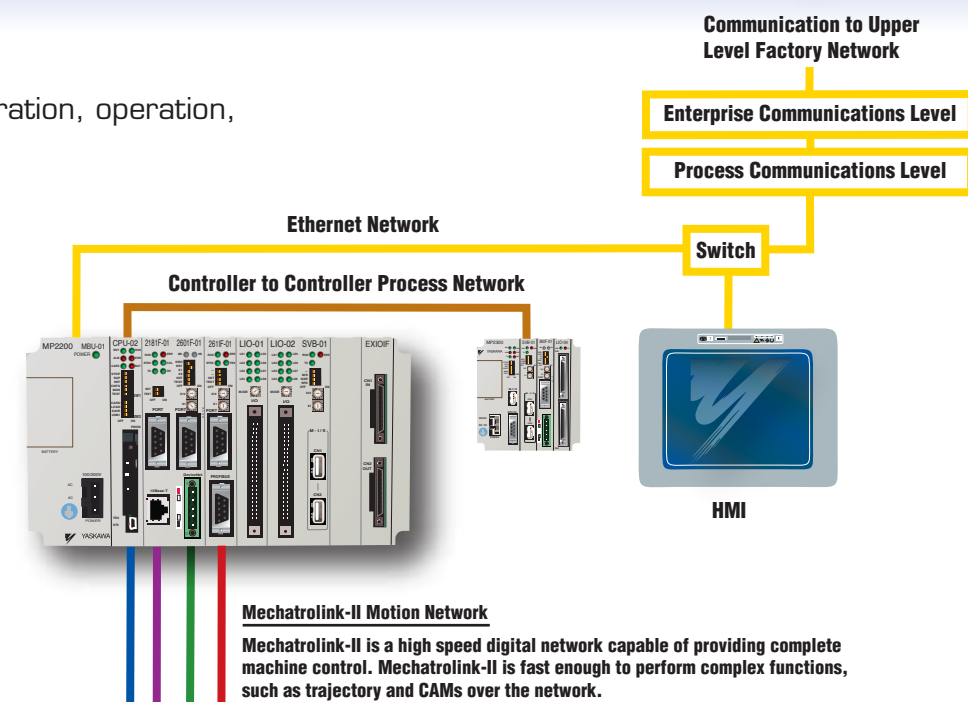


Connectivity

Ease of Use

- HMI and plantwide system integration, operation, and process visualization
- Choice of fieldbus systems
- High performance motion network connects easily to a wide variety of I/O and motor/drive technologies
- Automatically recognizes the controller rack and all connected Mechatrolink network devices

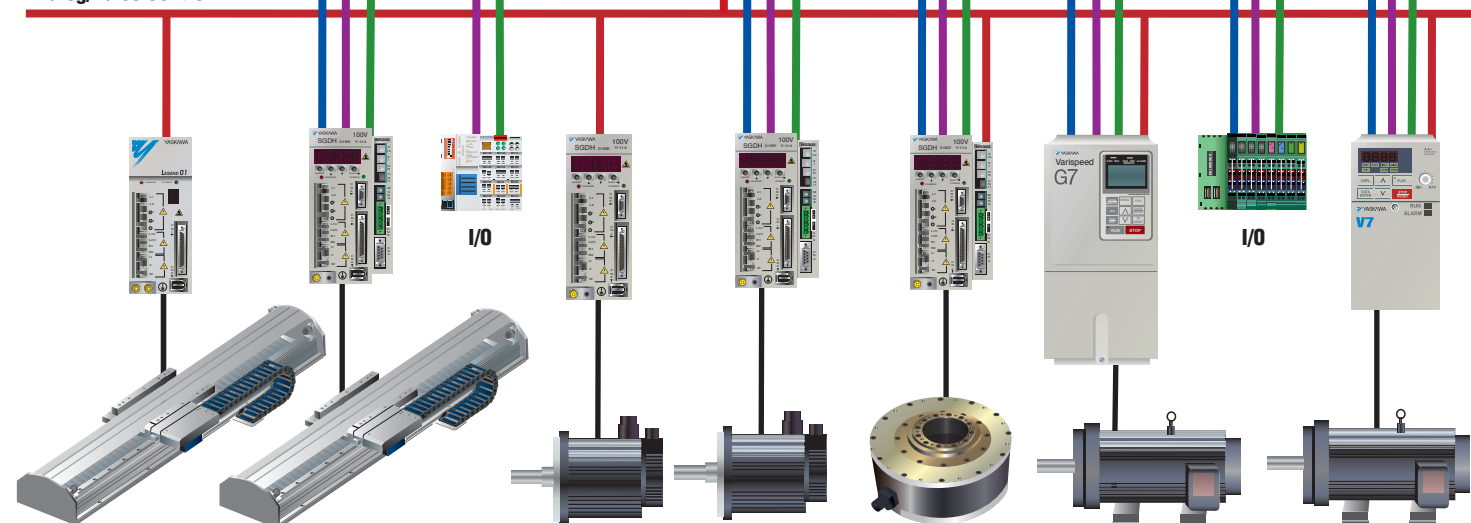


Mechatrolink-II Motion Network

Profibus Network

DeviceNet Network

Analog/Pulse Control



Linear Servos
Peak Force
85 – 6000 N
Velocity
up to 5m/s
Supply Voltage
240, 480 VAC

Sigma Servos
Peak Torque
13.5 – 1,988 in-lb
Velocity
up to 5,000 rpm
Supply Voltage
110, 240, 480 VAC

Direct Drive Servos
Peak Torque
53 – 5,310 in-lb
Velocity
up to 500 rpm
Supply Voltage
240 VAC

VFDs
Output
V7 (up to 5 HP)
G7 (up to 500 HP)
Velocity
up to 3,600 rpm base
Supply Voltage
240, 480 VAC

MP2000 Series Specifications

Category	MP2300	MP2200
Maximum Axes	48	256
Electronic Cam Functionality	Cams can be created via formula or pre-calculated profiles only limited by controller memory, allowing approx. 30,000 points. Unlimited virtual and real masters, dynamic profile adjustment, dynamic cam profile curve fitting with position and velocity matching, phase shift of the master or follower. Included with MotionWorks™ is a cam generation tool, offering 25 selectable cam profiles and 4096 interpolated master/follower pairs	
Expandable I/O	Literally hundreds of Mechatrolink-II network nodes and third party Mechatrolink-II I/O modules	
Hardware Configuration	Up to three modules	Up to nine modules per rack, up to four racks
	DIN rail or panel mountable	
Memory	2 MB internal Flash	Removable Compact Flash
Motion	Homing, Jogging, Point-to-point, Registration, Contouring, Gearing, Cam Profiling, Linear, Circular, and Helical Interpolation	
Motion Interface	Mechatrolink-II high speed deterministic network, analog speed reference, or pulse and direction signals	
Network Connectivity	Ethernet TCP/IP, Modbus TCP, Serial Memobus, Token Ring, DeviceNet master or slave, and Profibus slave	
PC/HMI Communication	RS-232/422/485, Ethernet, Third Party OPC Server via Modbus TCP	RS-232/422/485, USB, Ethernet, Third Party OPC Server via Modbus TCP
Processor Speed	166 MHz	233 MHz
Configuration	Automatic configuration of the controller rack and devices connected to the Mechatrolink-II network	
Servo Update Rate	The Mechatrolink-II network module updates 3 axes in 0.5 ms, 8 axes in 1 ms or 16 axes in 2 ms The servo amplifier interpolates network data further, providing a position loop update of 125 μs	
Software	MotionWorks™ - Ladder logic, text, or function blocks for process and motion control, text based motion up to 256 motion programs, 1 ms high speed scan synchronized with motion, low speed scan for machine I/O, full oscilloscope, system monitoring, password protection, cam generation tool	

*Contact Yaskawa (1-800-YASKAWA) for detailed information on the latest product options and complete nomenclature.

Yaskawa Electric America
2121 Norman Drive South
Waukegan, IL 60085
1-800-YASKAWA
www.yaskawa.com

Yaskawa Electric Europe
Am Kronberger Hang 2, 65824
Schwalbach, Germany
49.6196.569.300
www.yaskawa.de

Yaskawa Electric Corporation
New Pier Takeshiba
South Tower, 1-16-1 Kaigon
Minatoku, Tokyo 105 Japan
81.3.5402.4511
www.yaskawa.co.jp

MP2000 SERIES Multi-Axis Machine Controllers



■ Controls Up To 256 Axes

■ Compact Design

■ Flexible Solutions

■ Multiple Network Options

MP2000 SERIES

Perfect For High-Speed Machine Performance

MP2000 Overview

Yaskawa offers its most powerful machine controller in the MP2000 series. MP2000 products synchronize machine and motion control in a tightly integrated platform. With motion control at the system's core, the highest machine performance is easily achieved.

The many benefits of the MP platform deliver high-production rates as demanded by today's applications: choice of hardware platform, popular networks, a comprehensive programming environment, and the MP motion engine. Yaskawa's Mechatrolink-II deterministic digital network enables superior performance. By connecting the controller with other high performance devices that share processing responsibility, performance-hindering bottlenecks are eliminated.

The Solution Package Approach

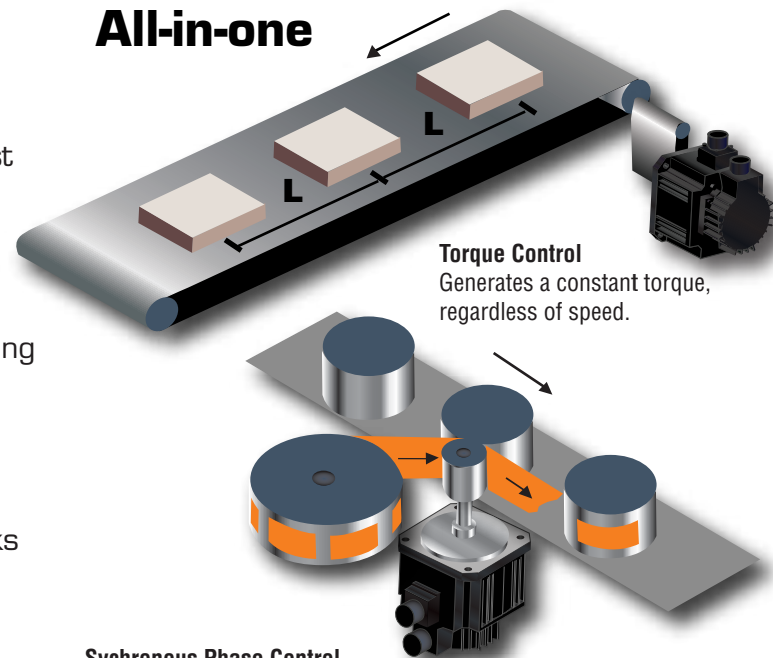
Yaskawa offers potent, pre-engineered solutions designed to minimize development for many applications. Solution packages include application source code and offer significant benefits to machinery manufacturers and their customers:

- Low risk – Proven results
- Easy to use – Full documentation
- Less downtime - Robustly designed to maximize productivity
- Higher performance - Unique features
- Customizable - Source code can be modified to fit the application
- Protect process secrets – Security provisions to safeguard your investment

Rapid development for various applications including:

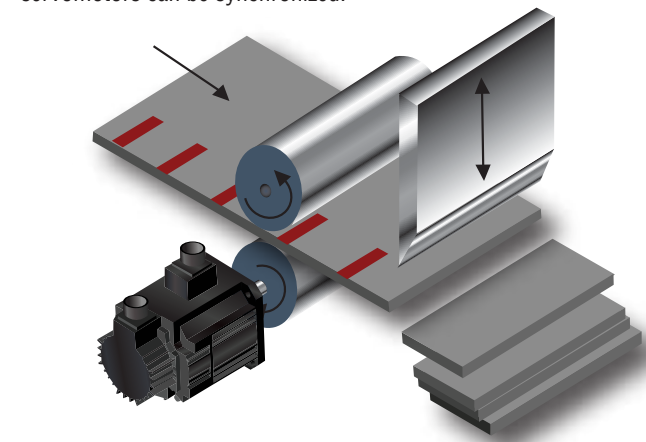
- Rotary knife
- Labeling
- Flying cut-off
- Continuous part placement/Synch-Belt

Four Control Modes All-in-one

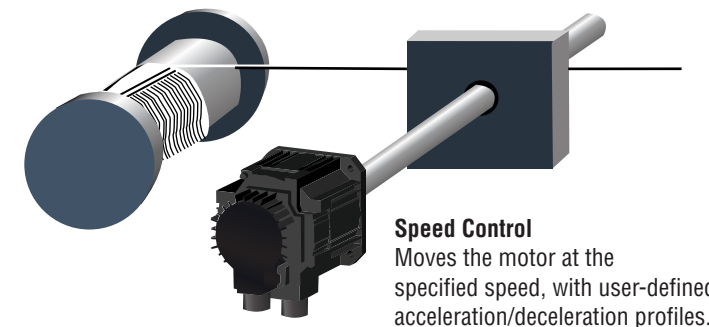


Torque Control
Generates a constant torque, regardless of speed.

Synchronous Phase Control
Speed control with position compensation (electronic shaft) or position control with 100% speed feed forward (electronic cam). Multi-axis servomotors can be synchronized.



Position Control
Advances to the target position, and precisely stops or holds the motor.



Speed Control
Moves the motor at the specified speed, with user-defined acceleration/deceleration profiles.

Advanced Motion Control

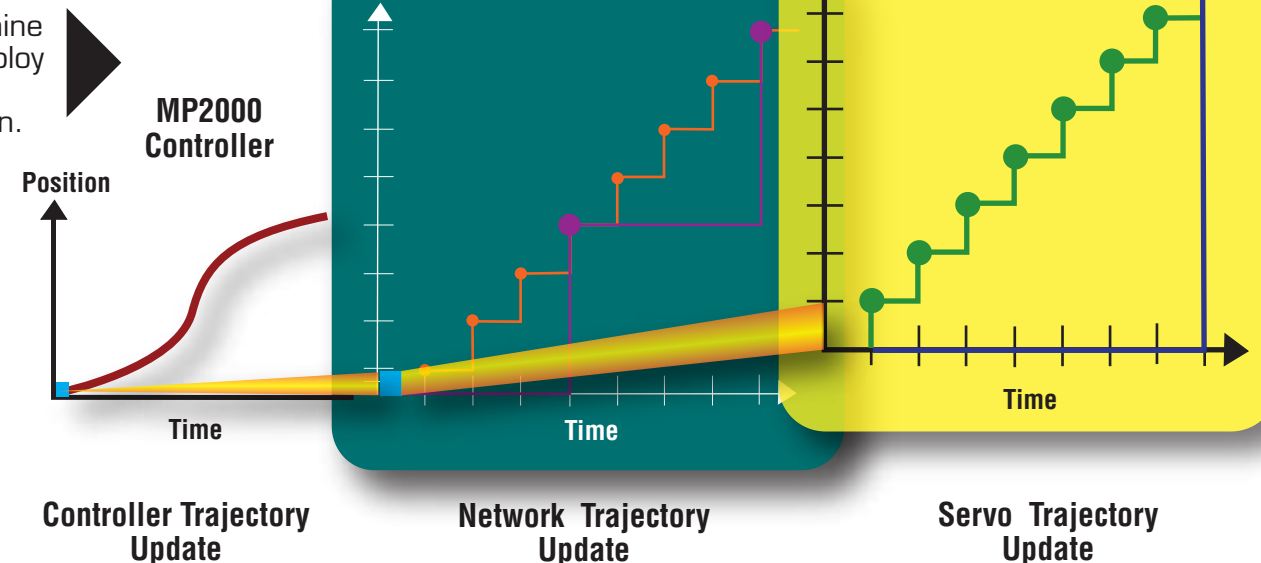
MP2000 Machine Controllers command the machine in synchronization with high-speed logic scanning. Each Yaskawa component in the system is optimized to provide superior motion profiling for a particular control mode.

Speed, torque, and position control loops are updated in the servo amplifier's positioning module, while complex interpolation for multi-axis synchronization is generated in the controller's motion module and distributed to each axis every scan. Performance is maximized because these modes can operate concurrently among all axes.

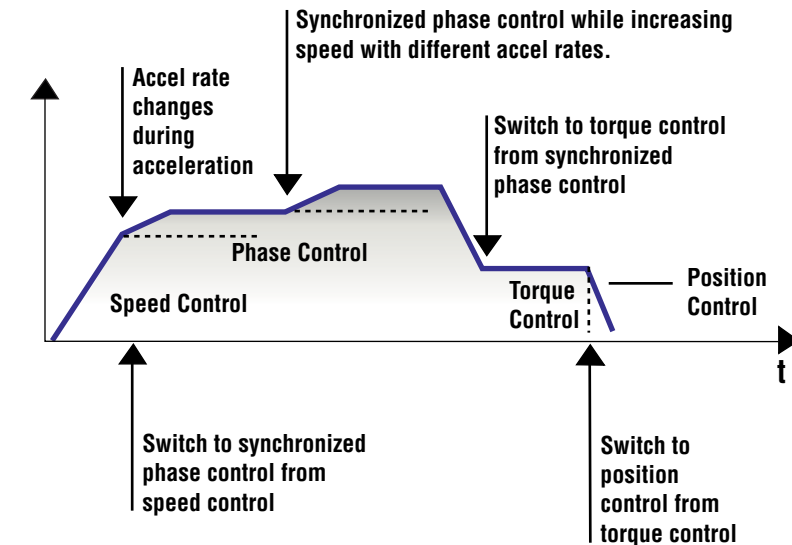
Furthermore, control modes can be switched while the machine is running to accurately control the machine's complex motions, providing exceptional benefits for difficult applications such as:

- Part positioning at high speed followed by precise torquing to meet specification. (Position to torque mode)
- Operation at constant speed for an undetermined time followed by stoppage at a precise location. (Speed to position mode)

MP2000 Machine Controllers employ synchronized sub-interpolation. Performance does not suffer when the scan time must be increased for larger programs.



Change The Control Mode Dynamically



- Applications**
- Packaging machine:
From Synchronous Control to Position Control
 - Converting machine:
From Speed Control to Torque Control

Software Tools

MotionWorks™ v6 Integrated Development Environment is a well-crafted programming platform, aimed at empowering engineers with the tools needed to make great machinery.

MotionWorks™ includes a comprehensive arsenal of performance enhancing capabilities such as:

- Tag-based programming
- Cam profile generation package
- Intuitive project organization allowing for rapid reuse of existing code
- Multi-level password protection
- Fully featured circular data recording for trapping hard-to-debug events and diagnosing complex machine behavior
- Invaluable assistance for locating trouble, such as duplicate coils and overlapping user variables
- Project settings retain their configuration, such as customizable watch windows
- Automatic system configuration

Programs can be written in a combination of three IEC 61131-3 style languages: ladder logic, structured text, and function blocks. MotionWorks™ includes an expansive instruction pallet providing over 150 commands that incorporate tag based data, making the languages powerful, yet easy to master. All machine data is conveniently organized to facilitate the exchange of factory level data with the front office in a few simple keystrokes. Most important, the software environment allows both new and experienced users alike to navigate quickly to essential program development features.

