



**SIEMENS**

## Services for higher productivity in production machinery

Support over the entire lifecycle,  
from the design simulation to the retrofit

[siemens.com/motioncontrol](https://www.siemens.com/motioncontrol)

Answers for industry.

# Mechatronic Support

## An optimized machine concept through Mechatronic Support

Already in the design stage of new machines, all the systems involved in mechanics and electronics are tested and optimized in a simulation environment in terms of their functionality and interaction, before they are actually built. Mechatronic Support provides the intelligent alternative to “trial and error” by modifying, optimizing, and comparing creative new machine concepts with each other in advance – of course, including your ideas on new mechatronic components.

With Mechatronic Support, Siemens provides mechanical engineers with expert services.

### Applications

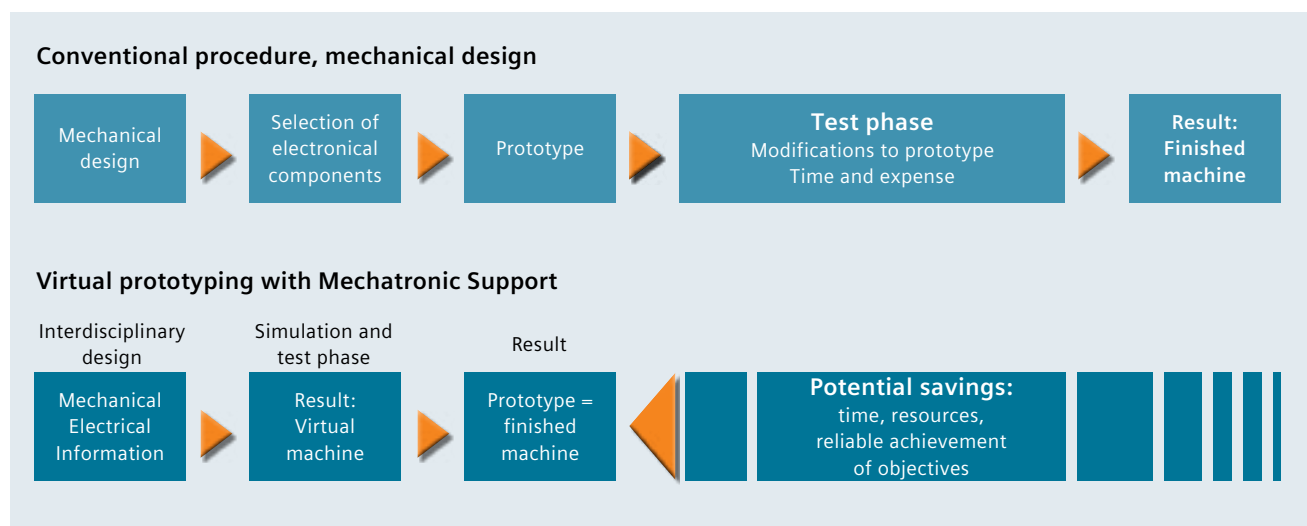
The Mechatronic Support engineering service was developed for the construction and commissioning of machinery. Here, we meet the demands of machine manufacturers to minimize development risk. In addition, the first machine prototype is available much more quickly than in the traditional sequential development process.

### Virtual simulation, real construction

With Mechatronic Support, machinery ideas and new developments can be mechatronically tested and modified in a short time at low expense. The first real prototype can be built immediately afterwards as a functioning machine. As a machine manufacturer, you benefit from shorter development time and time to market. As end user, on the other hand, you benefit from an optimized, high-performance machine.

### Your advantages

- Shorter development times – shorter time to market
- Reliable achievement of development objectives
- Risk-free testing of innovative machine concepts
- Higher quality and productivity from the outset
- Get to the finished machine more quickly with specialist support



Methods of machine development

# Mechatronic Support

## Our services

### Complete simulation of machinery

By modeling and analyzing the overall mechatronic system, consisting of mechanics (FEM), controls, drives, motors, and encoders, cost savings potential can already be identified during machine development:

- Analysis of vibrations and determination of countermeasures
- Improvement of machine rigidity and quality of control of machine axes
- Improvement of manufacturing processes (positioning accuracy, follow-up behavior, ...)
- Identification of potential material savings in machine construction without changing the dynamic characteristics of the machine

#### Application examples

- Processing centers/manufacturing cells
- Handling systems
- Packaging machines
- Printing machines
- Presses
- Plastics processing machines
- Woodworking and glass processing machines
- Textile machinery

### Development of industry-specific mechatronic functions

By analyzing typical industry applications, mechatronic functionalities can be developed and incorporated into mechatronic control solutions.

#### Application examples

- Optimal control of servo presses
- Algorithms to avoid vibrations
- Motion control of nonlinear kinematics
- Development of process-oriented open-loop and closed-loop control procedures

### Mechatronic drive design

To ensure a wider choice of motors for your application, our experts have special tools that go beyond the standard motor design.

#### Application examples

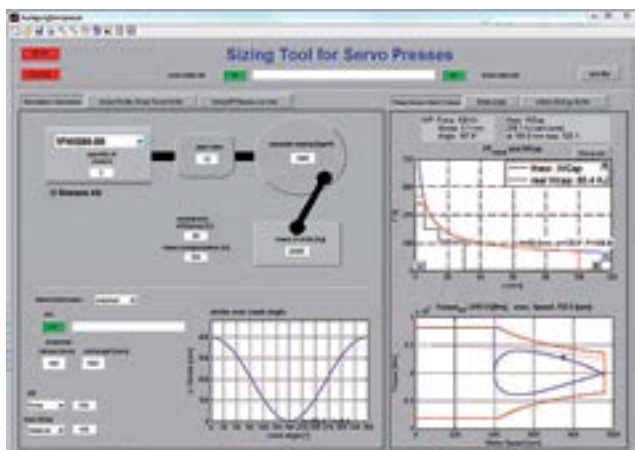
- Testing of axial stiffness
  - Allowable jerk (jerk limitation)
- Ensuring the required cycle times (forces, torques)
- Checking of the inertia ratio of load to motor inertia
- Generation of vibration and energy optimized movement profiles

### Machine analyses

To model the relevant dynamic properties of the machine, metrological analysis and multi-body simulations of the machine axes are carried out. The resulting feasibility study for increasing productivity provides information on the increase in throughput while maintaining the control performance. This is how you get vibration problems, lack of productivity, or even component failures under control.

#### Application examples

- Large scale plants for converting applications
- Individual machines with multiple (linked) production axes
- Handling systems



Optimal control of servo presses

# First-class mechatronic solutions through Mechatronic Support

## Higher productivity of your machine with integrated application support

The range of products and solutions offered by Siemens covers the entire spectrum of automation technology – from drives to closed-loop and open-loop control technology, including software systems. Our specialists know the needs of the industry from countless successful projects. Based on this experience, they develop innovative ideas and user-specific machine concepts – hand in hand with the machine manufacturer. Thus they create first-class solution packages tailored to individual requirements.

Our technical and application consultants accompany the projects on site from planning to commissioning, from the idea to the functioning machine.

Worldwide application support is ensured by a network of application centers.

## Our range of services

- Selection of the optimal solution packages from our product portfolio
- Development and delivery of customer-specific add-ons
- Support in testing and commissioning

## Further information

For an overview of our portfolio of products and services, visit us on the Internet:

[www.siemens.com/motioncontrol](http://www.siemens.com/motioncontrol)

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