SEW EURODRIVE

Application solutions for the beverage, filling and labeling industry:

Servo drive systems from SEW-EURODRIVE for

Labeling machines

Labeling made easy

Regardless of whether you have glass bottles, cans or plastic bottles that have to be filled with lemonade, beer, wine, jam or dish soap, they all have to be bottled and labeled correctly. Systems and machines from KRONES (headquarters in Neutraubling near Regensburg, Germany) perform these complex and dynamic processes. The systems can be implemented in all areas of the food and beverage industry, from bottling through to packaging.

Application description

The pre-printed labels are supplied on endless rolls (coils); they are then loaded into the labeling system and sent to the specific labeling unit via several guide rollers. The labels are threaded through a feed roll using a mandrel and are then cut to size using a cutting cylinder.

Once the labels have been cut to size, two transportation belts, applied with negative pressure, transport them to the “feed clamp. ”The negative pressure causes the labels to open. They are then fed over a mandrel, which positions them over the bottleneck.

A toothed-belt system moves the label into a “waiting position.” The label waits until a free clamp, used to set the label over the bottle, is in position. Afterwards, another toothed-belt system takes the label and “shoots” it onto the clamp, which then fixes it to the bottleneck.

Criteria

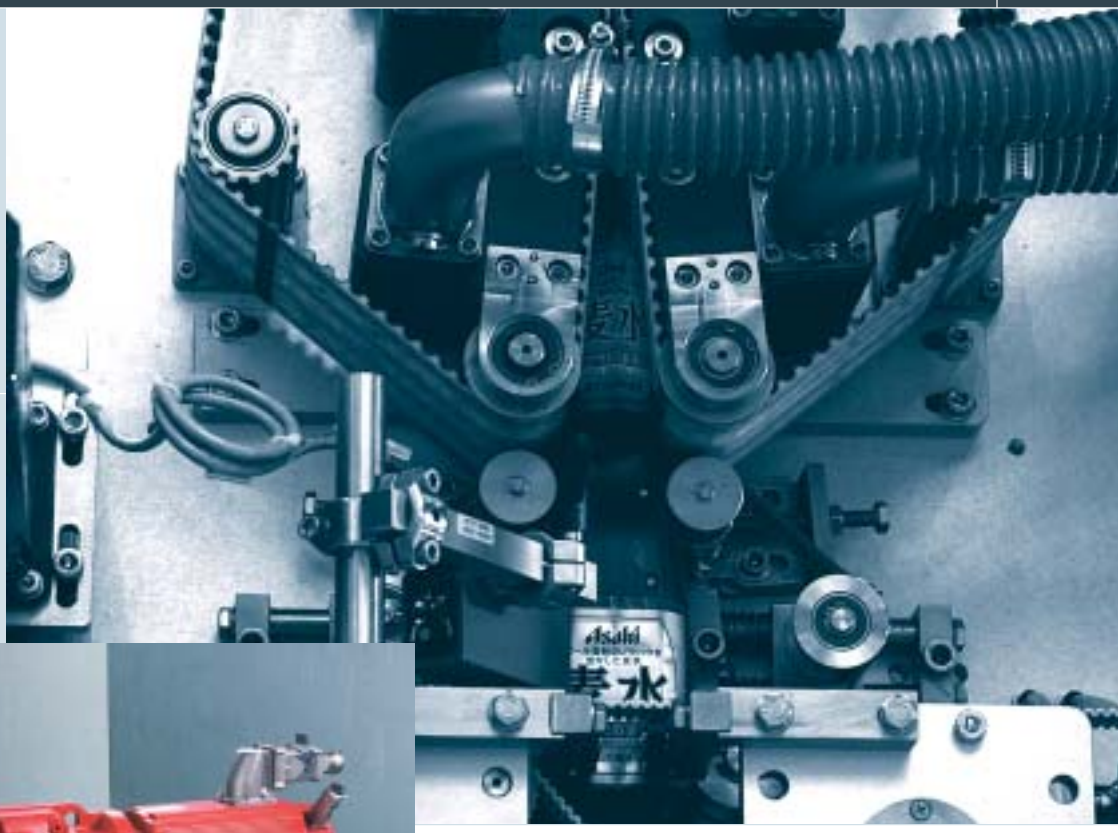
- Supply and cut labels
- Precise cut length control
- Operation of several synchronized axes
- Extremely high throughput: 22,000 labels/hr
- Master-slave dependency on leading axis
- Maximum acceleration speeds

Objective

The entire “labeling” production procedure is subject to a continuous control process as well as changes in positioning, different process sizes or simply changes in format. For example, a change in format (different lengths of labels) would require changes in the positioning of the cutting cylinder and transport system, and an adjustment of the speed. The process of “shooting labels” is also a complex and dynamic process, which requires high speeds and precision, such as the extreme acceleration requiredto overcome an air gap of 3.4 cm when “shooting” the labels.

Technological requirements

- Very accurate, floating cut length control (± 0.2 mm for 22,000 labels/hr)
- Feedforward proportional to the speed
- Time-critical touch probe processing
- Synchronous engaging and disengaging of feed axes
- Cam discs for label solution after the cutting process



SEW-EURODRIVE right from the start – The intelligent and integrated products from SEW-EURODRIVE servo drive systems are convincing right from the project planning phase!

SEW-EURODRIVE solution

In total, six axes with SEW-EURODRIVE servomotors from the CM series are synchronized with one another. The MOVIDRIVE® drive inverters are used to synchronize the motors.

Components

- Highly-dynamic DFS56 servomotor
- Decentralized synchronization of time-critical drive axes using internal CANBus
- Technology functions: Cut length control; touch probe processing; synchronous operation with MOVIDRIVE® servo inverter; process-related I/O processing; integrated, freely programmable IPOS$^{plus®}$ positioning and sequence control system

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