VTSA standard valve terminal

Field of application
Blister machine with tablet feed and high performance cartoner

Key features
- Several pressure zones can be set up at a single valve terminal
- Robust, easy to maintain and modular with high flow rates

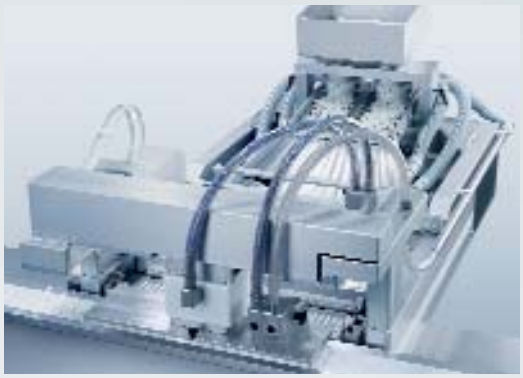
VTSA – the active ingredient

With its VTSA standard valve terminal, Festo is helping the pharmaceuticals industry to effectively prevent headaches, i.e. those caused by excessively high costs in the production and packaging processes. And that's why Uhlmann Pac-Systeme uses the flexible valve terminal in its single lane packaging line known as the Blister Express Center 500.

For readjustment during use: the VTSA valve terminal. It provides users with the opportunity of combining various valve sizes and more than eight valves on a single terminal.

You'll find them in nearly every household: practical push-through blister packs for tablets, also known simply as blisters in technical language. Ampoules and syringes are also packaged in push-through blister packs as well. Uhlmann Pac-Systeme, a leading supplier of packaging machines for the pharmaceutical industry, is specialised in machines for this type of packaging – for example the Blister Express Center 500 with consistently integrated processes and output performance of up to 500 packages per minute. Blister machines with tablet feed and high performance cartoners result in packaging systems which can be used batches sizes ranging from 30,000 to 150,000 blister packs. Festo's VTSA standard valve terminal assures reliable control of all of the processes in the cartoner.

Thermoforming and filling
Thermoforming sheet, cover sheet material, tablets, accompanying leaflets and collapsible cardboard boxes are fed to the system at the beginning of the packaging process. First of all, the thermoforming sheet is warmed up at the heating station and then cleaned with air. The sheet is then deep drawn at the forming station by means of a die and a partial vacuum. This creates recesses into which the tablets will be inserted later on. A feed unit inserts the tablets into the deep drawn thermoforming sheet in the filling section. Downstream from the feeding operation, a camera system checks to ensure that all of the recesses have been filled correctly with tablets of the right size, shape and colour. Heat and pressure are used to fuse the filled thermoformed sheet to the sealing sheet. Processing is then continued in the stamping section. The blister pack is perforated at one station, and stamped out at the next. Finished blister packs are transported to the cartoner by means of a vacuum conveyor belt.



1 Tablets are advanced into the filler plates by means of vibration via the MultiTab feed system. The recesses in the filler plates match the recesses in the thermoformed sheet.

2 Faulty blister packs – recognised by the camera - are identified with a special stamped contour at the stamping station and are removed from the packaging process.

3 The blister packs are stacked in slots in the lane for goods to be packaged in the cartoner. At the same time, collapsible cardboard boxes are pulled, set up and placed onto a second lane behind the blister packs.

Convincing arguments

The VTSA valve terminal demonstrates its strengths in the cartoner. Festo technical consultant Matthias Ernst explains: "Due to the requirement of being able to set pressures to different levels at each individual valve with the greatest possible degree of flexibility, the VTSA valve terminal was the ideal choice. The VTSA provides the user with the possibility of installing two different valve sizes on a single terminal. It was then possible to use any desired bus variant, in this case CAN-Bus which was implemented by means of the CPX interface. And then we had to address the questions of how to create a pressure zone on a CPV, and just how flexible the CPV might be for this particular application. After examining all of the requirements we clearly tended towards a flexible valve terminal which can be expanded. And thus everything spoke in favour of the VTSA."

Quick assembly

The blister packs are transported to the cartoner on a vacuum conveyor belt; there are stacked and pushed onto an additional conveyor for the goods to be boxed. At the same time, an accompanying leaflet is pulled, folded and positioned upstream of the stack of blister packs. A folding cardboard box feeder pulls a box and opens it up. The open box is then set onto a second lane which is behind the goods to be packaged. A sleeve which wraps itself around the blister packs then pushes the stack and the accompanying leaflet into the cardboard box. The expiry date and the batch number are then stamped onto the box's tuck flap at an embossing station. Finally, the cardboard box is closed by a closing mechanism. The finished packages leave the Blister Express Center 500 on a conveyor belt.

Erwin Appenzeller, project engineer at Uhlmann: "Originally, we specified the inexpensive ASI bus for the blister machine. The great variety of pressure zones in the cartoner would have led to a larger number of valve terminals with ASI bus connection. Together with Festo, we conducted a cost comparison between ASI and CAN bus valve terminals. This revealed that CAN bus is the less expensive alternative for our application, because we can control a considerably larger number of valves via CAN bus interface. Pressure can be precision regulated separately for each station with intermediately installed regulators."

Cleaning, deep drawing and thermoforming of the sheet material

- Filling the blisters → 1
- Camera inspection → 2

is 1110
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at Uhlmann Pac-Systeme

4 Once all the components have been lined up, the blister pack is push into the box along with the accompanying leaflet.

5 After packaging, the folding cardboard boxes are advanced to the closing station. From tucking to hot sealing, all common closing methods are possible.

VTSA valve terminal

SDE3 pressure sensor

D series service units

Uhlmann	**Uhlmann Pac-Systeme**
Products	Packaging systems for the pharmaceuticals industry Comprehensive range of services covering all aspects of pharmaceuticals packaging
Employees	1100
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▲ Shipped from Festo ready to install: customer-specific service unit with integrated SDE3 pressure sensor.

◀ Blister Express Center 500, high performance packaging line with an output performance of up to 500 packages per minute.

- Sealing
- Stamping
- Perforation

- Blister pack stacking →3
- Pulling, folding and positioning the leaflet →4
- Opening up the folding cardboard box
- Pushing the blister packs and the leaflet into the box
- Printing the expiry date and closing →5