

Industry-specific solutions

Breweries and beverage bottling

Application

Pneumatic automation in hybrid industries – combination of process and factory automation

Benefit

Saving time and costs with turnkey pneumatic systems

Hybrid brewing industry

From process to factory automation – hybrid industries require automation solutions from partners who can offer more than just components. This can extend up to turnkey handling systems that fill the bottle carriers in breweries at high speed.



■ **Badische Staatsbrauerei Rothaus AG**, a brewery based in the Black Forest, is a classic company in the hybrid industry. The company is increasingly using complete sub-assemblies and systems for continuous and discrete production both in its brewing process and its bottling systems. The more work that suppliers can offer during design of the system, and the further along the complex wealth creation chain it is possible to push automation systems, the easier it is for the brewery to concentrate on its core business, namely brewing beer and bottling it.

Speedy processes

The brewing floor alone, on which the hoppy, bitter Pilsener beer of the "Tannenzäpfle" brand matures, for example, is full of control cabinets housing CPV fieldbus valve terminals from Festo. These control the stainless steel flaps of the fermenting tanks. The flaps open and close the pipes to supply air and carbon dioxide, as well as for the exhaust air. The stainless steel control cabinets containing the entire pneumatic

systems including CPV valve terminals, fieldbus nodes as well as Festo D-series service units, were supplied as turnkey systems by Stulz Wasser- und Prozesstechnik GmbH based in the nearby town of Grafenhausen, and integrated into the processes on the brewing floor. It's clear to see: Complete systems make even process automation rapid.

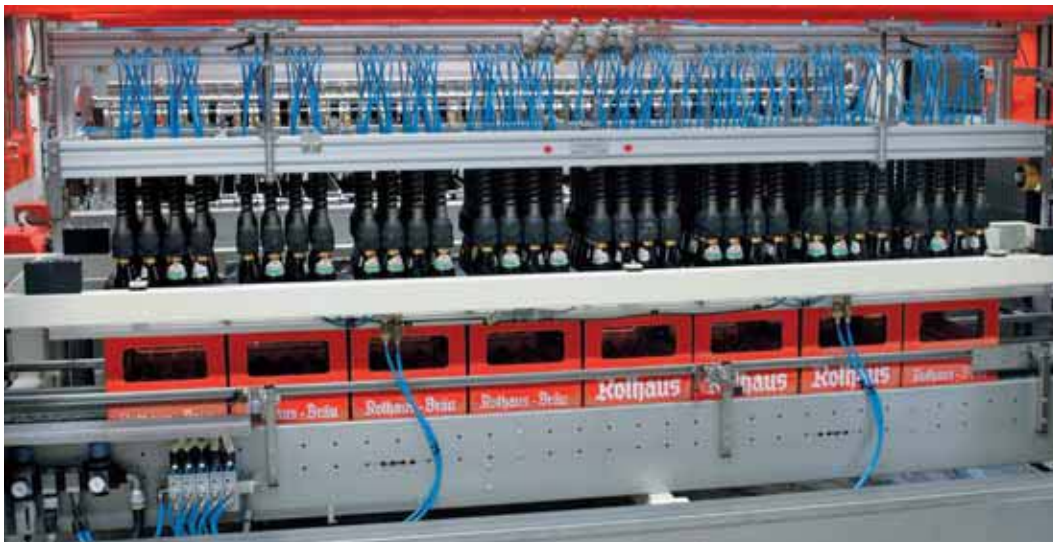
Bottling with compressed air

But this is not enough: Hybrid industries have to be able to rely on automation at the points when continuous production changes to discrete production. And the pneumatic systems will not let them down: Controlled DFM drives, DNC standard cylinders or ADVU compact cylinders perform their service indefatigably when it comes to gripping bottles or crates, lifting them or transporting them onwards. They can be reliably controlled by compact CPV valve terminals. The pneumatic solutions are to be found in crate sorting systems, palette-loading robots, in bottle washing machines and, it goes without saying, in the bottling systems themselves. In the

Innoclean bottle washing machine from KHS, Copac drives of type DLP from Festo are responsible for opening and closing gate valves for supplying the cleaning fluid.

Turnkey handling systems ...

... keep the amber nectar flowing even in a beer packaging line. The Austrian brewer, Fohrenburger, has started operation of a heavy-duty 3-dimensional gantry located at the end of a bottling line to sort the bottles into groups of up to 60.



From process to factory automation: Pneumatic valve terminals and drives are in their element not only in the brewing process, but also in bottling and packaging.



DLP valve actuators from Festo: In the Innoclean bottle washing machine by KHS for opening and closing gate valves supplying cleaning fluid

A special gripper tool uses the Festo 3-dimensional gantry to transfer this group into packaging units. The gantry is equipped with two vertical axes, each of which weighs 90 kg, in order to achieve the production quantity of 20,000 bottles per hour. A box unfold or bottle carrier unfold for subsequent packaging processes 60 bottle carriers per minute. Controlled type DGPIL drives combined with the SoftStop SPC11 system ensure the carriers are ready. The Soft-Stop SPC11 system moves the wheels into exactly the right position in the clamping unit. This improves the cushioning characteristics in the end position. As a result, increased cycle rates are possible and a low-vibration design can be achieved at the same time as increasing the service life of the cylinder.

The handling system facilitates a wide range of variants: It processes different bottles, different packaging units as well as different types of packaging such as boxes or bottle carriers. It features high reliability, high levels of producti-

ty and requires only a small space. The 4-axis 3-dimensional gantry is based on Festo toothed belt driven linear units which are powered by Festo servomotors and special gear units.

But it's not only breweries ...

... that are receiving completely pre-assembled, individual handling systems with one part or project number. Tested in advance, delivered with all design data and circuit diagrams as well as a comprehensive function and fixed price guarantee, turnkey handling systems shorten the process of turning an idea into a machine and reduce the number of interfaces. Fully assembled and tested, the turnkey systems are delivered directly to the machine. Complete solutions make life easier for the technical personnel, while the complexity and cost of design are kept low. Turnkey handling systems facilitate the procurement process and reduce process costs.

Multi-axis modular system

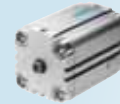
Festo can display the full range of its capabilities when creating a

at Rothaus

Guided drive
DFM



Compact cylinders
ADVU



DLP linear
valve actuator



DGPIL
linear drive



End position
controller SPC11



Valve terminal
CPV



D series service
units



Delivery direct to the machine, with job processing by part number: Turnkey handling systems from Festo save time and cost in procurement and design processes.



is 0911

Products for the process industry

is 0912

Partner to the food and packaging industry



Breweries are classic hybrid industries: Process automation with CPV fieldbus valve terminals on the brewing floor.



handling system such as this: The mechatronic 3-D CAD multi-axis modular system from Festo gives designers creative freedom and also saves time and costs: Several hundred mutually matching electronic and pneumatic components can be combined as required for gripping, joining, rotating and accurately positioning to different locations in space. Protective trunking, integrated conduit, sensors and valve terminals are design and delivery components of finished handling systems.

Installation included

The handling system includes not only assembly but also installation. The system solutions specialists can rely on the breadth of the Festo catalogue range for every handling system, as well as high-

performance valves, valve terminals or service units that can be included in the project planning of the handling system and combined for individual customers. Grippers and vacuum suction are integral components of the handling system.

Festo is continuously expanding its mechatronic multi-axis modular system according to the principle that standing still means going backwards: For example, the precise, electromechanical SLTE mini slide as a partner to the pneumatic SLT slide or the electrical HME handling axis as a counterpart to the HMP pneumatic axis: The axis has a repetition accuracy of ± 0.03 mm and is used in precision engineering for joining tasks with close tolerances, for example inserting

sensitive workpieces with a precise fit, is one application in which they show their expertise – indicating they can be used not only in hybrid brewery applications. ■