■ **Simotion Intelligent Belt**

Smart from Production to Packaging

> Simotion Intelligent Belt is a software library for machine solutions in the packaging industry. The software replaces individually developed control solutions and provides a tried and tested standard module with proven functionality that is ready for use in the shortest possible time.

The automation and drive technology sector requires increasingly complex solutions to be implemented reliably within increasingly short time frames. The development of customized software to accompany these solutions carries significant potential for improvement, as it is a very time-consuming process and susceptible to errors. An alternative is to use tried and tested software modules that have already proven their worth and simply need to be adapted to the requirements of the application in question.

Siemens assists its customers in the application development process by supplying proven software libraries. These standardized solutions draw on Siemens' wealth of industry knowledge and in-depth experience with countless applications gained through years of collaboration with machine manufacturers, systems integrators and system manufacturers in the packaging industry. Siemens also helps its customers select, combine and integrate the required hardware and software components and provides comprehensive support service extending from the design and project planning stages to commissioning at the customer's premises.

Smart group package handling machines

Simotion Intelligent Belt is a typical example of this type of solution. This software library has been specially developed for applications in the packaging in-

dustry and facilitates the implementation of dual-belt units. These units disengage the continuous product stream from the final packaging stage that immediately follows and feed the presorted products to the next unit – for example, the top loader or the cartoner. During this process, the incoming products continuously arriving from production at irregular intervals are presorted in trains, which run on separately controlled belts and are therefore able to move independently of one another. One train is continuously filled, while another is emptied by a slider or top loader and returned to the filling position. This type of sorting station generally consists of two belts and corresponding trains; however, Simotion Intelligent Belt can, in theory, be used with any number of trains and belts.

When implemented in conjunction with Sinamics drives, Simotion Intelligent Belt can be used to create a machine solution that automatically determines the best possible positioning time in relation to the speed and acceleration parameters. The aim is to create optimum speed profiles that protect both the product and the mechanical components.

The system also provides complementary functions such as referencing, inching mode and positioning mode; monitors the trains for potential collisions; and provides warnings in the event of excessive deviations. Additional standard libraries can be incorporated to create an operating mode management system in accordance with the Organization for Ma-

Labels on diagram: Train 2, Belt 2, Motor 2, Belt 1, Motor 1, Train 1
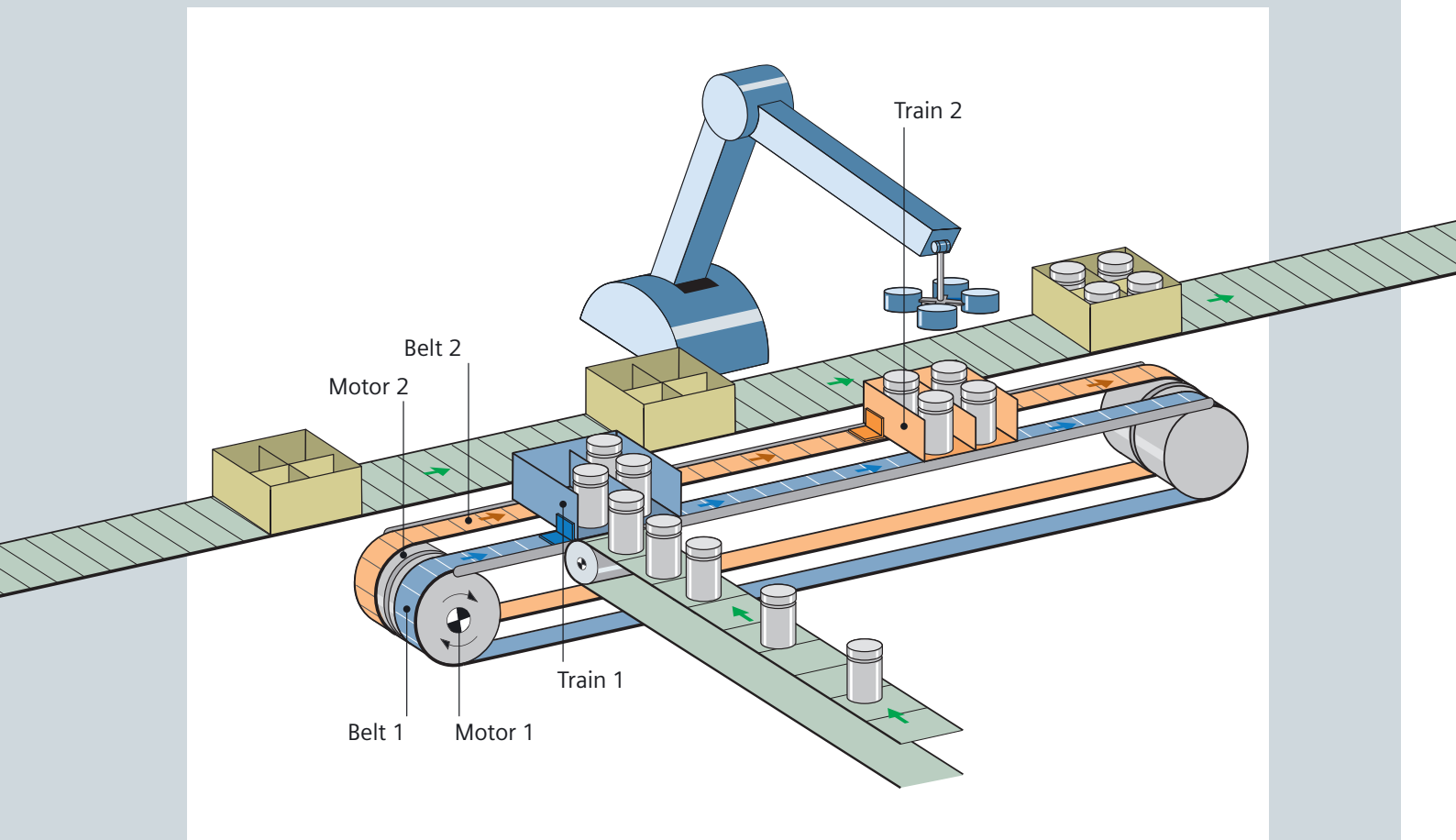
Simotion Intelligent Belt at work

A dual belt is used to collect an irregular stream of incoming products and feed them to an unloading position in a presorted form. A key feature of the process is the separation in time between loading and discharge.

One train is always available at the loading station to be filled. A sensor detects every incoming product. The controller moves the train forward to ensure that every incoming product can be placed on a free bay. At the same time, the filled train is emptied and fed back to the loading station via belt 2.

Once the first train is completely full, it is moved to the discharge station by belt 1, at which point the top loader places the products into the external packaging station. During this time, the second train is filled at the loading station.

chine Automation and Control (OMAC) standard or to provide downstream top-loading functionality. A series of proven communication libraries facilitates the seamless integration of upstream and downstream machines and master systems to create an "OPL" concept.

It is also possible to simulate the full range of drive axes using Simotion. This provides a safe means of checking and optimizing each individual functional step long before the system is actually installed, an approach that significantly accelerates the development process and also prevents any potential mechanical damage.

In successful use

Simotion Intelligent Belt is already in use at ETT Verpackungstechnik. This company, based in Fredelsloh, Germany, produces customized packaging systems and sees a huge benefit in prefabricated software modules, with their proven functionality and ability to make the software development process faster, simpler and more reliable. ∎

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