2012 Ama filter (nr 86 in layout) Year





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G7.3) Whey Skimmer separator

nr87 in layout

Make : Gea Westfalia

Model : MSE100 Capacity : 15.000ltr/h.

Function: skim the whey of last Fatt to be re-used or sold separately.

Set Tools.

Dismantle the bowl, drill out the bases frame. (attn soft water is needed for these separators).



Whey skimmer



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G7.4) Whey cream pasteurizer

Whey cream pasteurizer Made by: LDFE, skid mounted unit cleaned on itselves. (nr105) Skid with Pump, controls and tubular heatexchanger, temperature 55-95-10°C

Whey cream storage tank and pump back to the pasteurizer. (nr112) Cooling tank with freon compressor (excluded) freon not possible to export.

Whey cream storage tank and whey lobe pump to pump whey cream to buffer tank Excluded -





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G8) Whey concentration unit RO unit

Reverse osmosis line (RO) nr88 in layout

Manufacturer: MMS Switzerland

Capacity : Up to 16.000ltr/h whey input, 2 stage. Output : 4.000-6.000ltr/h 16% total solids

Complete with high pressure feed pumps (Grundfoss) 22-38bar working pressure.

8 Filter tubes.

Set of filters new filters in the storage.

Controls of the whole Whey department and valves.

Chemical dosing pumps for (nr 90) for RO, 4 dosing pumps:

Cleaning detergents,

+ CO2 and nitric acid to lower the ph (if needed),

no inline ph measurement.



G8.1) Pasteuriser skid

Product: Retentate (Concentrated) whey pasteurize (nr89 in layout)

Capacity: 4-6.000ltr/h

Skid mounted unit complete with pumps and controls, The central PLC and HMI is are on this

frame.

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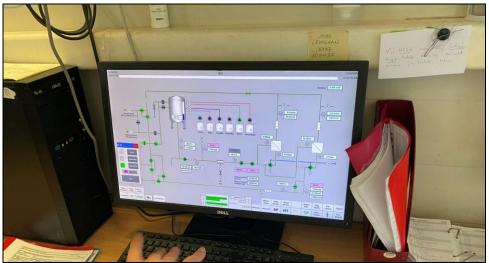
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There is also a PC with the controls of the units



The concentrated whey tanks nr 91-92 in layout are placed inline with the ready milk tanks (C2) and will not be dismantled, tank sensors new to be weld in locally. but the valves (inoxpa etc)and pumps are included, controls of these valves are in the MMS controls.

The warm (nr93) and Permeate tank (nr7 in layout) no 11 in controls are not dismantled and are cleaned only 1x per month (not in automatic program).

G9) Whey evaporator



Whey evaporator, 4 stages Whey 16% concentration from to 30% ts

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Thermal vapour recompression Water evaporation: 10.000ltr/h





(this machine was longer out of use)



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0) Cheese packaging

Function: vacuum packaging of the cheeses.

The cheese stays outside the cooling chamber for optimal packaging.

O1) U-scale where brine cages are weight, the containers are numbered and have a 'Tarra' weight so by weighing the full container the kg's of cheese in the container is known. (nr 65 in layout).

O2) Block cheese film packing line Make: Bernd Mayer GmbH (MBM)

Type: VSM3005/4005-R Capacity: 5 packages/min Year : 2015 (nr 48) With vacuum pump.

Advantages of this system:

Vacuum system that evacuates via suction nozzles directly in the bag – no vacuum chamber needed, vacuuming at atmospheric pressure

Consistent shape of the product, e.g. even surface; consistent film thickness around the entire product 2 ideal ripening conditions

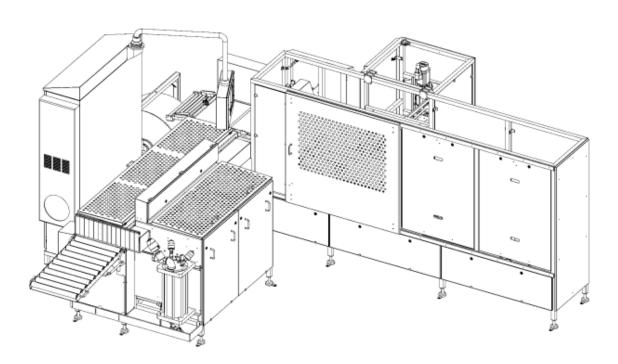
"sharp corners" for block formats perfect results for slicers after ripening (no waste of "round corners")

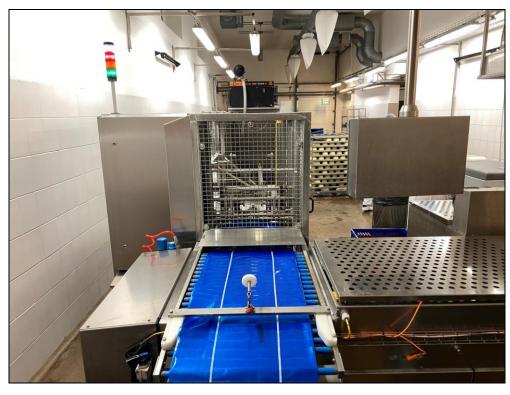
Wrinkle-free welding seam for optimum packaging and ripening quality



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P2) CIP unit

This unit was used to clean: Trucks, Raw milk tanks, ready milk tanks, whey department. Placed at the milk reception there are 2 outgoing lines:

1 line is manual, 1 line is automatic with pneumatic valves and a control system Only the automatic line with butterfly valves (brand Inoxpa) and pumps will be dismantled and numbered.

The Control (ROI) box / sensors will be send to Lopik for renewal.

The tanks 2x 10T (nr 3+4 in layout) are not in very good condition Detergent dosing system with 2 dosing pumps will be dismantled.

P3) CIP unit Cheese

placed in processing room This CIP was for the cheese part of factory. There are 3 automatic outgoing lines.

Line 1 cleaned: Thermistor, cheesevats 1-2-3, waswatertank, Whey buffert tanks, Press 3.

Line 2 cleaned: Press 2 Line 3 cleaned: Press 1

Line 4: spare, not connected (not in program/software)

The prerince tank is not connected and not in the program (for future optimalisation)

-Cleaning of a Kalt press takes about 4hours.

Attn the pre-rince tank valves and 4th line are in the hardware but not in the controls.



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Included is:

Dismantle the line, disconnect, partly pull electric cables back to the motors, number it. Partly cut only where reconnection is not possible or cables and air tubes are too old. Number, make pictures, mark in such a way that re-assembly is possible.

Dismantled will be:

The valve manifold in front of the tanks with valves for 3 outgoing lines with 3 pumps. The 2 circulation pumps with conductivity sensors (Jumo CT750), detergent dosing system (nr 8 in layout).

The Tanks are 20.000ltr/p but only need to be 10.000ltr.



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Included:

- The machines will be well cleaned internal and external.
- Tag numbering and marking.
- Dismantling.
- Packaging.
- Packing list determine number of trucks or Containers is the right quality this will be normal 'dry' 40 containers, HQ containers 40" or 45", 2 pallet wide containers for the Presses (extra wide), opentopper containers and Flatracks containers (over wide equipment) for the Cheesevat.
- The Manuals of the machines, Electric schemes, item lists and software programs without commentary in digital form.

Options on request not included:

- Transport from FCA Estonia to .. port.
- Unloading of equipment from containers.
- Put in place of equipment.
- Upgrade of controls and service of mechanical part.
- Advise on replacement of parts/item (Cream/rawmilk Tanks, additional reception manifold)

Excluded are:

Utilities: Steam boiler/ Hotwater boiler / Softwater system (control water for separators) / Compressed Air system / Water feed system with buffer tank / Icewater system.

Cold store + Racking etc.

Ventilation and climatization systems with Air coolers connected to ice water system for cheese production room ventilation and cooling

Taxes

Certificates

All other things not mentioned in this offer.