Motion control solutions for the packaging industry

Speed, performance and engineering at its best

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Industries comprising packaging

The global packaging industry is represented by several distinct segments including:

- food
- pharmaceutical
- beverage
- tobacco
- dairy
- personal care packaged goods

The two largest segments, food and beverage, account for more than 70 percent of the packaging industry’s total revenue.

Industries served by Siemens

Serving the food processing, handling, primary and secondary packaging processes in each of the above segments, Siemens is proud to have delivered solutions for over two-and-a-half decades to the packaging industry. The global marketplace challenges OEMs and end-users to increase efforts to reduce cost and overall environmental impact, while simultaneously increasing service, asset flexibility and meeting customer demand.
Trends and growth forecasts

Global packaging production is expected to increase with industry investment predicted to grow accordingly. Global expansion of manufacturing and consumer goods production is returning to pre-recession levels with trends such as branding, environmental sustainability, machine flexibility, reducing labor through automation, increased throughput, output and speed leading the way.

Siemens capabilities / differentiator

As a premier global automation provider, Siemens supplies the greatest flexibility and productivity in the industry — enabling higher speeds, quick changeovers and reduced downtime for packaging machines. From concept to commercialization, Siemens stands by its customers and solutions every step of the way. No matter the size of your machine, we offer globally-accepted solutions for your packaging challenges that are simple to implement, yet effective at handling the most complex requirements.

The experts of Siemens are closely affiliated with industry organizations such as PMMI and OMAC. Our global expertise delivers the best in industry knowledge and technical solutions to provide a clear competitive advantage to its partners and customers.

Packaging companies expect to:

- achieve ROI targets
- reduce labor
- increase output, speed and asset flexibility
- reduce cost and meet customer demand
- increase machine safety
- integrate lines and meet global standards

Siemens delivers.

As the premier global automation provider, Siemens is the clear choice to win in the global packaging marketplace.
Responding to the challenges of machine builders

- Cutting-edge machine designs are supported by the Siemens automation and application engineering team
- Highly-scalable, flexible solutions such as SIMOTION motion controllers and SINAMICS drives reduce the number of components and the complexity of the machine automation systems, offering a greater standardization of parts
- Standardized machine software solutions, such as SIMOTION LPac libraries, can cut the development time of the most common packaging machines from 40–70 percent
- One engineering framework — TIA Portal — for the integration of PLC, HMI, drives and machine safety
- Advanced troubleshooting tools are available for remote diagnostics and problem-solving
- Unparalleled global motion control, industrial automation and application support acceptance, with locally-based support in over 190 countries
Responding to the challenges of system integrators

- Open-architecture component-based automation (CBA), developed by the PROFINET Organization, streamlines and simplifies communication between network devices

- Networking solutions based upon PROFIBUS and PROFINET, the world’s most popular automation networks, delivering industrial Ethernet with a flexible topology for real-time, deterministic I/O, safety and motion control

- Packaging and handling tools greatly reduce engineering time with ready-to-apply function blocks — customized to suit any packaging application

- The Siemens TIA Portal provides an intuitive, graphical layout with a uniform look-and-feel. Scalable across all product platforms, TIA Portal makes the migration of existing automation systems easy

Responding to the challenges of end-users

- Increased machine flexibility through pre-engineered solutions, retrofits and redesigns from Siemens

- Solutions that meet OMAC machine interface standards

- Automatic and continual recorded original equipment effectiveness (OEE) to spot and resolve unnecessary downtime and increase overall machine, line and plant productivity

- Optimized Packaging Line (OPL) specifications and solutions that standardize components and machine interfaces to reduce integration time by up to 50 percent

- Automated recording and storage of track-and-trace product information eliminates paper recordkeeping and manual data entry, while decreasing response time to critical events, reducing loss when a critical event occurs and maintaining compliance with the most stringent standards

- Data security compliance to CFR21 part 11 through WinCC audit tools
When it comes to filling and proportioning liquid substances in the beverage, pharmaceuticals and cosmetics industries, accuracy, precision and throughput are the most important parameters.

Dedicated pre-engineered solutions are available for the application of Siemens technology on vertical and horizontal form, fill and seal machines.

High-speed labeling applications require precise tension and position control, and when you factor in the variability of the label itself, these applications require the best technology in motion control, such as the combination of SIMOTION controllers and SINAMICS drives.

Form, fill and seal machines work according to the similar principles. They first form the packaging material, which is received from a roll or taken from a stack as package blanks. Then the formed packaging material is filled and sealed.

Siemens offers you a solution that meets your form, fill and seal machine requirements including the positioning and synchronization accuracy of a seal machine (cam disk, gears, timing in / timing out, etc.) and effectively executes essential technology functions — such as temperature control.

### Maximum precision for fill and seal machines

**Filling**

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**Form, fill and seal**

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**Labeling**

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### Sample solutions

Siemens automation and motion control solutions make packaging machines faster, safer and more flexible with greater productivity. We help our customers build and retrofit equipment for various packaging applications.

### Sample applications

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#### Labeling

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Top loading
Frequent changes in formats and products, as well as increasing variants of packaging means and materials, characterize the requirements of packaging machines. Against this background, handling devices are increasingly used in the secondary packaging processes.

Cartoning
High-speed cartoning machines require precision movements to reduce rejects, waste and jams. Siemens has dedicated solutions to meet the high demands of the cartoning OEM.

Palletizing
To provide for the efficient transportation of cartons, bags, cases and barrels, it is useful to gather these items in a larger loading unit. This is done using appropriate stacking techniques (column stacking or compound stacking) with the aid of a palletizer.

Securing, shrink-wrapping, and strapping
Transport pallets or packing drums are secured by strapping or wrapping. The pallet is wrapped in the machine with foil or paper. To this end, a winding head moves around the pallet; the full securing of the pallet results from the up-and-down movement of the winding head.

Reduce engineering time using SIMOTION Top Loading library
Top loading machines are the optimum automated solution to accommodate the high demands that come with rapid product changes, frequent format shifts and increasing variants among packaging materials.

You can fully and easily implement your solution using simple or more complex motion commands. We also support the creation of traversing programs and their execution in automatic or single-step mode. This yields a time-savings of up to 50 percent when compared with conventional programming. See for yourself — with SIMOTION Top Loading, your machines will immediately master every task.
This brochure contains only general descriptions or performance features, which do not always apply in the manner described in concrete application situations or may change as the products undergo further development. Performance features are valid only if they are formally agreed upon when the contract is closed.

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