



Modern and flexible – the new Burger-Line from Slegers Technique provides proportioned ground meat and burgers to 80 Lidl stores in the USA.

## MODULAR HAMBURGER PRODUCTION LINE

The Dutch machine manufacturing company Slegers Technique based in Nieuwkuijk, specializes in cutting, interleaving or layering, weighing and packaging food products such as meat, fish, cheese or cakes. Slegers was commissioned by a premium customer to construct a complete production line for a factory in the USA within 6 months. The mission: To hygienically pack ground beef, in the form of hamburger patties, and ship them to around 80 Lidl stores in the USA.

**T**he result is a 40-meter-long production line, in which approximately 20 function units are flexibly connected with one another. With the know-how from SigmaControl, SIGMATEK's Dutch sales partner, a modern and unique production line could be implemented with the hard and software from the Austrian automation technology provider – and that in the shortest time. The requirements on the Hamburger production line are high: The highest flexibility for processes, integrated Safety and special features such as weighing modules and metal detectors. In addition, specials for discount offers should be integrable into the production.

### Modern Requirements 4.0

“Actually, I have been building custom products my

whole life”, explains Huub Slegers, CEO of Slegers Technique. “This mostly involves a combination of function modules. One module performs for example, the cutting, proportioning or forming tasks, another handles weighing, another lays the paper underneath and another stacks a specific number of the product in a specified order. It is only logical that we would implement a modular concept. When you build “customer-specific” you can combine a series of machines as needed and construct a complete line.”

“All requirements of modern machines can be found in the hamburger line”, explains Slegers project manager Jeroen van Beurden: “A multi-touch HMI to operate the line, all function units are networked with one another and all data is stored in a common data bank. This is completely new, since until now,



**Scale module** with ejection unit.

each module had its own program and display, as well as its own recipes. A simplification on the operator level with an easily understandable user interface is very important.” Huub Slegers adds: “I come from the ‘world of cutting’ myself. There for example, you have a sausage slicer, from which 1000 slices should at least be cut from a salami with over 60 cm. When configuring

the machine, there were 200 parameters that I could set and the machine operator on-site as well – that made things complicated. For this reason, it is important to view the requirements on the machine not only from an engineer’s perspective but also through the eyes of the operator. We go top-down through the configuration and consciously place complex settings on a diffe-



In the “lane divider”, the stacked burgers are placed in the correct configuration and alignment.

rent level.” Jeroen van Beurden explains: “We have multiple levels, which can be accessed with the corresponding authorization.” As an extra feature of the engineering software LASAL from SIGMATEK, a log system is included via the “Machine Manager”, through which all results in the control can be visualized. When a parameter is changed, it is logged. Huub Slegers: “With the old machines, it was so: The morning shift had its own program and the afternoon shift had a completely different program setting for the same product. Now only the most efficient programs can be selected.”

### Modern Servo Technology

In the last two years, Slegers Technique has strongly invested in the continued development of their machines. Four people have been busy with the concept, design and functionality of the machine units. Huub Slegers: “We use the ground beef as a basis from which a burger is produced that leaves the factory having been weighed, packaged and labeled. In between, there is a series of processing steps.”

Often in production lines, the special Slegers function modules are found at the beginning of the line. After the product has been portioned, formed and weighed (scale module with ejection unit), the “underleavers” (foil/paper underlayer) and the “stackers” (unit for stacking individual products in layers) begin their work. The underleaver machine modules are connected in a so-called “Lane Divider”: An art of engineering by which the burgers are divided into two rows, so that they land attractively presented in a tray. The trays are unstacked

and fed from the tray dispenser module beforehand. Using sensors, the movements are automatically more exact and faster – and here, it is also nice to see how deep Slegers integrates the servo technology. Where competitors work with small motors and a lot of mechanics, Slegers can use separate motors at any position where motion is required to influence speed, power and position. Huub Slegers: “We build exceptional modules, i.e. functions that are out of the ordinary and at the same time robust, easy to clean as well as simple to maintain. Our machines are compact, watertight and we try to use as few cables as possible.”

### Intelligent, robust and safe

According to Jeroen van Beurden, Slegers also has the lead when it comes to machine optimization: “We develop intelligent solutions. In our machines, the electronics are always mounted on a separate panel that is not directly connected to the outer frame – because of the thermal bridge. If the ambient temperature is a couple of degrees above 0 and



“Once created and tested, we can always reuse LASAL classes with small changes. That saves an enormous amount of development time.”

DI Huub Slegers, CEO of Slegers Technique



the cleaning staff cleans the machine using 80-degree water, a temperature difference results that causes condensation in the control cabinet. The machine therefore has a special screen and the floor is constructed like a slope with a special vent.” When designing the control cabinet, double hinges are used and on the upper section of the machine near the HMI, an RJ45 plug for connecting a laptop is installed so that the machine door must be opened as little as possible. An advantage in an environment, in which the highest le-

vel of hygiene is a must. Jeroen van Beurden: “Detectable cable ties in the control cabinet are not mandatory, we generally use them however. And for the cable ties, we also select FDA-compliant cables wherever power, communication and air are drawn through.”

#### **Modular Control as the Basis for Flexibility**

For the control system, Slegers relies on SIGMATEK. The complete solution consists of compact S-DIAS CPU and I/O modules in-

**left** The multi-touch HMI from SIGMATEK provides clarity and intuitive operation.

**right** Trays are unstacked and fed to pick up the burgers in the correct amount.



cluding Safety, modular DIAS drives and modern ETT multi-touch operating panels. Huub Slegers: “Like many machine manufacturers, we also tried various brands in the past. We always had problems with components that did not communicate with one another and therefore could not work together. In recent years, the development of our machines has made such a huge jump that we do not accept any other brand.”

Jeroen van Beurden: “We are happy that in all of our modular units, we can now install the super compact CPU and I/O modules from SIGMATEK. In the object-oriented engineering software LASAL, these module blocks are also configured and visualized directly in the hardware editor. Once created and tested, we can always reuse LASAL classes with small changes. That saves an enormous amount of development time.” In a packaging line, the Safety aspects also cannot be forgotten. When it comes to Safety, there is a complete SIL3-chain where emergency stop command devices and possible alarms can be clearly visualized on the operating panel. Jeroen van Beurden: “Several weeks ago, we had to solve a problem abroad. Using a live connection, we saw a problem in the Safety circuit whereby the machine did not want to start. It turned out that there was cable break in a Safety switch. Within two hours, the problem was solved from the Netherlands. That was a real kick!”

### Extra Service makes the Difference

According to Jeroen, 8200 components are built into this semiautomatic hamburger line, plus the modules that were additionally purchased. Most are Slegers standard function modules, but if the



The modular DIAS Drives 100 from SIGMATEK control the servo motors and communicate with for example, SinCos interfaces. In this configuration, transport and conveyor belts are controlled. In combination with the Ethernet bus system, the S-DIAS control system with integrated Safety ensures data communication in hard real time.



customer requires something special, we adapt the line according to their specifications. Huub Slegers: “For special functions, such as sealing trays for example, an in-house development is not practical. Here, we install specific machine modules from other manufacturers. With the diverse interfaces of the SIGMATEK system, these can be easily integrated into the line.”

For servicing and correcting technical problems, the Slegers team also thinks far ahead. Huub Slegers: “We provide the user with a testing function in each module. With each start in the morning, a test program is activated, which tests each parameter via software.”

The focus is set on long-term cooperation with each customer and therefore delivering, as well as guaranteeing quality is important to Slegers. “The line must run for at least 10 years, after five years, we regularly perform machine updates,” he says. “We try to use the same components in the machine modules whenever possible. In addition, we offer our customers replacement part packages. This simplifies support since the required replacement parts are already at the customer location and we therefore can quickly provide help from a far distance.”

Events are recorded in the log system of the LASAL Machine Manager. In the event of an error, diagnostics can be run quickly.



### Slegers Technique B.V.

Slegers Technik BV is a globally successful specialist for modular machine manufacturing in the cutting, layering, weighing and packaging of fresh food products such as meat, sausage, fish and cheese. The very user-friendly software is also developed in-house.

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