

# Vacuum technology offers ideal solution for Black Forest specialities

by Uli Merkle, Busch Vacuum Pumps and Systems, Germany.

Schwarzwaldhof Fleisch- und Wurstwaren GmbH, based in Blumberg in the Black Forest, produces Black Forest ham and sausage specialities as well as various types of cured products. The unrivalled technical production, high quality of the ingredients used and sophisticated processing procedure guarantee outstanding Black Forest quality.

Certification by the IFS (International Food Standard) and BRC (British Retail Consortium), as well as a number of awards in the form of DLG medals (Deutsche Landwirtschafts-Gesellschaft – German Agricultural Society) are another indication of the quality.

Schwarzwaldhof also relies on top quality when it comes to the vacuum supply for their packaging lines, using a central unit from Dr Ing. K. Busch GmbH to generate the vacuum.

## Black Forest specialities

Ham and sausage products have been produced in Blumberg since 1970. In 2007, the company Lutz Blumberg became Schwarzwaldhof Fleisch- und Wurstwaren GmbH. The product range comprises specialities made from Black Forest ham and cooked ham (pork shoulder).

Schwarzwaldhof also produces snacks such as 'Landjäger' (smoked sausage), 'Pfeffer-



**Central vacuum unit for the supply of vacuum to 10 packaging lines at Schwarzwaldhof. 'Pfefferbeisser' is one of Schwarzwaldhof's sausages speciality.**

beisser' (pepperbites) and 'Urige' (original), and ready cut Bologna sausage salad.

Schwarzwaldhof makes products for the supermarket chain Edeka, both in the south west of Germany and the country as a whole, with export becoming increasingly important. There are a total of 250 employees working at the factory.

For ham production, the meat pieces are rubbed with the special in-house salt mixture and left to mature for 8-10 days in a mother brine.

The meat is placed in the cooking chamber for a further few days to reduce the moisture content, after which it is smoked over fir wood. It is then vacuum-packed as either a whole piece of ham or packaged as smaller consumer products.

Until 2004, the vacuum supply was integrated directly into each packaging machine.

As the operation grew, factory manager Bernd Goder contemplated removing the vacuum pumps from the production and packing areas in order to reduce noise emissions and to prevent the exhaust air from the vacuum pumps from coming into contact with the foodstuffs.

He also wanted to avoid maintenance personnel carrying out maintenance work on the vacuum pumps in the production

area, as this posed a risk to hygiene and interfered with the packaging process.

## New central vacuum

A new central vacuum unit was commissioned in 2004. This was designed and developed by the Busch vacuum specialists.

Since then, the central vacuum unit has supplied all 10 packaging lines, which are equipped with both thermoforming machines and rotary machines, and are used for vacuum packaging using protective gas (MAP) such as carbon dioxide or nitrogen.

The central vacuum unit has a redundant structure, which significantly increases operational reliability as it prevents any performance losses in the event of a component failure.

After over eight years in operation, factory manager Bernd Goder is extremely satisfied with the central vacuum unit. During this time there has not been a single failure or breakdown. What Bernd values most is the flexibility that he now has in terms of maintenance of the vacuum supply. The redundancy of the system enables individual vacuum pumps to be switched off for

*Continued on page 20*

Continued from page 19

maintenance during operation. This means that all maintenance work can be carried out during the normal working hours without having any effect on production.

The system is housed in an engineering room and is completely separate from the production, ensuring that maintenance personnel do not have to enter any production areas.

## Significant advantages

The Busch central vacuum unit offers a further significant advantage: it requires far less energy as a large amount of the required suction capacity is generated using Panda Roots vacuum pumps. Roots vacuum pumps generate the same suction capacity as rotary vane vacuum pumps with just one fifth or less of the energy, allowing considerable energy savings to be made.

During the first pump-down stage, the central vacuum is technically designed to generate a low vacuum of approximately 50 millibars in a vacuum buffer. The second stage involves reaching ultimate vacuum in another vacuum buffer, and this corresponds to the vacuum in the packaging.

By opening the main valve on the packaging chamber, the sealing chamber, which is under atmospheric pressure, is



**Schwarzwaldhof GmbH, manufacturer of original Black Forest specialities, is based directly in the Black Forest, Germany.**

connected to the pre-evacuated buffer volumes and thus evacuated immediately.

In terms of speed, this process is far superior to decentralised evacuation as pressure compensation takes place at nearly the speed of sound. This technique not only has the advantage of creating a production facility that is completely clean and silent, but also offers the greatest possible output from the packaging machines – regardless of how far away the vacuum generation is from

the packaging process. Another part of the system maintains the vacuum for the moulding station on the thermoforming machines. A reserve pump is available in stand-by mode for when maintenance work is being carried out or if a vacuum pump were to break down.

For factory manager Bernd Goder, the central vacuum supply from Busch is the most cost effective and technically reliable solution. ■