

COOLING / FERMENTING / FREEZING

SPIRAL FLOW SYSTEMS



Gronemeyer
CONVEYING SYSTEMS



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LEAD BY IDEAS

With Gronemeyer you will find the partner that provides optimum system technology in every respect - in process technology as well as efficiency and functional and operational safety. Gronemeyer is offering specialist competency which is essential for planning and implementation of fermentation, cooling or freezing systems. Our concept which is exactly adapted to your production and operational processes includes the following items:

- mechanical and electrical integration in upstream and downstream
- installations selection and adaption of the most-efficient refrigeration
- on demand - interlinking and data transfer to your central process control

Your innovative system supplier

- Planning
- Realization
- Service

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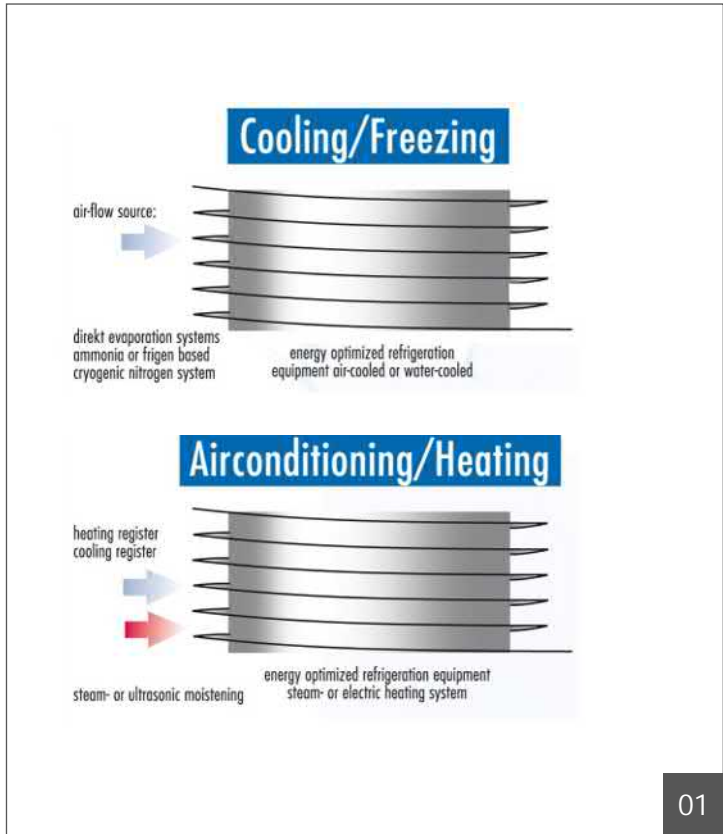
Individual
conveying systems
for horizontal and
vertical transport

Your innovative system supplier

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01 Cooling, fermenting and freezing - All from one source

Foods are highly sensitive goods. The treatment when using fermenting, cooling or freezing plants has to be accomplished under precise product-specific conditions. If these conditions are not met permanently and reproducibly, fluctuations or loss of quality can occur which a company cannot afford.

The individually designed spiral systems made by Gronemeyer are fully dimensioned in accordance with the customer's demands. Depending on the available floor space and ceiling height, the machine dimensions can be optimized by variation of the drum diameter. Whether one- or two-tower systems, depending on application and product, a plastic chain runs continuously through the machine without additional transfer position.

02 Customized control

Complex process technology requires a custom-tailored electronic control system. In our plants, we are using automation systems that control the frequency-controlled motors via a fieldbus system. Our plant visualization displays all important parameters and provides an overview on the current system status at any time.

All product specific system parameters such as processing time and air-circulation temperature can be set or changed via a touch panel and stored in a recipe management system. The automatic start-up of the plant before starting the production can be pre-set in the same way as it is used for the emptying procedure at the end of production.

Conveying systems that meet all requirements

In case of cooling by ventilation $>0^{\circ}\text{C}$, a self-sufficient cooling technic by means of a direct evaporation system will be offered as a solution, or the integration of an air-circulating system in the existing ice/cold-water or heat swing system. For freezing, the required refrigeration capacity can optionally be generated by direct evaporation or by a cryogenic nitrogen system. Depending on the product, as well as the cooling/freezing times, the system capacity is 250 - 6,000 kg/h.

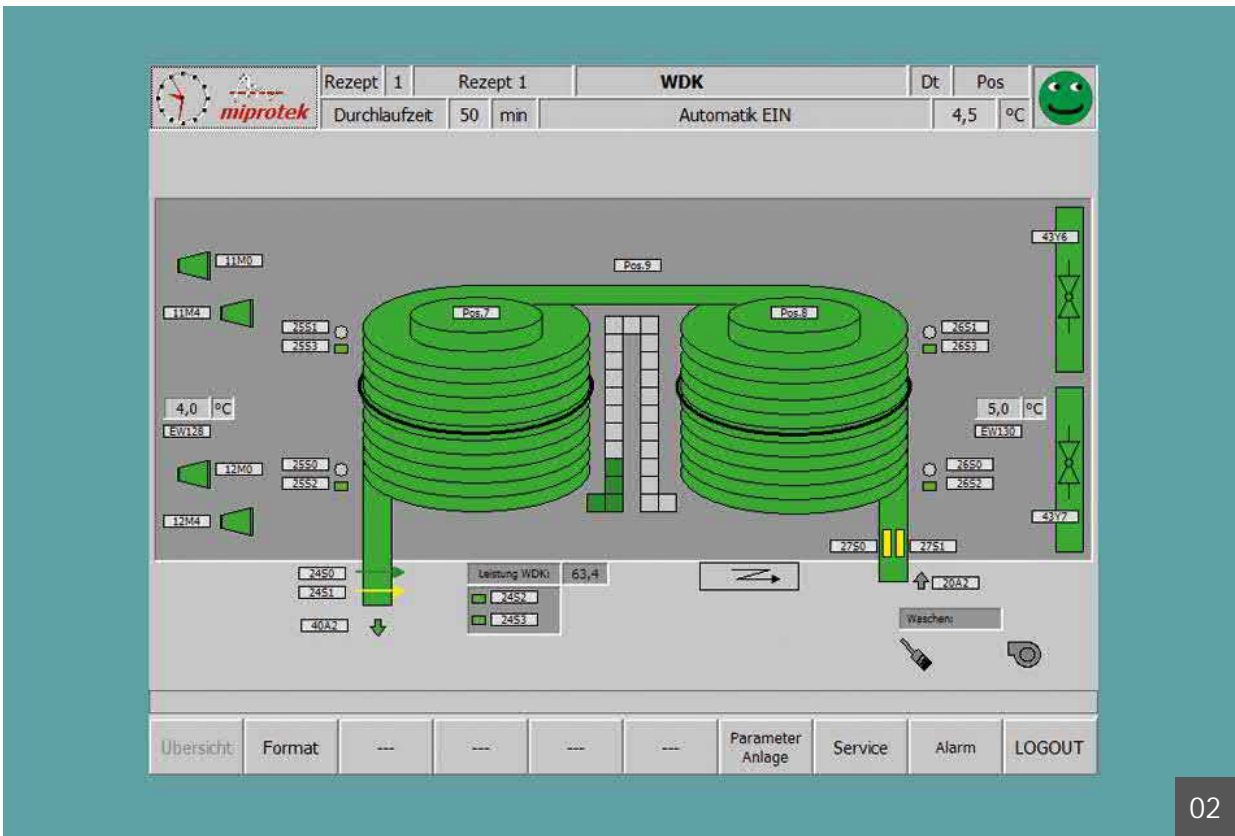
Examples of application

Product	Ketchup	White cheese / Cheese	Chocolate Cream	Sauce concentrate	White cheese / Cheese
Plant type	Double Tower	Double Tower	Double Tower	Single Tower	Double Tower
Location	Germany	Iran	Germany	Italy	Belarus
Capacity	4,800 pc/h 4,800 kg/h	12,500 pc/h 2,500 kg/h	6,000 pc/h 1,500 kg/h	24,000 pc/h 1,200 kg/h	17,750 pc/h 4,260 kg/h
Product dimensions	300 x 140 x 50 mm	110 x 90 x 70 mm	\varnothing 70 x 90 mm	60 x 50 x 25 mm	135 x 100 x 35 mm
Packaging	Pouch	Deep drawn bowl	Glass jar	Deep drawn bowl	Deep drawn bowl
Content / Weight	1 kg	200 g	250 g	50 g	240 g
Infeed temperature	80° C	80° C	55° C	80° C	35° C
Discharge temperature	20° C	15° C	20° C	25° C	6° C
Cooling/Heating Power - Media	350 kW - brine	220 kW - NH ₃	60 kW - R 404 A	70 kW - R 407 C	160 kW - brine
Processing time	70 min	65 min	30 - 60 min	25 min	90 - 120 min
Usable chain length	870 m	470 m	180 m	245 m	1.850 m
Plant dimensions (L x W x H)	7.5 x 3.5 x 8 m	11 x 4.5 x 4.5 m	10 x 4.5 x 4 m	5.5 x 4.5 x 5 m	30 x 5 x 6 m

Product	Sauces / Desserts	Pet food	Dried fruits	Beverage concentrate	Screws / Nuts
Plant type	Single Tower	Single Tower	Double Tower	Double Tower	Double Tower
Location	Germany	Liechtenstein	Germany	Italy	Germany
Capacity	3,600 pc/h 2,800 kg/h	140,000 pc/h 1,400 kg/h	6,000 pc/h 1,200 kg/h	60,000 pc/h 720 kg/h	5,000 pc/h 250 kg/h
Product dimensions	\varnothing 84 x 210 mm	150 x 20 x 3 mm	180 x 135 x 40 mm	125 x 25 x 15 mm	\varnothing 30-50 x 20-70 mm
Packaging	Glass jar	unwrapped	Pouch	Pouch	Metall
Content / Weight	780 g	10 g	200 g	12 g	20 - 50 g
Infeed temperature	82° C	75° C	85° C	80° C	20° C
Discharge temperature	15° C	25° C	85° C	80° C	60° C
Cooling/Heating Power - Media	260 kW - brine	80 kW - R 404 A	30 kW - steam	25 kW - electrical	20 kW - electrical
Processing time	120 min	10 min	90 min	5 min	10 min
Usable chain length	125 m	140 m	450 m	40 m	60 m
Plant dimensions (L x W x H)	5 x 6 x 5 m	8 x 4.5 x 3.5 m	13 x 6.5 x 4.5 m	3.5 x 2.5 x 3.5 m	4.5 x 2 x 3 m



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