

Effective and reliable vacuum supply for cooked sausage products

For more than 50 years Salzbrenner sausages have been a byword for quality, especially in the greater Hamburg area. Founder Karlheinz Salzbrenner explains the company philosophy: "We want to make high-quality sausages from locally produced meat and natural ingredients. A simple idea that has been successful to the present day."

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Initially Salzbrenner sold products to restaurants and snack bars, but now it also supplies retail and wholesale companies throughout northern Germany. The company focuses on cooked products such as Krakauer (polish sausage), Bratwurst (frying sausage), Currywurst (sausage with curry sauce), and Kohlwurst (smoked sausage for cabbage dishes).

Salzbrenner's concept is to bring high-quality fresh products to the market. No pasteurising processes are involved, limiting the shelf life of the products to three or four weeks.

A sophisticated logistics system is therefore necessary to process fresh meat

Busch central vacuum system, supplying four thermoforming machines and a dual chamber packaging machine.



One of four packaging lines supplied by the central vacuum system.

on the day of delivery, and to ship the finished sausage products the following day. On delivery, fresh meat is subjected to quality control checks, stored in a cold room for a short time then weighed and minced according to recipe. Some 95% of the meat processed is cut boneless pork.

The mincing process is carried out in a shredder or colloid mill, after which the mixture is filled into skins. Bratwurst sausages are boiled immediately, whereas other varieties such as Knackwurst, Wiener Würstchen and Krakauer are reddened, dried and smoked before boiling. All varieties are cooled immediately after the boiling process, then separated and packed.

The traditional company Salzbrenner KG manufactures 15-30 tons of boiled sausage products daily. Production focuses on proven recipes, natural spices and locally sourced fresh meat. In contrast, the processing technology used by Salzbrenner is highly modern.

Vacuum for the packaging machines is supplied by an efficient centralised vacuum system made by Busch.

Salzbrenner uses the latest technology to manufacture and pack top quality products economically and to the highest hygiene standards.

The success of Salzbrenner products made it necessary to continuously increase production capacity, although the production area of the site at the old Hamburg Abattoir could not be expanded.

Production capacity increased

In 2006 a new building making optimal use of the available space was inaugurated at the site. The original vacuum supply for the four thermoforming machines and a dual chamber machine included the pumps for rough vacuum located in a separate room above the production area.

This was done to prevent waste heat from the pumps entering the cooled production area, causing increased air conditioning costs.

The rotary lobe vacuum pumps remained as boosters beside the thermoforming machines, as did the smaller rotary vane vacuum pumps used for forming foil into trays. However, this arrangement proved to have a disadvantage: the vacuum pumps were started with the packaging machines, and ran almost continuously throughout the working day.

Continued on page 14

Continued from page 13

In order to reduce energy costs and improve system reliability, production manager Christian Heitmann decided last year to centralise the vacuum supply.

Busch vacuum specialists were contacted, who designed a central vacuum system for installation in the same room as the previously used rotary vane vacuum pumps.

This centralised system now generates vacuum for the four thermoforming machines, and supplies the pre-vacuum to evacuate the packaging in these machines and the dual chamber machine.

Between the central vacuum system and the packaging machines three vacuum containers are installed, which act as

reservoirs to maintain a permanent vacuum of 30-40 mbar.

This arrangement has the advantage that vacuum is available immediately at the start of the evacuation cycle. The rotary lobe boosters installed directly to the packaging machines increase the rough vacuum instantly to the level required for packaging, permitting extremely short cycle times.

Part of the central vacuum system runs independently to supply vacuum for tray forming at about 150 mbar.

After a year of operation, the central vacuum system has met production manager Christian Heitmann's expectations in full: the operating hours of individual



vacuum pumps have been reduced by 20%, as the pumps only run if required by current demand. In addition, only four rotary vane vacuum pumps and two rotary lobe boosters are installed in the central system. A fifth rotary vane vacuum pump acts as a reserve, and can also be connected to the system if production is expanded and another packaging machine added.

The previous decentralised system had a rotary vane vacuum pump for each of the four thermoforming machines and the dual chamber packaging machine, and a smaller rotary vane pump for each of the tray thermoformers.

The new system creates substantial energy savings by reducing:

- The operating hours of individual vacuum pumps.
- The number of vacuum pumps in operation.
- Air conditioning energy consumption by eliminating waste heat emissions in the packaging room.

Christian Heitmann regards the improved system reliability as another significant advantage. In the event of a vacuum pump failure, the reserve pump will activate automatically without production interruptions or downtime.

In addition, maintenance personnel no longer need to enter the production area. Stoppages due to maintenance have been eliminated, as service staff have unrestricted access to the individual vacuum modules during production.

Christian also relies on Busch to carry out maintenance work. A service contract guarantees the availability of the entire vacuum system over a five year period for a fixed annual payment. This contract allows Salzbrenner to plan operating costs in advance, and provides professional and punctual execution of all maintenance work by a Busch service technician. ■