



Application Software for Packaging Machines: Simple Machines

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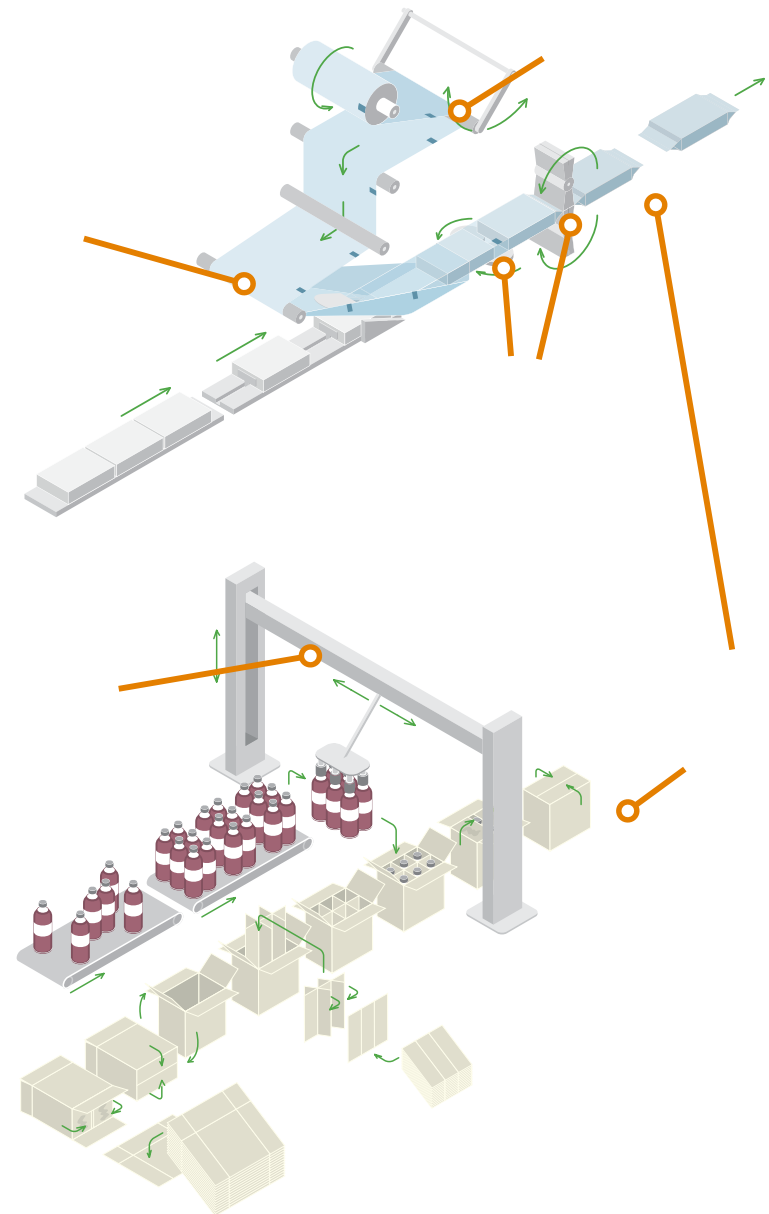


Application software libraries for simple machines

Shorten your engineering time with extensively tested application software! SoMachine™ libraries provide software functionality in the form of classic function blocks (Application Function Blocks, or AFBs), which are mapping many basic common automation tasks and machine functionalities. They can be easily configured, customised, and implemented in your machine program.

Discover the built-in technology for mapping typical functions of packaging machines to software for increased energy efficiency, mechanical reliability, and availability:

1. Film lateral position control
2. Temperature control
3. Tension control analog
4. Tension control digital
5. Pick-and-place
6. Jog movement

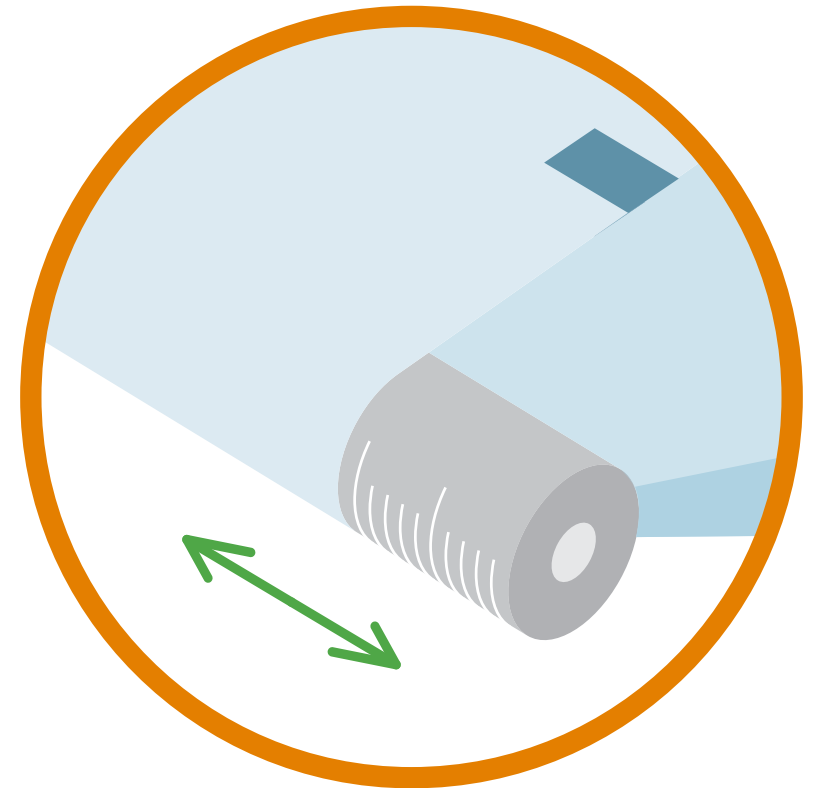


The film lateral position control

Film lateral position control is a method to control and correct the position of film unwinding from a reel in order to keep a precise position on a lateral side. This function helps the cutting device to cut film in the correct position. Typical examples of use are horizontal and vertical bagging machines, shrinking machines, and labeling machines.

Benefits

- > Economical solution — two digital sensors, no analog sensors are required.
- > Three possible types of sensors configuration (right, left, symmetrical).
- > Different modes possible (digital or analog output, auto and manual modes).
- > Programmable time for correction and for sensor de-bounce time.



Film lateral
position control

Advanced PID control for temperature regulation

This function block is specially developed for temperature control tasks on machines, such as horizontal and vertical bagging machines, shrinking machines, labeling machines, and plastic processing in packaging machines. It is designed to monitor and control a wide variety of temperature-dependent processes (e.g. foil heating, sealing, etc.)

Benefits

- > Advanced PID control, high accuracy of the temperature control by using the cycle time.
- > No additional programming needed, simple controller commissioning with 'auto-tuning' or 'self-tuning' for determination of optimal controller.
- > PID parameter (K_p , T_n , T_v).
- > Depending on the hardware temperature sensor implementation, monitoring functions can be implemented easily.



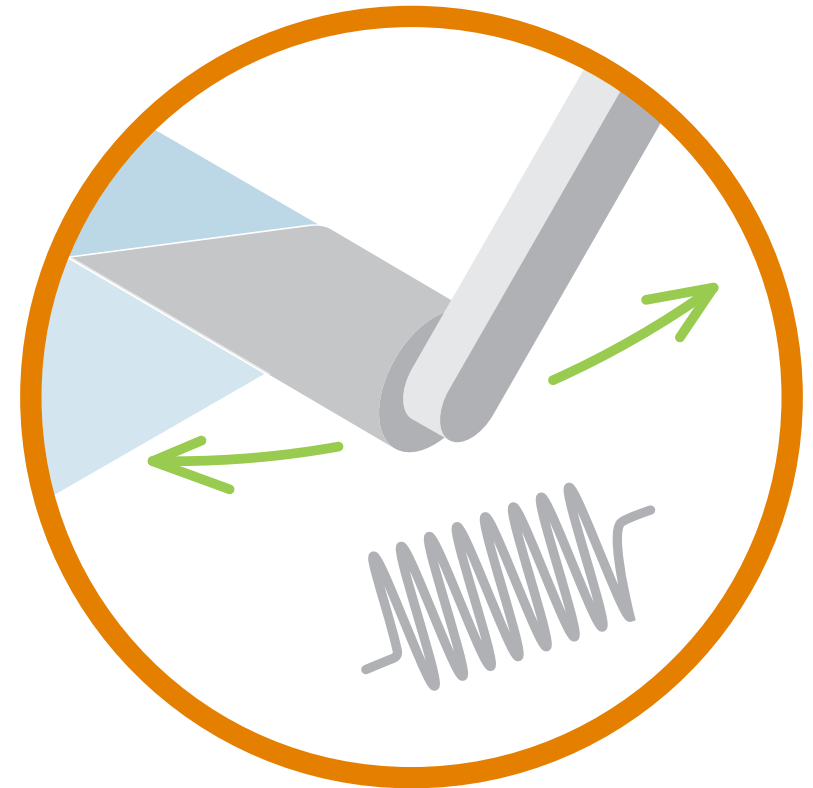
Temperature control

Analog film tension control based on PID

Tension control analog is the ability to permanently control the desired tension in any material (mainly the raw material available in roll size). This control function can operate dynamically and statically. The tension control is efficient at any machine speed phase, including machine acceleration, steady, and speed deceleration. Typical examples of use are horizontal and vertical bagging machines, shrinking machines, and labeling machines.

Benefits

- > Dynamic film tension control based on closed loop with PID, constant tension with high precision (<5%).
- > Reduces stress on the film, smooth unwinding of the film reel.
- > Allows higher film tension, which may lead to decreasing film consumption (depending on the application, up to 10%!).
- > Possibility to run in fixed gear mode between master and slave drive.



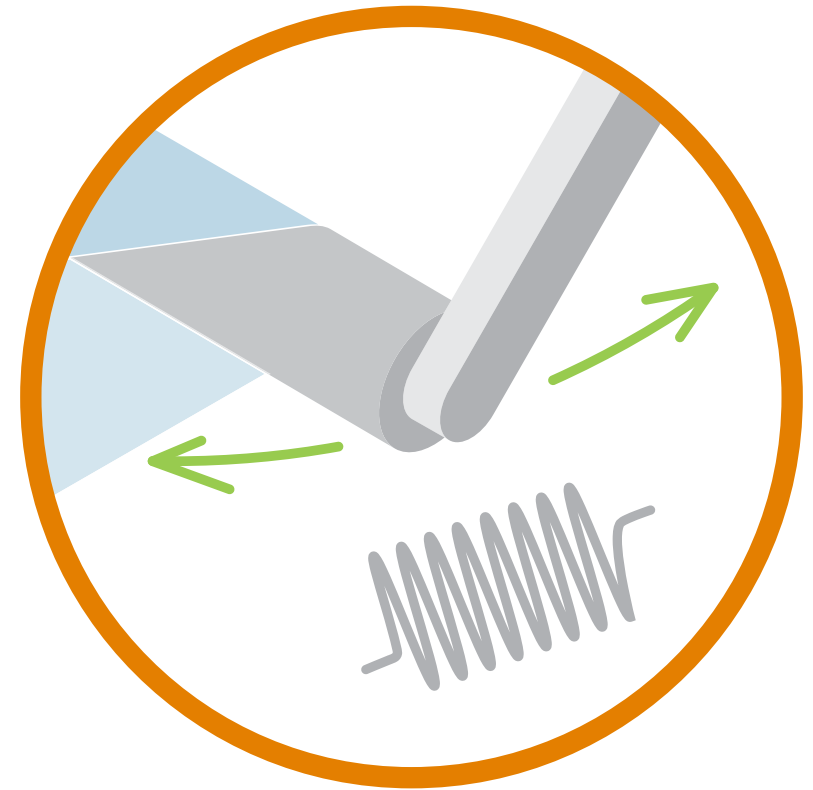
Tension control analog

Digital film tension control with two-position control

Tension control digital is the ability to permanently control the desired tension in any material (mainly the raw material available in roll size). The tension control is efficient at any machine speed phase, including machine acceleration, steady, and speed deceleration. Typical examples of use are horizontal and vertical bagging machines, shrinking machines, and labelling machines.

Benefits

- > Dynamic film tension control based on open loop with two digital sensors (no analog sensor required), constant tension with high precision (<5%).
- > Reduces stress on the film, smooth unwinding of the film reel.
- > Diameter calculation depending on the unwinding motor speed is included.
- > Allows higher film tension, which may lead to decreasing film consumption (depending on the application, up to 10%!).



Tension control digital

Pick-and-place with two axes cartesian robot

The pick-and-place function provides a software solution for simple pick-and-place applications with linear axes or simple portal kinematics, that move parts from one station to another station or from conveyor to pallet. Boxing machines are a typical example of use.

Benefits

- > X-Y synchronisation without coordination with simple controllers, independent from third axis.
- > Easy to configure, quick commissioning, no additional programming needed.
- > Mechanical configurations included, few parameters to setup.



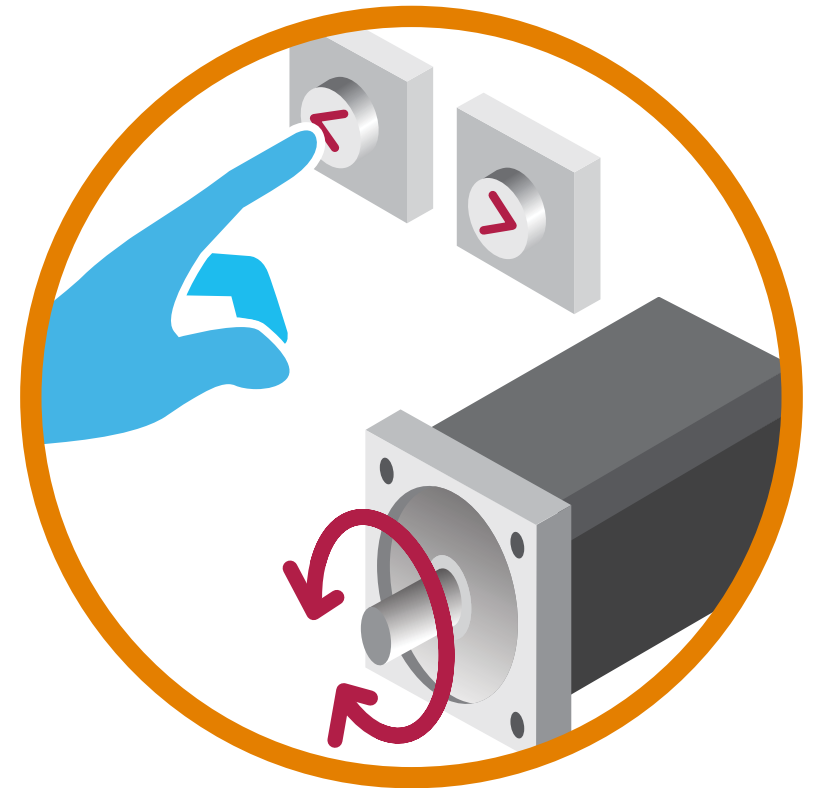
Pick-and-place

Jog movement

The jog movement function can be used for manual control of single-servo axes, typically for commissioning of machines, during setting operations, or for diagnosis. Three basic functions are given: to move an axis in speed mode, in position mode, and to home the axis. Jog movement is ready to use for a wide range of packaging machines.

Benefits

- > Manual control of single-servo axes in different modes. Depending on the application, different homing methods and parameter can be parameterized.
- > Entry of the specified direction and movements commands with a single button.
- > In speed mode, automatic speed increase (speed 1 – speed 2) after defined time.



Jog movement



Packaging control solutions

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