



The VC999 C6 medical chamber machine is a high-performance sealing machine for all types of medical packaging.

Packaged for Protection

Many years of experience and extensive know-how are the best prerequisites for developing and building machines for high-quality packaging processes with vacuum. The Herisau-based company VC999 Verpackungssysteme AG has been supplying various machines for food packaging since 1971 and, for some time now, also for the medical sector. The company uses SIGMATEK automation systems for its vacuum chamber machines for the food and medical sectors.

Andreas Leu

At the beginning of the 1970s, the demand for safely packaged food grew. For example, people were increasingly buying meat from wholesalers rather than local butchers. The founder of VC999 Verpackungssysteme AG, Bernhard Inauen, recognized the trend that suppliers wanted to sell protected food products with a longer shelf life. Thanks to the new vacuum packaging, the food was not only protected from contamination, but the maturing process, for example for cheese, was also supported. In addition, the increasing demand for traceability in the production of food, for example by means of barcodes, has

become easier with the packaging. In addition to food producers, the hotel and catering industries are also customers for machines from the VC999 packaging systems. The range includes a broad portfolio of table-top vacuum machines, chamber machines, tray sealing machines and larger systems such as thermoforming machines. The company employs around 70 people in Herisau, Switzerland, and around 250 worldwide, with a presence primarily in the DACH region and America.

The Right Control System Supplier

The processes of a vacuum chamber

machine are not particularly complex. However, they must be flexibly adaptable to the respective product. Tomas Ulmann, Head of Control Technology at VC999 Verpackungssysteme, talks about the early days: "Machines for the food industry are very price-sensitive. That's why we developed our own control system at the time, which was programmed in C. This is still used for our more compact machines. For the larger machines, we used a PLC from a Japanese manufacturer, as this was already being used by our subsidiary in the USA. New market requirements, such as standardized data interfaces,

«A major advantage of the SIGMATEK automation system is that we can always use the same control platform with the same components and tested classes.»

Tomas Ulmann, Manager Control technology VC999

including OPC UA and a more convenient, graphical user interface, led us to consider a new generation of control systems." When evaluating the new control system supplier, VC999 Verpackungssysteme was looking for a provider that was "on an equal footing", as Tomas Ulmann puts it, and one that could also respond to specific customer requirements. The solution concepts of various automation providers were requested and compared for two sample machines. Both the concept and the presentation of SIGMATEK were the most convincing.

The flexibility and success of the collaboration with SIGMATEK is demonstrated by the development of a customer-specific input module for measuring the absolute pressure of the chamber machines. "Although we can use the pressure cells available on the market for the higher-priced systems, this is not possible for us with the smaller machines. Never-

theless, the vacuum measurement must be precise, as the optimum vacuum determines the quality of the food and productivity. As a result, we sat down with the experts from SIGMATEK to design a module that meets our requirements in terms of pressure measurement," explains Tomas Ulmann. SIGMATEK developed the "S-DIAS absolute pressure input module", an expansion module that is precisely tailored to the needs of the VC999 packaging systems. It supports an absolute pressure input with a measuring range of 0 to 1600 mbar, a PT100 temperature input (0 to 300 °C) and eight digital inputs (+24 V/3.7 mA/0.5 ms). The absolute pressure sensor can be connected directly to the module via the hose from the sensor without a transmitter.

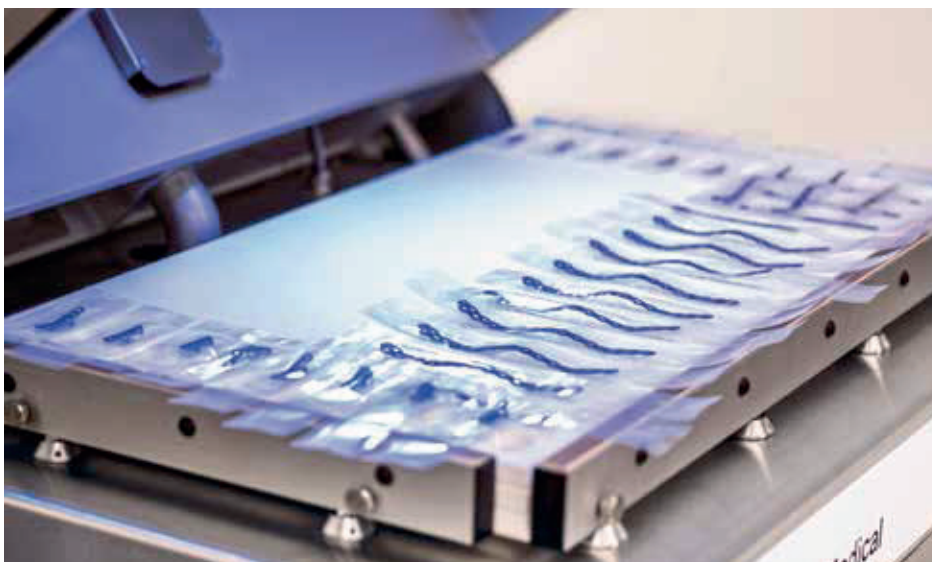
Convenient User Guidance as an Eye-catcher

SIGMATEK's range of control systems is complemented by a clear, conveni-



Picture: Sigmatek

The DM 811 S-DIAS absolute pressure input module was developed by SIGMATEK for the special requirements of VC999 packaging machines.



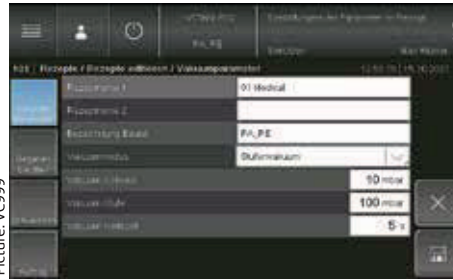
Picture: VC999

The VC999 chamber machine is fully loaded and ready for the vacuuming process.



Picture: VC999

The process- and production progress is shown on the well-organized user interface.



Picture: VC999

The user interface makes it easy to enter the process parameters.

ent visualization system. "Simple operation is particularly important in the food industry, as people without professional qualifications often work here," continues Tomas Ulmann. "Employees cannot be expected to parameterize a process sequence. These curves with the relevant parameters, such as the temperature curve, vary from product to product. They can be saved as recipes so that the operator only has to call up 'fillet of beef' or 'soup' at the end and the process data optimized for this product is automatically loaded into the control system." The layout of the user interface is clear and functional, making it very easy to use. "Ease of use is very important for our customers," says Tomas Ulmann. "SIGMATEK actively supported us in the implementation of the visualization elements."

Getting Started in Medical Technology

VC999 Verpackungssysteme began manufacturing vacuum machines for medical technology back in the 1980s. Tomas Ulmann remembers: "We were aware that entering the medical sector would not be easy, although the requirements in the food sector are already very high. In the beginning, we practically built tailor-made products for customers. They also took over the entire validation of the machine processes according to their individual requirements. Due to the ever-increasing regulatory requirements and finally with the upgrading of packaging to a critical component of the medical product, we realized that there is a greater need for such machines. So we decided to enter the new medical technology market segment with a stan-

dard machine. The basis of the medical chamber machine is the same as for the food sector. We adapted it to the regulatory and industry-specific requirements. In medical applications, for example, the temperature curve on the sealing bar at a clearly defined sealing pressure and a defined time is also decisive for the processes. They must be recorded, qualified and verified. The fact that our machines are fully qualified and our internal processes such as development, production and service are certified in accordance with DIN EN ISO13485:2016 sets us apart from the competition. It saves customers a lot of time and money if they don't have to carry out the qualification process themselves."

The SIGMATEK control system was once again the obvious choice when it came to meeting the requirements for the automation solution for the medical chamber machines. The data such as vacuum setpoint and actual value, temperature setpoint and actual value, which recipe was used, date, time etc. are recorded and saved as a PDF file on a USB stick with the batch and order number. This application is available as a function class in the standard library in SIGMATEK's all-in-one engineering tool LASAL.

A Look into the Future

When asked what future innovation steps will look like, Tomas Ulmann replies: "We have learned a lot from the development of medical machines and see a trend that data recording is also becoming increasingly important in the food sector. This means that we can largely adopt the functionalities from the medical sector and adapt them to the food machines. We have also received initial inquiries about networking with third-party systems via OPC-UA. The aim is to work with standardized interfaces where possible. In future, we also want to switch to the SIGMATEK automation solution for the larger chamber lines. The system also offers the desired solutions for the customer's requirement for openness in data exchange".



Picture: Andreas Leu

Tomas Ulmann is responsible for control technology at VC999 Verpackungssysteme AG.

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