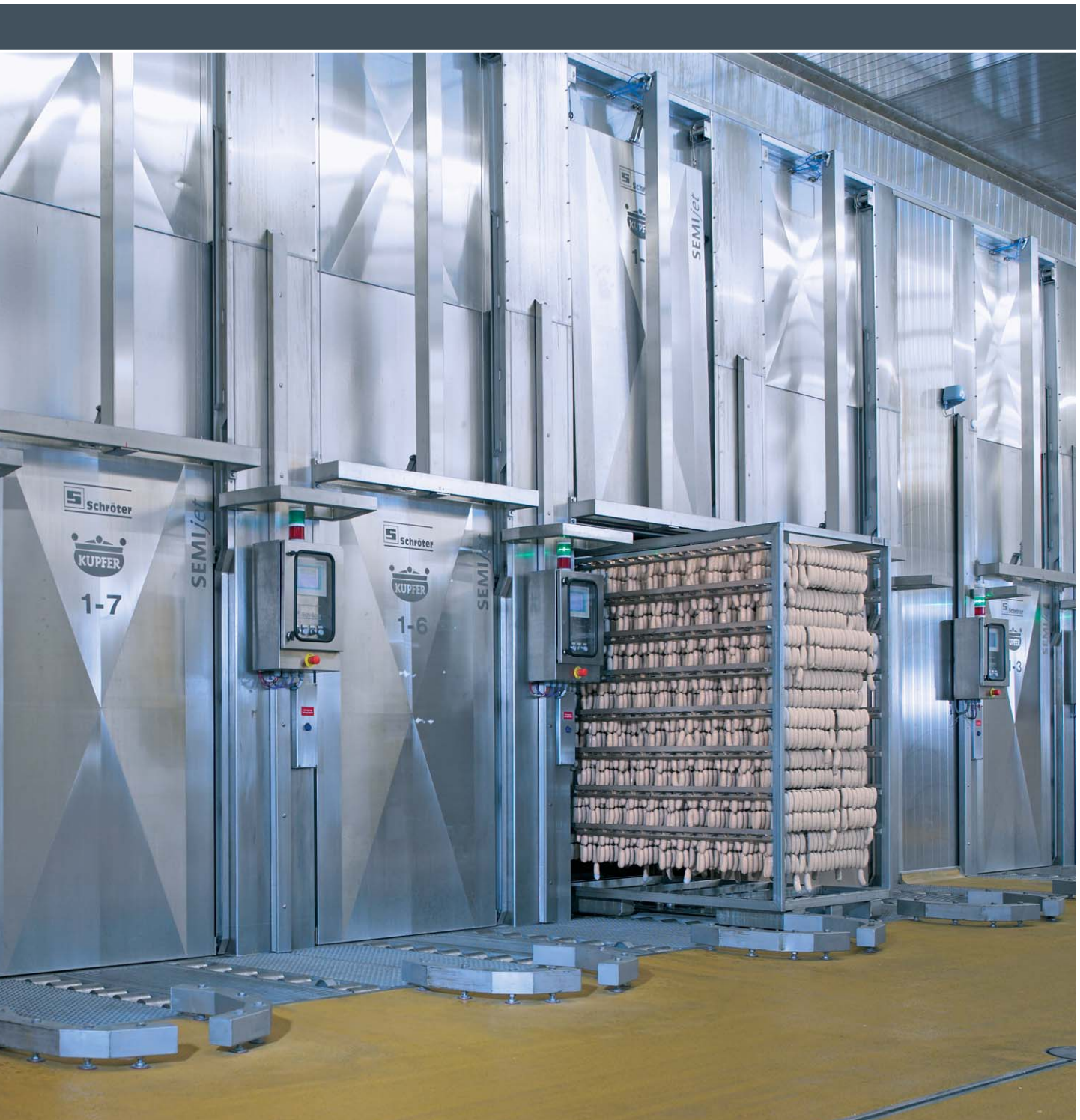


# SEMIjet®



## STEP BY STEP TOWARD OUR GOAL



Our semi-continuous equipment systems with automated conveying systems allow for a wide range of possible combinations. The most common concept: In the first step, the products are smoked or cooked, in the following step they are intensively cooled. One after the other, but fully-automated.

### AUTOMATED CONVEYING SYSTEM

Schröter's systems are custom-built – the same applies to our sophisticated SEMIjet systems. The combination of processing zones is just as variable as the system's design. Schröter offers semi-continuous equipment in every length, available as both one-row and two-row systems. Even the door system can be selected based on the customer's individual requirements. The automated conveying system ensures that the production process runs smoothly – products are fed into the system in batches, transported between the zones, and transported out of the system cooled. Depending on the load, a transport system is also available for floor-based trolleys, racks, modules, and for suspension track systems.

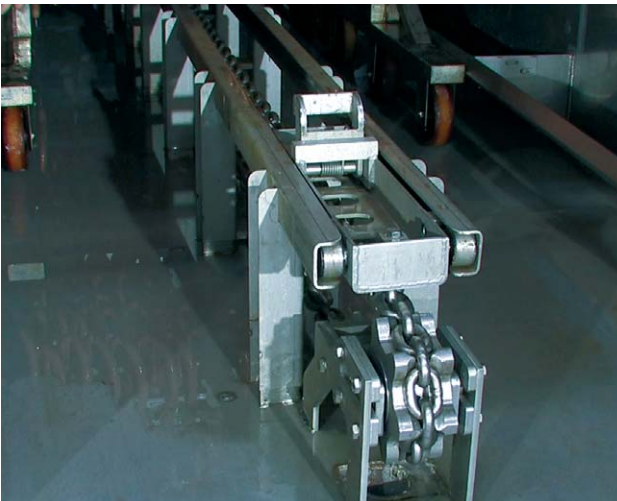




## AUTOMATED CONVEYING SYSTEMS



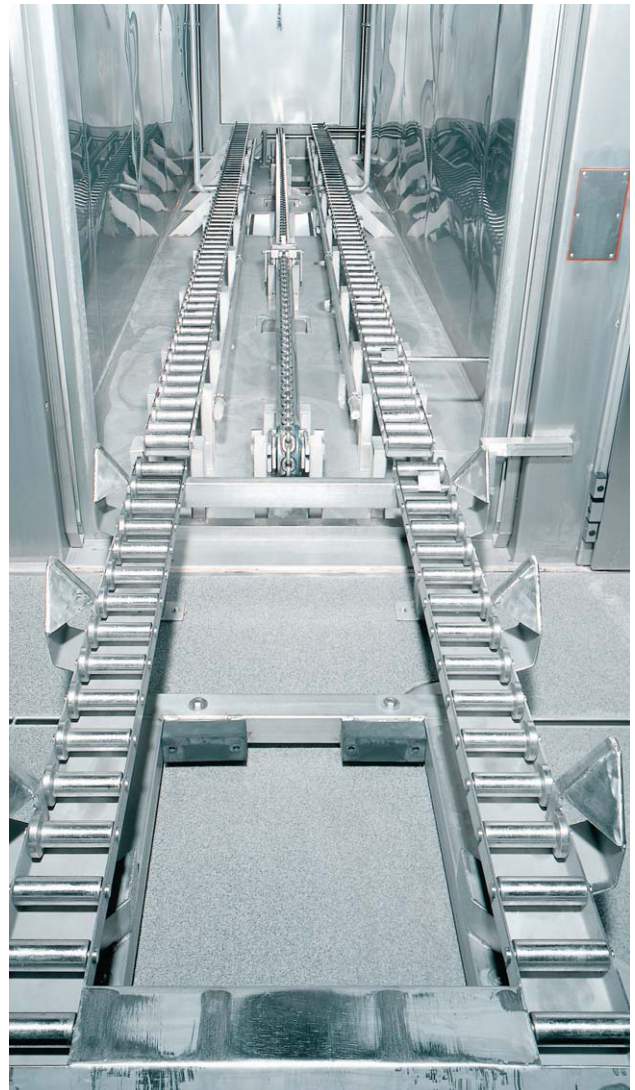
Pneumatic walking beam conveyor



Chain conveyor



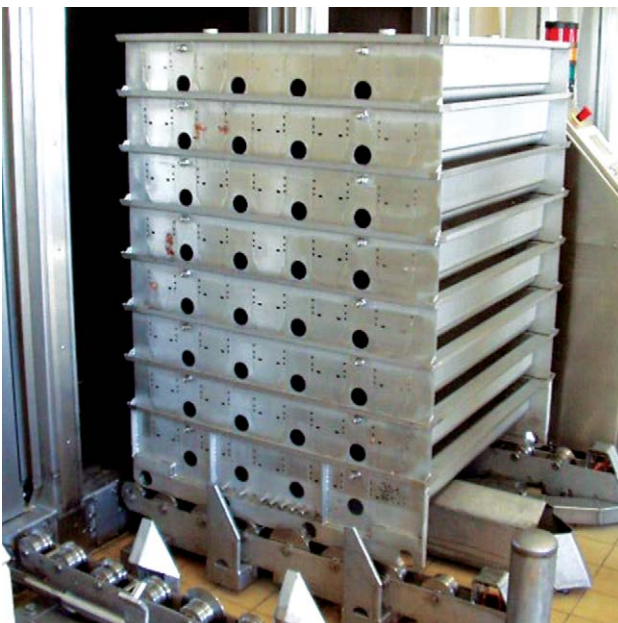
Electric-powered walking beam conveyor



Conveyor system with roller track



## SAMPLE APPLICATIONS



## SEMIjet® KAIK

Schröter first introduced its newly-developed above-floor satellite transport system for automatically loading and unloading product lines at trade shows and in the media. The first system of this type was installed and successfully brought into operation at a company in France at the end of 2004.

The entire installed system is currently comprised of three transit cooking and intensive cooling lines used to produce ham as well as an automated transport system – over the long term the company plans on expanding their system to a total of nine production lines. The transport system conveys the products from the first into the second processing zone. In this system, one “master vehicle” covers the entire input area; a second one is responsible for the output area. Every master vehicle is equipped with satellite vehicles which – as soon as the master vehicle reaches the desired production line – detach from it to feed the products into the system, transport them between the zones, and unload them from the system. In addition to automated operation, the system can also be operated manually using a touch panel or pendant station.

### AUTOMATIC AVAILABILITY CHECK

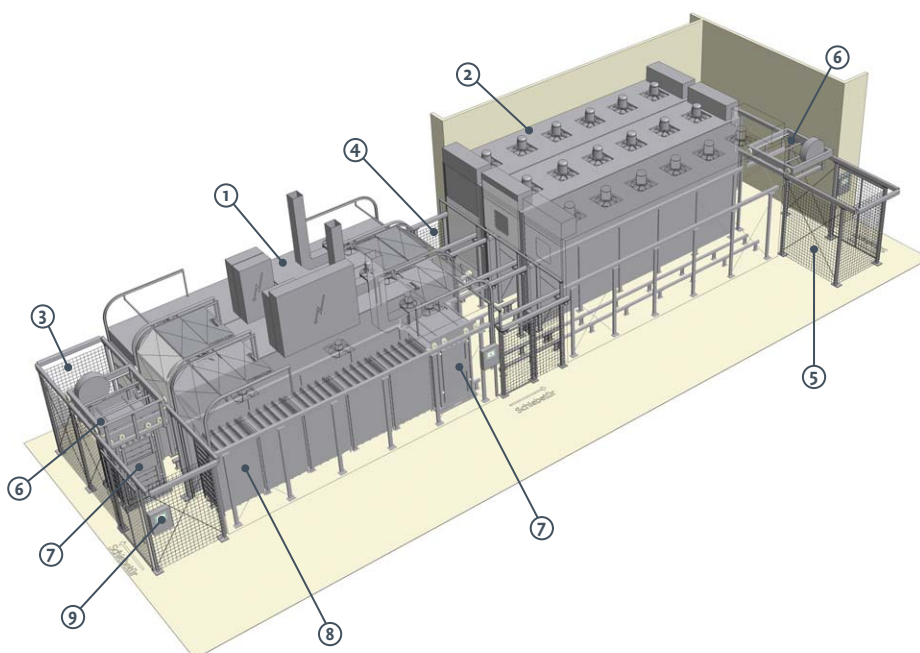
When operated in automatic mode, the customer only needs to input the data using the touch panel and position the loading unit in front of the system. The entire process can be monitored from one central computer. During the loading process, the system verifies a production line’s availability. As an example, this automatic availability check prevents a line whose intensive cooling zone will not be available at the end of the cooking process from being loaded in the first place. During the cooking and intensive cooling process, the system monitors changes to core temperature as well as the cooking and cooling time – if everything is okay, the satellite vehicle is automatically directed to transfer or unload the products.

### REMOTELY MEASURING THE CORE TEMPERATURE

In this loading system, the core temperature is not monitored using conventional, wired temperature probes – after all, there is no way to manually insert them into the products inside the system. Which is why in these systems, the core temperature is measured using wireless core probes positioned at two different locations. The wireless probes send the temperature signal to a signal amplifier outside the system every 50 seconds. From there, the signal is transferred to the process visualization console, where it is clearly assigned to the respective system. This console can then be used to monitor the current core temperature, and if necessary, make changes.

### OPERATOR PROTECTION IS OUR TOP PRIORITY

During the development of its transport systems, Schröter placed a great deal of importance on protecting the system’s operators: At the input and output stations, doors secured electromagnetically prevent people from grasping or entering the system. The electromagnetic bolt only allows the doors to open when the vehicle is in a secure position or when the “emergency shutdown” has been activated. And the rest of the track is also protected with fixed grating. Operator protection is also provided for in the system’s middle zone, which can be accessed from the side – to open a package of sterile sausage casings, for example. With its high standards of safety and quality, the new above-floor satellite transport system ensures the production process runs smoothly without needing significant human resources. The performance of the drive systems is also quite impressive: When empty, the vehicles move at speeds of 40m/min. When transporting goods, the master and satellite vehicles reach speeds of 20m/min. The load-carrying equipment’s lift is close to 2.5 m/min. The drive systems and the load-carrying equipment are equipped with frequency converters.



#### LEGEND

- 1 = Cooking chamber
- 2 = Intensive cooling chamber
- 3 = Input zone
- 4 = Middle zone
- 5 = Output zone
- 6 = Master vehicle
- 7 = Satellite vehicle
- 8 = Loading unit
- 9 = TP270 control panel

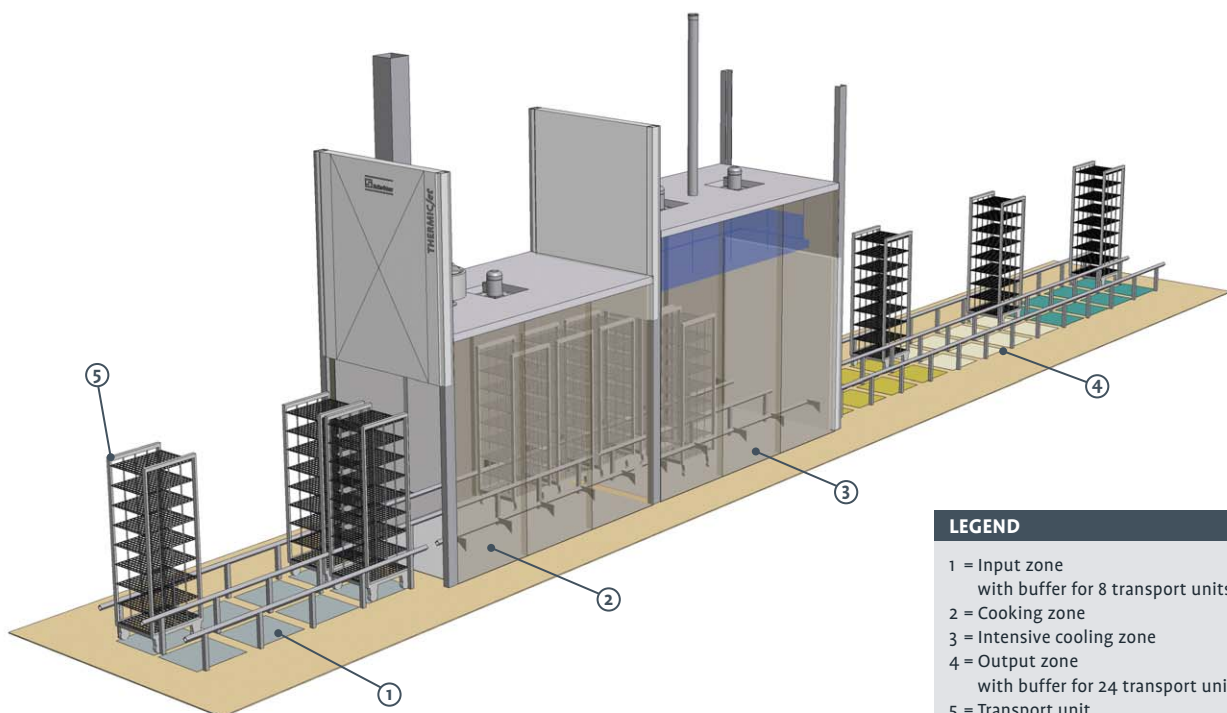


## SEMIjet® KAIK

### Can a semi-continuous system be operated for an additional shift without requiring additional personnel?

Schröter was faced with this challenge when it received an inquiry from a renowned Irish ham producer located in Tullamore, Ireland. And Schröter came up with an incredible solution. On the one hand, the customer wanted to cook and intensively cool a variety of ham specialties in batch production using two SEMIjet systems designed for 16 trolleys each. The customer also wanted to continue using their existing trolleys, which are a special size and have both small fixed rollers for heavy loads as well as guide rollers. On the other hand, the client wanted the process to run fully-automated during the night shift, without requiring any employees. Know how? In order for the semi-continuous system concept to support a fully-automated production process, an extremely flat floor conveying system was developed [walking beam conveyor]. This system's power unit was embedded into the floor of the building, and this was used to feed the special-sized trolleys into the system. At the same time, the two SEMIjet systems were expanded to include buffer stations on both the input and output sides. These buffer stations also have their own floor conveyors – controlled synchronously with those of the SEMIjet systems. The input buffer station holds one complete system batch and then transfers it to the SEMIjet system automatically - in contrast, the output buffer station can hold up to three full system batches. This amount corresponds to the SEMIjet system's total capacity in the cooking and intensive cooling zones as well as the additional capacity in the input buffer station.

The system is ideal for products with long processing times: The concept allows production capacity to be fully utilized by adding a night shift that operates without needing any employees. The Tullamore ham specialties that are produced during the night shift have a processing time equal to one whole shift, which means that when the morning shift begins the products are finished and ready to be processed further. Fully-automated with non-stop monitoring: Special process control software monitors the entire night-time production process. The core temperature values, which are decisive for the cooking and cooling process, are transmitted over a network of newly-designed wireless core probes.



#### LEGEND

- 1 = Input zone  
with buffer for 8 transport units
- 2 = Cooking zone
- 3 = Intensive cooling zone
- 4 = Output zone  
with buffer for 24 transport units
- 5 = Transport unit



## SCHRÖTER'S COMPACT CONCEPT: **SEMIjet<sup>®</sup>**

### STRUCTURAL CHARACTERISTICS

- > Chassis and all relevant components are built to be structurally gas and steam tight
- > All components, such as insulation, motors, fans, and ducts, have the ideal dimensions

### CUSTOMER BENEFITS

- > Speed
- > Homogeneity
- > Energy savings
- > Minimal weight loss
- > Quickly reach target value + accurately maintain target value
- > Consistent results
- > Accurately repeat a predefined result
- > Ideal temperature and humidity
- > Products are handled in an absolutely gentle and uniform manner



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