

Yaskawa. The Team Behind  
your Packaging Machine. 

PACKAGING



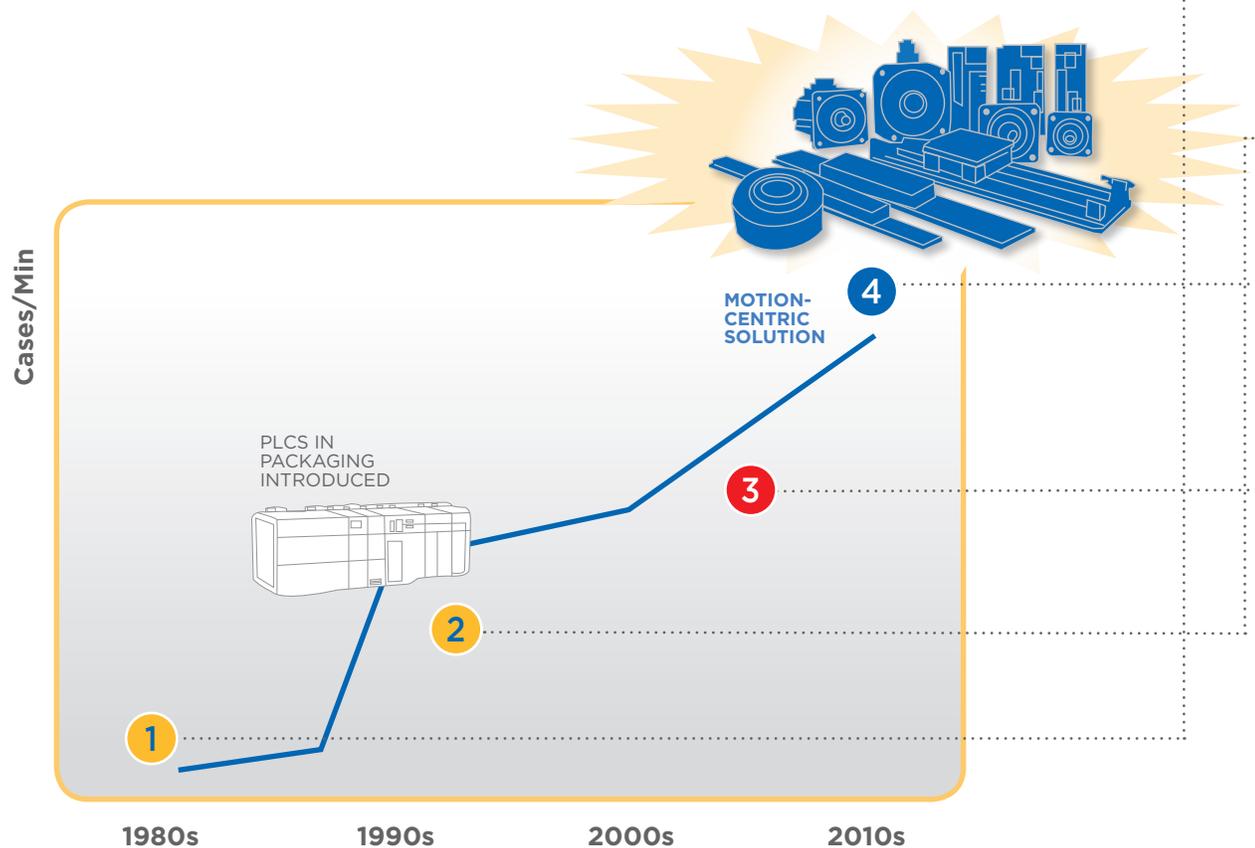
**IT'S PERSONAL**  
**YASKAWA**

**YASKAWA**

# The way the world packages is changing. Are you ready?

## How are you addressing the **change** in the packaging landscape?

A large CPG end-user that makes chips was challenged to meet increasing volume as a result of rising customer orders. Their process centered around focusing line workers on exclusive tasks, such as bagging, sorting and case packing. All in an effort to produce more pallets stacked with more bags of chips. As demand rose, the company continued to add more workers to the line until, finally they decided to automate.



### Moving to an automated process from manual resulted in:

- Big production jump right out of the gate.
- The company's attention was switching from production to maintenance tasks.
- With more productive, new machinery came a responsibility to keep it up and running at reduced cost.
- Standardizing on certain brands in order to reduce maintenance costs.

Once this company standardized, OEE (Overall Equipment Effectiveness) held flat at 40% to 50%. This low OEE kept the company from optimizing its operations.

Yaskawa helped the company move from a maintenance approach to a more productive outcome-focus perspective. Now, that company realizes up to 85% OEE.

How did we do it? We got the customer to create outcome related goals. To better achieve those goals the customer moved from a PLC model to a motion-centric machine control model.

1

PROCESS

**PRIOR TO AUTOMATION**

Chip packaging was done manually. Demand increased. End users added more people to keep up with demand.



2

PROCESS

**THE FIRST WAVE OF AUTOMATION**

Until they had to automate, these first machines were very mechanical and had PLC control. Attention quickly turned to **maintenance**. In order to reduce costs, components like the PLC were standardized.



3

THE PROBLEM

This maintenance-focus **produced on average a 45-50% OEE** across the CPG industry.

**CPG end users tell us they are now moving from a MAINTENANCE-FOCUS to an OUTCOME-FOCUS based on standards like OEE and PACKML.**

**Creating a DEMAND for: Motion-Centric Machines**



4

THE ANSWER

Packagers are driving toward OEE targets of

**85-90%**

with higher throughput and faster change over.

**USING THE MOTION-CENTRIC SOLUTION**

# What is a motion-centric solution?

## The motion-centric difference.

### Motion-centric solutions are different from a PLC-based control system in the following ways:

- Contain large data arrays for recipe management and higher servo axis count which allow for machine builder innovation.
- Employ higher performance through electronic camming with thousands of cam points delivering smooth motion.
- Change cam profiles on the fly allowing fast and predictable changeovers.
- Ethernet/IP and PackML for machine-to-machine connectivity providing communication to OEE monitoring products.

EtherNet/IP™

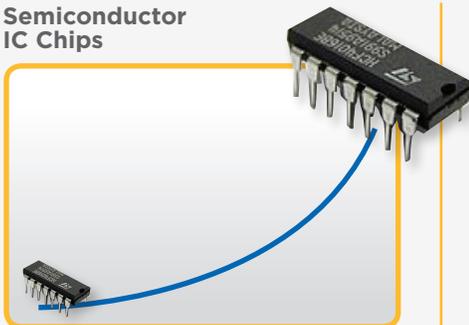
PackML

Because of these differences, motion-centric solutions enable higher productivity gains than PLC motion control systems.

### Chipping away at increasing demand.

Yaskawa knows how to jump production curves. We have experience in a variety of vertical segments where we have proven our knowledge, technical resources and solid relationships to achieve significant results.

#### Semiconductor IC Chips

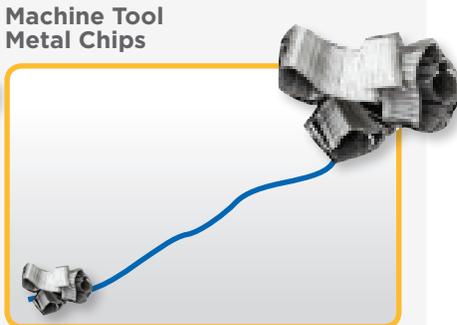


#### Semiconductor

A boat of wafers costs over \$500K, so performance is important, but...

The main factor for success is **Quality**

#### Machine Tool Metal Chips

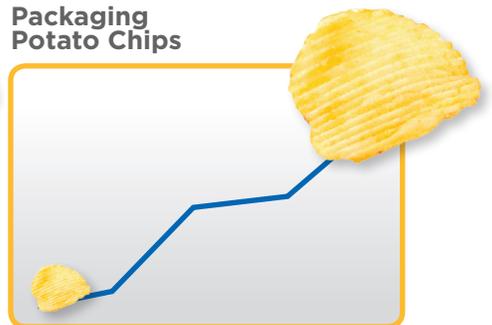


#### Machine Tool

Mirror-like finishes are critical and cutting speeds can exceed 1500 inches/min, that's why...

The main factor for success is **Performance**

#### Packaging Potato Chips



#### Packaging

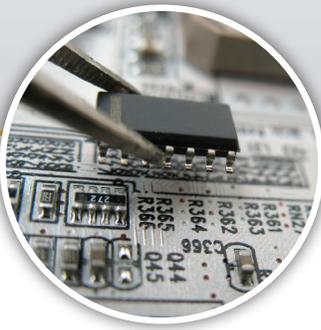
The industry is changing fast: proliferation of SKUs, mass customization and new regulation. So...

The main factor for success is **Machine Availability**

# How did Yaskawa do it?

## Semiconductor

Yaskawa enjoys a leadership position in the semiconductor market with a 25% market share. In a world where precision and quality are critical, we deliver. In a business where you just can't crush a boat of wafers, Yaskawa's quality and precision gives you peace of mind.



Quality

x

## Machine Tool

We are also the top motion solution provider in machine tool with a 35% market share. Here our performance sets us apart. Machine tool OEMs turn to us to achieve mirror-like precision surfaces and high cutting speeds.



Performance

x

## Packaging

Yaskawa has gone beyond PLC control to provide motion-centric solutions based on our knowledge, experience and systems design. We provide straight-forward application support, a great engineered product and intuitive software to create automated systems that can meet your packaging needs.



Machine Availability

OEE

## Affecting OEE in packaging

### Yaskawa improved machine quality by:

- Employing motion-centric solutions with 1000 points of cam table data.
- Smoothly changing cam profiles on the fly to prevent problems with change over.
- Offering the latest technology servo systems that adapt to changing inertias, preventing problems with change overs.

### Yaskawa improves performance by:

- Employing high resolution encoders that allow our servos to settle into position in 1/12 the time of most competitors, decreasing each move time and increasing production rates.

### Yaskawa keeps your machine up by:

- Offering the highest quality components. Only 7 warranty failures out of 100,000 shipped.
- Shipping to customer's request date 95% of the time.
- Maintaining over 18 million in motion control finished goods in Illinois.

# Our family of products.

Yaskawa America, Inc. provides Industrial Control and Automation products to markets in the Americas. Yaskawa is the world's largest manufacturer of AC drives and motion control products, including variable speed drives, servo amplifiers, servomotors, and machine controllers.



## A single family of machine controllers from 1-62 axis

- Based on standardized IEC61161-3 programming.
- Ethernet/IP, web server, OPC server and PackML built in.



## Sigma 5 Servos

- Yaskawa's broad product range of servo systems includes brushless AC servo motors, digital amplifiers, linear motors, and direct drive motors.
- These best-in-class servo systems can be matched with single-axis or multi-axis machine controllers for a system solution.
- Product is available in 110, 230 and 480 V from 3 W to 55 kW.



## Variable Speed Drives

- The Yaskawa A1000 is designed for industrial applications, including those requiring precise torque and speed control.
- The V1000 is a world-class compact current vector drive created to meet increasing demand for efficient production and better maintainability.



## Robots

- Yaskawa America, Inc. - Motoman Robotics Division delivers innovative robotic automation solutions for virtually every industry and robotic application, including arc welding, assembly, clean room, coating, dispensing, material cutting (laser, plasma, waterjet), material handling (diecast, machine loading, packaging, palletizing, part transfer, press tending), material removal (deburring, polishing, sanding) and spot welding.



# Why you should choose Yaskawa for Packaging.

- Machine controllers, servo systems, robots, and variable speed drives from one automation supplier simplifies your decision making.
- Large end user brand awareness and installed base at companies such as PepsiCo/Frito Lay, Nestles, and Baxter Healthcare.
- Yaskawa machine conversion program. Let our Packaging Team of motion control engineers convert existing core motion code to provide improved throughput and higher reliability.
- Web server built into the machine controller provides easy access to machine controller status and diagnostics. New OEM programs can be deployed through the server preventing the need for the end user to purchase programming software.
- Extensive camming toolbox and e-learning videos that provide a more efficient method to gain access to these powerful tools.
- Powerful communications including EtherNet/IP, Modbus TCP, and OPC server.
- EtherNet/IP Servo Drive with Add On Instructions for popular PLC's.
- PackML toolbox/template along with applications engineers experienced using PackML state diagram enables easy monitoring of OEE.
- Recipe management through MicroSoft Excel based tools over HTTP communications.
- Gantry toolbox with gantry tuning tools for X,Y and X,Y,Z case packer designs.
- Kinematics built into the machine controller. Challenge us with your unique mechanism.

- Servo drive tuning-less mode, advanced autotuning, and vibration suppression reduce start up time and improve smooth motion and performance.

- High customer satisfaction survey ratings and 95% on time delivery.
- Price competitive without rebate programs and bundling tactics.
- One series of servo drives in 110, 230, and 480 volts from 3 W to 55 kW.
- IP65 and IP67 washdown rated motors with low and medium inertia designs.

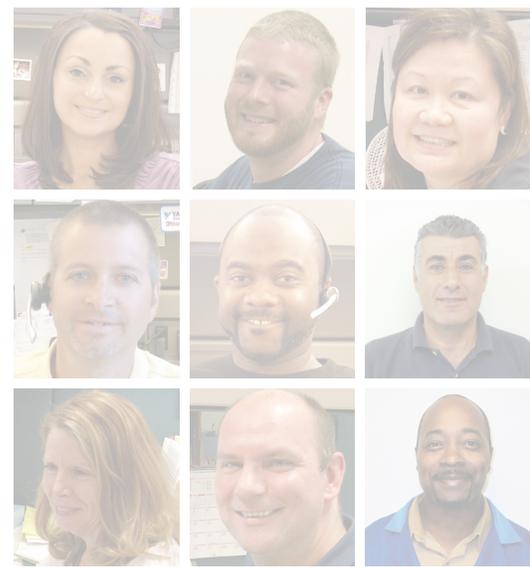


**IT'S PERSONAL**  
**YASKAWA**

"It's Personal" means each Yaskawa associate is committed to providing you with a great experience every time you deal with us.

We train our people, we treat our customers, we design, engineer and manufacture our products in ways that say everything we do matters. And, when your job is to make sure that everything that matters is done well, you take that pretty personally.

We commit to that at Yaskawa. We can make it happen. **Because to us, our relationship with you is personal.**



# YASKAWA



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