

Complete processing line for the production of processed UHT cheese

Manufacturer: Karl Schnell GmbH & Co. KG, Germany.

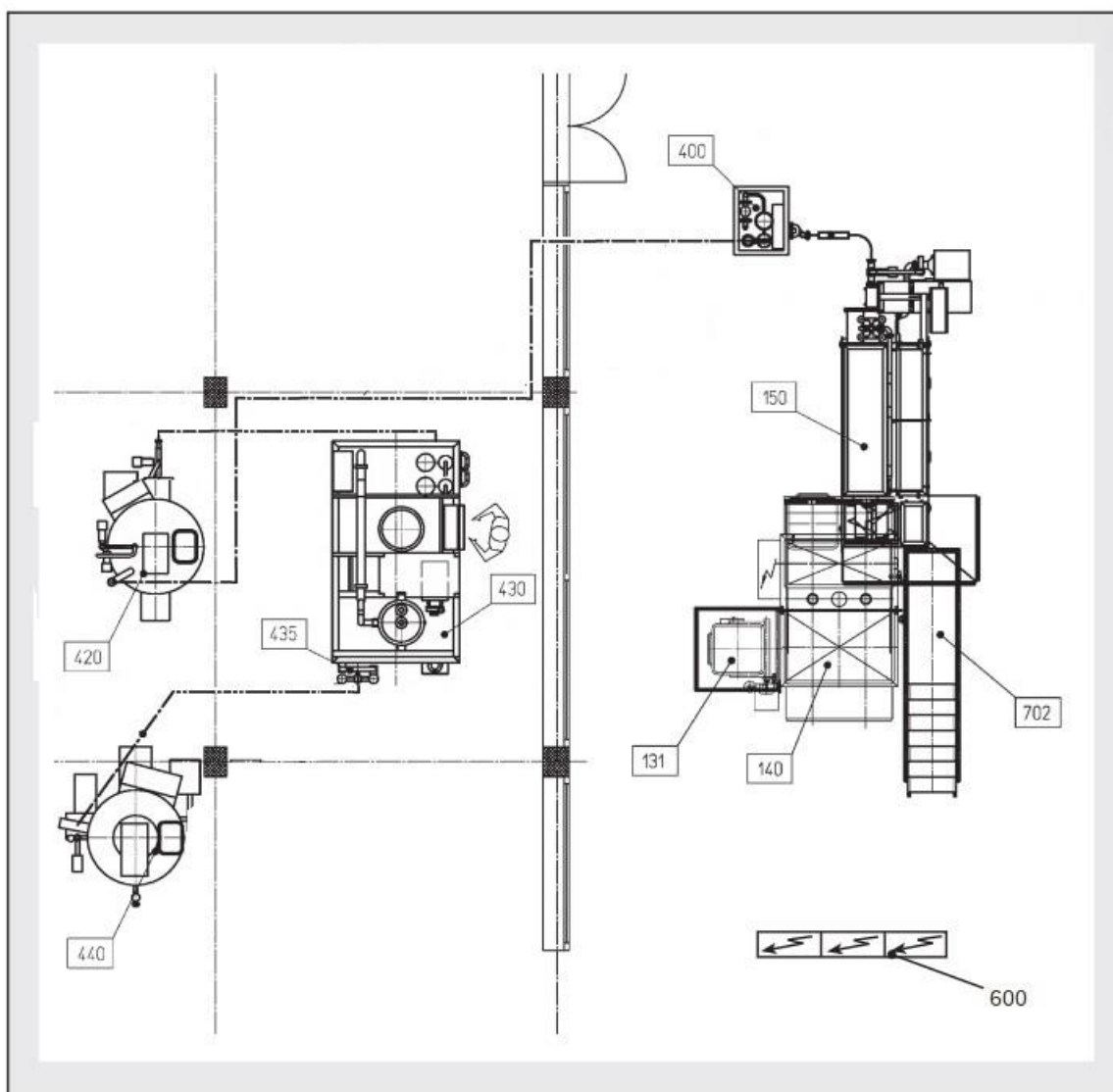
Capacity of end product of the line: 200 - 750 kg/h output

Year of manufacturing: 2011

Project number: AK09-2971

Processing line number: 09-164

Overview of the line:



The complete line exist out of the following machines:

A) Processed Cheese Blending Line

1. Trolley Elevator, Karl Schnell, type 601
2. Ribbon Blender / Mixer, 1.500 ltr, Karl Schnell, type 740
3. Feeding bin with double screws, 2.000 ltr, Karl Schnell, type 675

B) UHT Line

4. Inline preheating system $\pm 15 \rightarrow 75 / 80$ °C, Karl Schnell, type 261
5. Storage Tank, 300 liter, $\pm 75 / 80$ °C, Karl Schnell, type 253
6. UHT System, 200 – 750 liter per hour, $\pm 75 / 80 - 142 - \pm 75 / 80$ °C, Karl Schnell, type 260
7. Creaming Tank, $\pm 75 / 80$ °C, Karl Schnell, type 254

C) Controls

8. Main control panel for the complete line (Blending and UHT).

Line in details:

1. Trolley Elevator / Hebevorrichtung (131)

Lifting device for standard stainless steel mobile trolleys (200 litres) into the Ribbon Blender / Mixer. Suitable for handling dry ingredients. (Cheese blocks, butter, powders etc.)

Manufacturer: Karl Schnell

Type: 601

Year: 2011

Serial number: 11902

Speed: 7 meter/min

Lifting height: 2.750 mm

Lifting power: 2500 N = 250 kg

Power: 400 V – 50 Hz – 2,8 A – 1,1 kW

Weight: ± 400 kg

- 4x 200 liter stainless steel mobile trolleys.
- Some tools for daily operation.

2. Ribbon Blender / Mixer, 1.500 liter (140)

The blending section is designed for the homogeneous mixing of processed cheese ingredients. The blenders ensure thorough and consistent blending of the product

Manufacturer: Karl Schnell

Type: 740

Year: 2002 but date of delivery: 2011

Serial number: 13482

Volume for filling: 1.675 liter

Total volume: 2.700 liter

Blending shaft speed: 30 / 60 rpm

Power: 400 V – 50 Hz – 60 A – 28 kW

Weight: ± 2.500 kg

- Mounted on stainless steel frame with load cells for weight indication.
- Double Ribbon Shaft Blender.
- Heavy execution.
- CIP cleanable by spray bowls.
- Control panel with recipe control.
- Additional water heating unit, Karl Schnell, type 261.
- Stairs / frame to reach the top of the mixer.

3. Feeding bin with double screws (150)

Buffer tank provide process continuity and control product flow to downstream processing. Integrated pumps enable reliable product transfer between the buffer tank and subsequent processing stages.

Manufacturer: Karl Schnell

Type: 675

Year: 2011

Serial number: 14376

Volume for filling: 2.118 liter

Total volume: 2.418 liter

Blending shaft speed: 9,9 rpm

Outlet height: 425 mm

Power: 400 V – 50 Hz – 40 A – 20 kW

Weight: ± 2.500 kg

- Mounted on stainless steel frame with load cells for weight indication.
- Double Screws.
- 2x Stainless steel lids.
- CIP cleanable by spray bowls.
- Product outfeed lobe pump, Fristam FKL50, serial number FKL 501004942, current speed 95 rpm, max speed 600 rpm, max pressure 500 PSI, motor 5,5 kW.
- CIP pump, Fristam FPE 3532/175, year 2010, serial number C438540030, 30 m³/h at 3 bar, 2.900 rpm, H 46 m, motor 7,5 kW.

4. Inline preheating system (400)

The inline preheating system is used to continuously heat and process the cheese mixture from approximately 15 °C to 80 °C. During this step, the product is thermally treated and homogenized to achieve the desired structure and consistency. This ensures efficient processing, uniform product quality, and a stable flow for downstream operations.

Manufacturer: Karl Schnell

Type: 261

Year: 2011

Serial number: 14377

Capacity: 200 – 1.000 kg/h

Max steam pressure/temperature: 8 bar, 170 °C

Power: 400 V – 50 Hz – 3,5 A – 1,6 kW

Weight: ± 800 kg

- Skid mounted.
- Inline dynamic mixer, motor 1,5 kW, 1.450 rpm.
- Steam valve, model 3277, pressure control 0,3 – 1,1 bar with actuating valve and actuating controller.
- Steam injector, diameter of bore 2,0 mm.

5. Storage Tank (420)

The buffer tank is used for temporary storage of processed cheese at elevated temperature prior to downstream processing or filling. The product is maintained at approximately 75 / 80 °C to preserve flowability and ensure hygienic conditions. This supports a continuous process flow, prevents temperature loss and ensures consistent product quality during transfer to the next stage.

Manufacturer: Karl Schnell

Type: 253 (300 ltr Vorratssilo)

Year: 2011

Serial number: 14378

Volume for filling: 300 liter

Total volume: 440 liter

Outlet height: 485 mm

Power: 400 V – 50 Hz – 35 A – 12 kW

Weight: ± 1.000 kg

- Conical, isolated tank.
- Scraper agitator in the tank, motor 1,5 kW, speed 1.430 rpm reduced to 16 rpm.
- Manhole.
- Sightglass with light.
- CIP cleanable by spray bowls.
- Level control.
- Control panel with Siemens Simatic ET 200M.
- Product pump, screw pump, Wangen ESP, serial number 926020a, 200 – 1.000 ltr/h at 2 - 8 bar, motor 2,2 kW, speed 1.425 reduced to 65 rpm.
- CIP Pump, centrifugal pump, Fristam FPE 3532/175, 30 m³/h at 4,6 bar, motor 7,5 kW, 2.900 rpm.

6. UHT System (430)

The UHT system is used to heat the processed cheese from approximately 75 / 80 °C to a sterilization temperature of around 142 °C, followed by controlled cooling back to 75 / 80 °C. This high-temperature short-time treatment ensures microbiological stability and extends shelf life while preserving product quality. It enables aseptic or prolonged storage conditions and supports consistent, safe downstream processing and filling.

Manufacturer: Karl Schnell

Type: 260 (UHT Konit Anlage 200-750 ltr/h)

Year: 2011

Serial number: 14379

Capacity: 200 – 750 ltr/h

Power: 400 V – 50 Hz – 38 A – 19 kW

Weight: ± 2.000 kg

- Skid mounted.
- Steam valve 01, model 3277, pressure control 0,3 – 1,1 bar with actuating valve 6,3 Kvs and actuating controller.
- Steam valve 02, model 3277, pressure control 0,3 – 1,1 bar with actuating valve 6,3 Kvs and actuating controller.
- Vacuum control valve, model 3277, pressure control 0,3 – 1,1 bar with actuating valve 6,3 Kvs and actuating controller.
- Hygienic corner valve 01, Arca, 391-P1-L, Kvs 18 with actuating controller.
- Hygienic corner valve 02, Arca, 391-P1-L, Kvs 18 with actuating controller.
- 2x Direct steam injectors, diameter of bore +/- 2,0 mm.
- Twin screw product pump, Bornemann, SLH, year 2013, 0,3 – 1,5 m³/h.
- CIP pump, centrifugal pump, Fristam FPE 3532/175, 30 m³/h at 3 bar, motor 7,5 kW, 2.900 rpm.
- Vacuum pump, Dophin, LH0060 A GG 0, 2,2 kW.
- Holding cell tubes.
- Flow plates to make the correct flow connections.
- Flow diversion system if product didn't reach its temperature.
- Flash cooling tank, vacuum, CIP cleanable, sight glass, lid to open.
- 2x Acid and lye bins with lid on top for CIP.
- 2 Filters on the outlet (435).
- Control panel with Siemens Siematic ET 200M and Siemens MP 377 12 " touch screen panel, for controlling and monitoring the inline preheating system (400), storage tank (420), UHT (430) and creaming tank (440).

7. Creaming Tank (440)

The creaming tank (holding tank) is used to hold and condition the processed cheese at approximately 75 / 80 °C to allow the product to fully develop its final texture and consistency. During this stage, the cheese mass stabilizes and achieves a homogeneous structure.

Manufacturer: Karl Schnell

Type: 254 (330 ltr Cremierbehälter)

Year: 2011

Serial number: 14380

Volume for filling: 330 liter

Total volume: 450 liter

Outlet height: 324 mm

Power: 400 V – 50 Hz – 29 A – 15 kW

Weight: ± 1.500 kg

- Isolated tank.
- Scraper agitator and blade agitator in the tank, both driven by 1 motor of 2,2 kW, speed 1.425 rpm reduced to 19 rpm.
- Manhole.
- Sightglass with light.
- CIP cleanable by spray bowls.
- Weighing system with load cells.
- Viscometry, type CV, serial number: FK 0804/010 QS
- Control panel with Siemens Simatic ET 200M and Brabender Messtechnik panel.
- Product lobe pump, Fristam, FKL 25A, serial number FKL 25A1108278, 300 – 1.500 ltr/h, max speed 600 rpm, max pressure 300 PSI.
- CIP Pump, centrifugal pump, Fristam FPE 3532/175, 30 m3/h at 4,6 bar, motor 7,5 kW, 2.900 rpm.

8. Main control panel for the complete line, blending and processing (600).

Main control panel with all motorgroups, main PLC, frequency converters and main switch.

- Complete stainless steel.
- 8 doors.
- Main power supply.
- Siemens Simatic S7-300 PLC.
- Endress & Hauser temperature recorder.
- Electrical scheme in hardcopy.

9. Interconnecting product piping and valves.

Most of the interconnecting product piping and valves are already dismantled but will be delivered with the line.