

Investor's Guide

Business Part

Notes:

- This material is composed mainly of basic contents to promote understanding of Yaskawa for analysts and investors.
- Figures in this document are rounded off and may differ from those in other documents such as financial results.
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**YASKAWA ELECTRIC CORPORATION
(TSE6506)**

1. Motion Control

1-1. AC servo & controller

1-2. Drives

2. Robotics

3. System Engineering

1. Motion Control

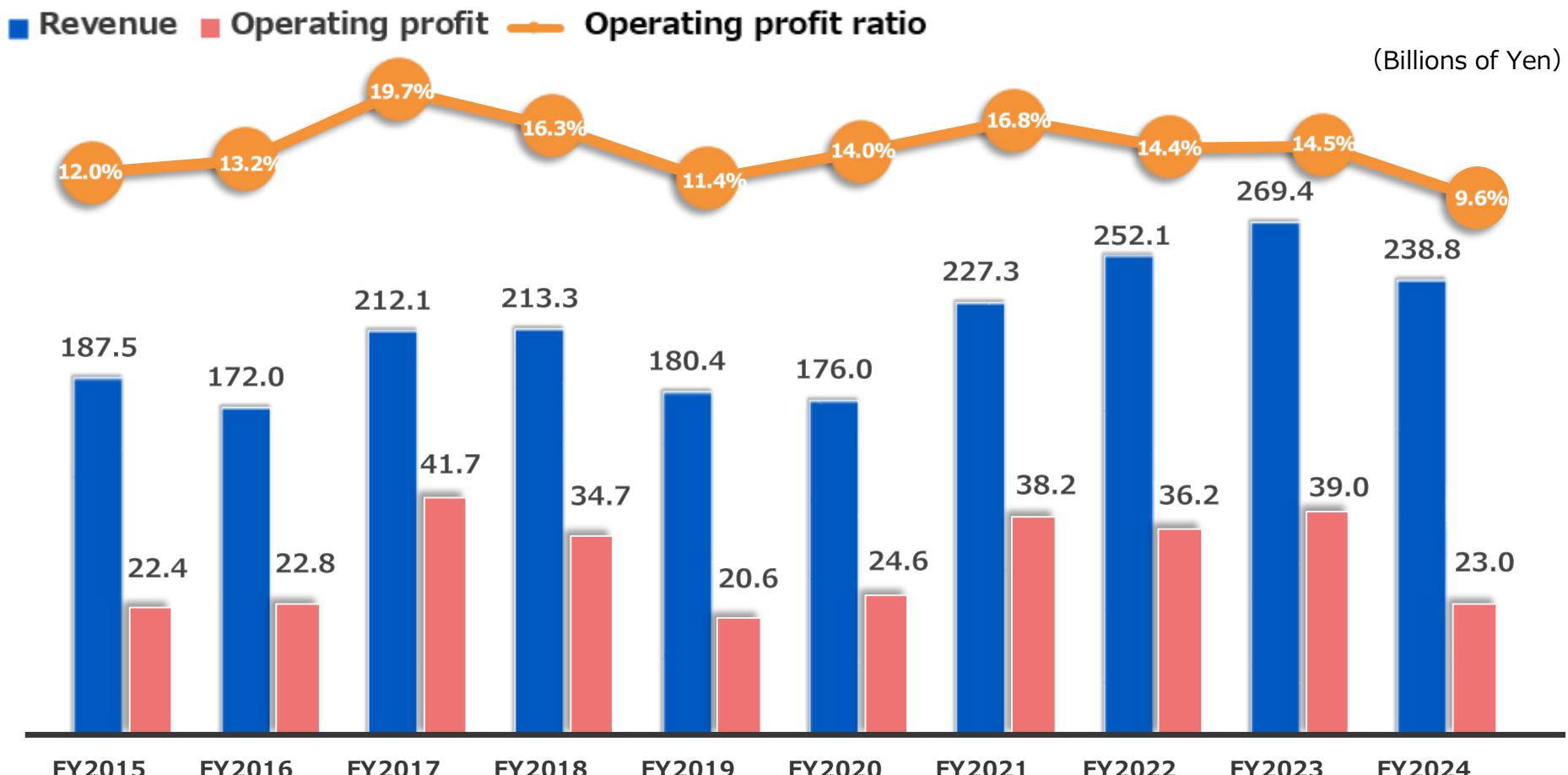


Product Basics

- Motion control product includes “AC servo & controller” and “AC drive”.
- Main difference is subjects and types of control.

	AC servo & controller	AC drive				
Subject of control	Position and speed of motor-driven machines	Rotational speed of motors				
Features	<ul style="list-style-type: none">• Move exactly and steadily to the commanded position and speed	<ul style="list-style-type: none">• Provide smooth and stable movement by freely changing the speed of rotation• Contribute to energy saving by adjusting the speed of rotation and reducing wasted power consumption				
Range of use	Narrow : Field where high speed and precision are required	Wide : Life related, industrial equipment, etc.				
Application	 Machine tool	 Semiconductor production equipment	 Industrial robots	 Elevator	 Air conditioning fan	 Conveyor

Revenue / Operating Profit (Motion Control)



Note1: Data up to FY2017 are based on Japanese GAAP.

Note2: The Company changed its accounting period starting FY2017 from March 20 to the last day of February. As a transitional year for this change, FY2017 was from March 21, 2017 to February 28, 2018.

Note3: Revisions were made to the division of businesses segments starting FY2017. The PV inverter business, which was previously included in Motion Control, is included in System Engineering. Figures and profit ratios of each segment for FY2016 reflect this change. The change is not applied to figures and profit ratios for the period up until FY2015.

Note4: Revisions were made to the division of businesses segments starting FY2020. The high voltage AC drives, which was previously included in System Engineering, is included in Motion Control. Figures and profit ratios of each segment for FY2019 reflect this change. The change is not applied to figures and profit ratios for the period up until FY2018.

Note5: From FY2024, we revised the segment classification of PV inverter, which had been included in the System Engineering segment, to be included in the Motion Control segment. Figures for FY2023 are also presented based on the revised information.

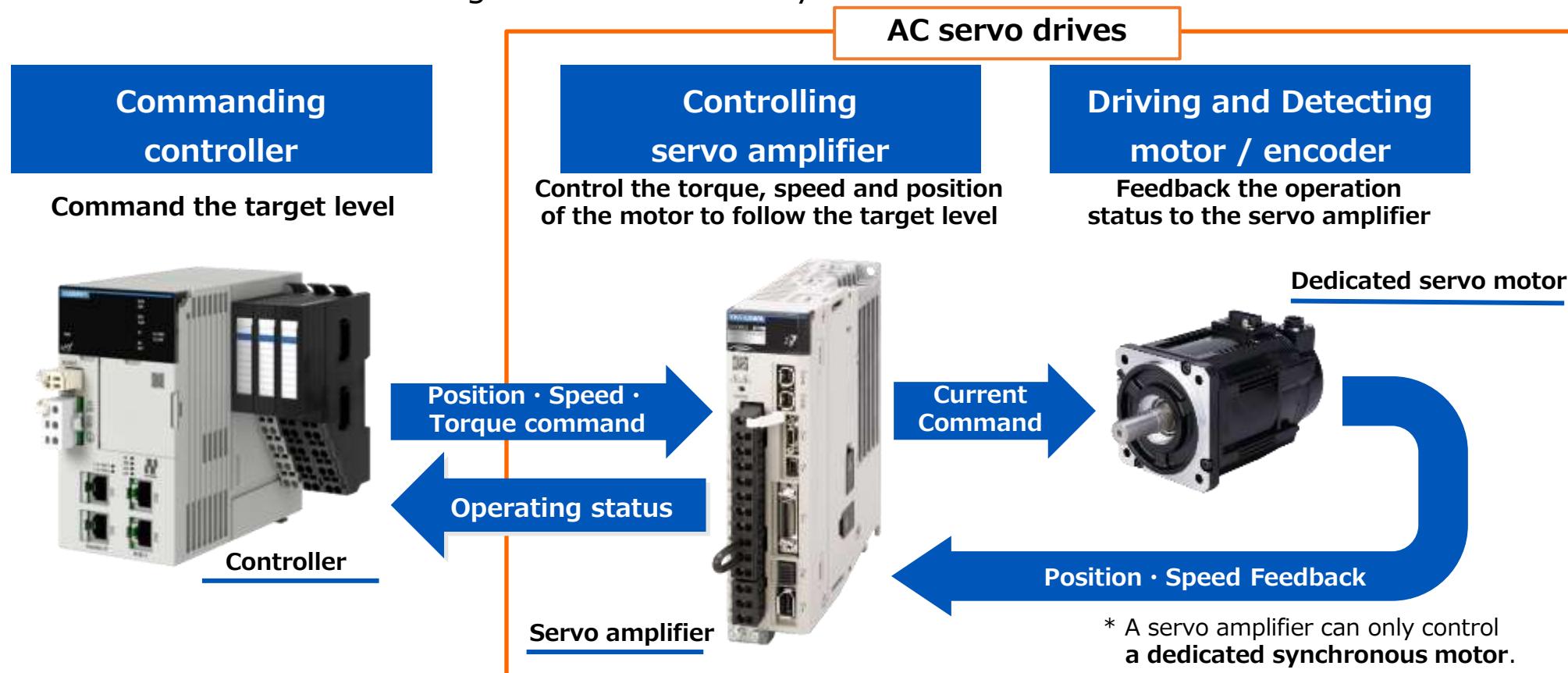
1-1. AC servo & controller



Product Basics (1/3)

What is an AC servo drive ?

An automatic controller consisting of a servo amplifier and a servo motor that follows the target level indicated by the controller



The purpose is to improve equipment performance and stabilize quality through highly accurate position, speed and torque control.

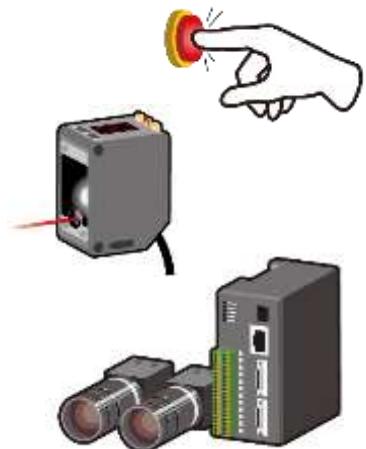
Product Basics (2/3)

What is a controller?

A control equipment that controls AC servo drives, AC drives, and robots, etc.

Input

Push buttons, sensors, cameras, etc.



Processing program

Input information and control output



Controller (MP Series)

Output

AC servo drives, AC drives, robots etc.

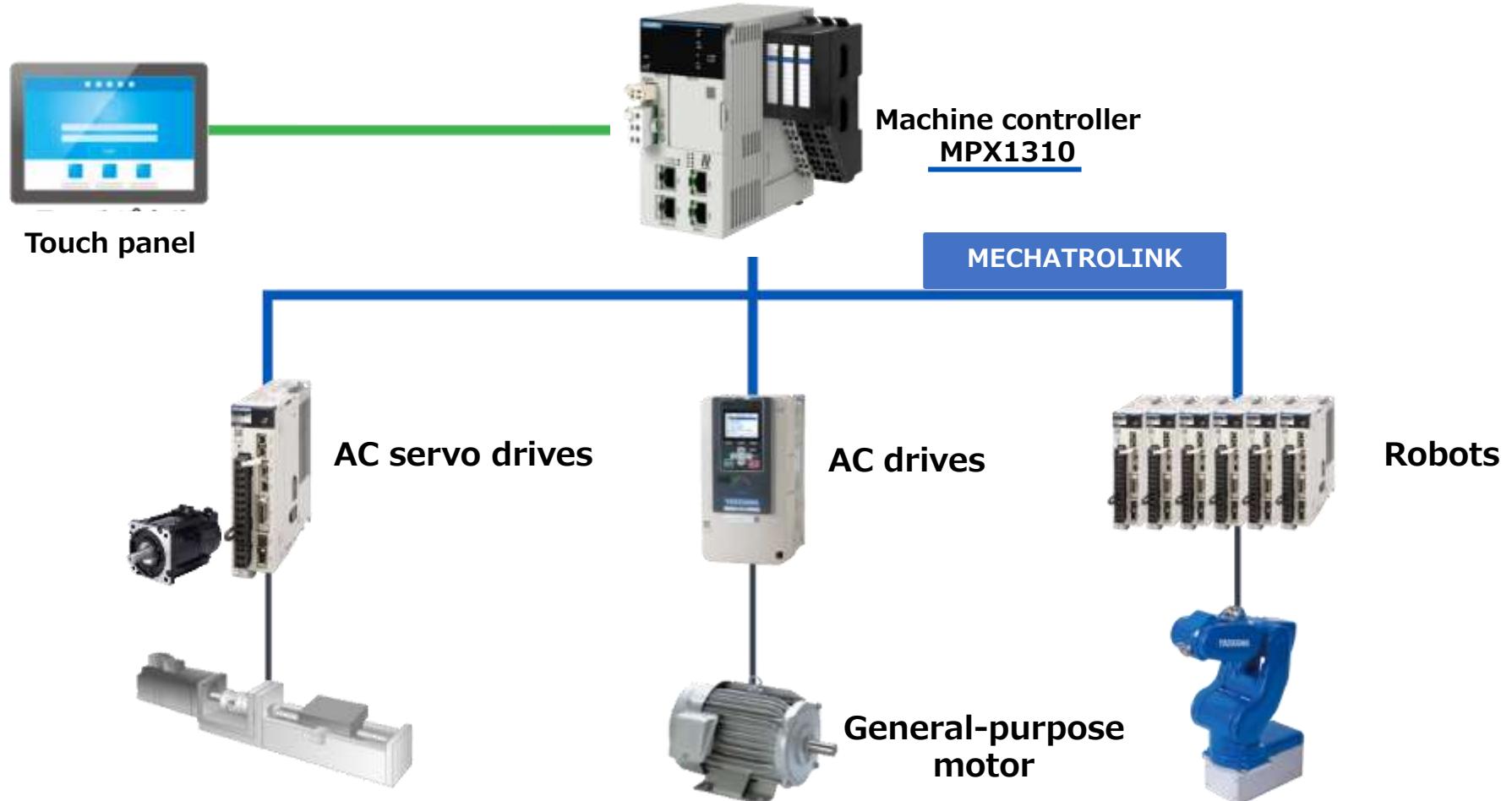


The purpose is to improve productivity through highly accurate control

Product Basics (3/3)

Flowchart of machine controller (MP Series)

Receive signals from touch panels to control AC servo drives, AC drives, and robots, etc.



Applications and Market

Machines for semiconductor, LCD & electronic component

- Semiconductor manufacturing Equipment
- LCD manufacturing equipment
- Electronic component processing and assembly equipment



AC servo motor



Supports motion control for various applications

General industrial machines

- Metal processing machine
- Wood processing machine
- Resin molding machine
- Food processing machine
- Packaging and filling machine
- Logistics and transportation equipment
- Medical equipment
- Printing machine
- Textile machine
- Papermaking



Machine tools

- NC lathe
- Machining center
- Milling machine
- Grinder



Robots

- Industrial robot
- Clean transfer robot
- Vacuum transfer robot



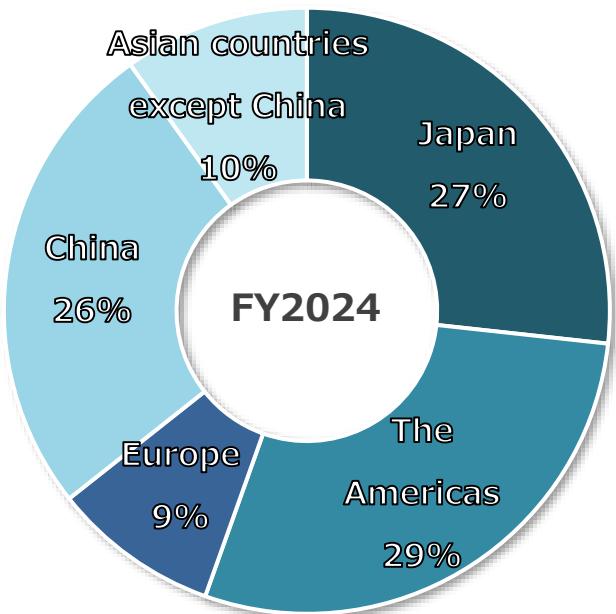
Product Lineup

Wide lineup to accommodate to various applications

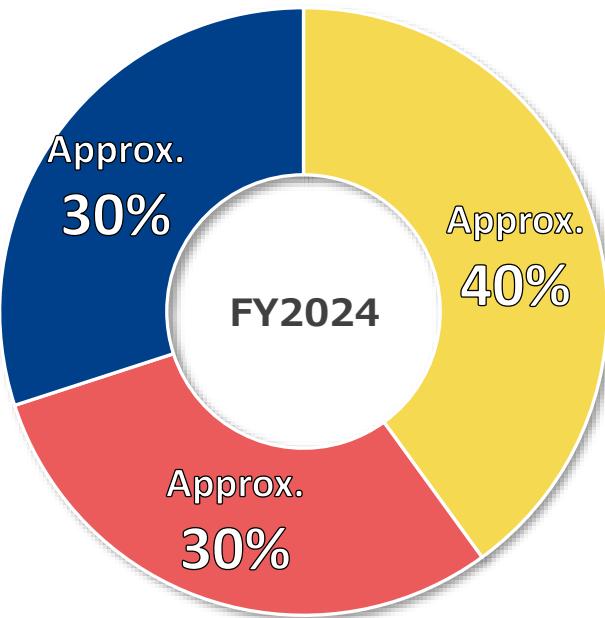
Controller	iCube Control			MP3000 Series Machine Controller Board type Modular type etc..	MP2000 Series Machine Controller Board type Modular type etc..	MIRAMOTION	
	YRM1000 Series YRM Controller	MPX1000 Series Machine Controller	SLIO I/O Series I/O Products				
Network	 MECHATROLINK (MECHATROLINK-4, MECHATROLINK-III etc.. other Field Network)						
AC Servo Drives	Σ-X Series  SERVOPACKs Σ-XS model Single-axis AC200V/400V 50W to 15kW Σ-XW model Two-axis AC200V 200W to 1.0kW Σ-XT model Three-axis AC200V 200W to 400W	Rotary Servomotors SGMXA model Low inertia, high-speed 50W to 7.0kW SGMXJ model Medium inertia, high-speed 50W to 750W SGMXG model Medium inertia, high torque 300W to 15kW SGMXP model Medium inertia, flat type 100W to 1.5kW	Σ-7 Series  SERVOPACKs Σ-7S model Single-axis AC100V/200V 11W to 15kW Σ-7W model Two-axis AC200V 200W to 1.0kW	Rotary Servomotors SGM7M model Low inertia, ultra-small capacity 3.3W to 33W SGM7J model Medium inertia, high-speed 50W to 750W SGM7A model Low inertia, high-speed 50 to 7.0kW SGM7P model Medium inertia, flat type 100W to 1.5kW SGM7G model Medium inertia, large torque 300W to 15kW	Direct Drive Servomotors SGM7E model Coreless, Inner Rotor 2N·m to 35N·m SGM7F model With Core, Inner Rotor Small capacity 2N·m to 35N·m Medium capacity 45N·m to 200N·m SGM7D model With Core, Outer Rotor 1.3N·m to 240N·m	Linear Servomotors SGLG model Coreless 12.5N to 750N SGLFW2 model With core F 45N to 2520N SGLTW model With core T 130N to 2000N	Large-capacity Σ-V Series SERVOPACKs SGDV model 22kW to 55kW Rotary Servomotors SGMVV model Large capacity, Low inertia 22kW to 55kW

Revenue Breakdown by Region and Application, Market Share

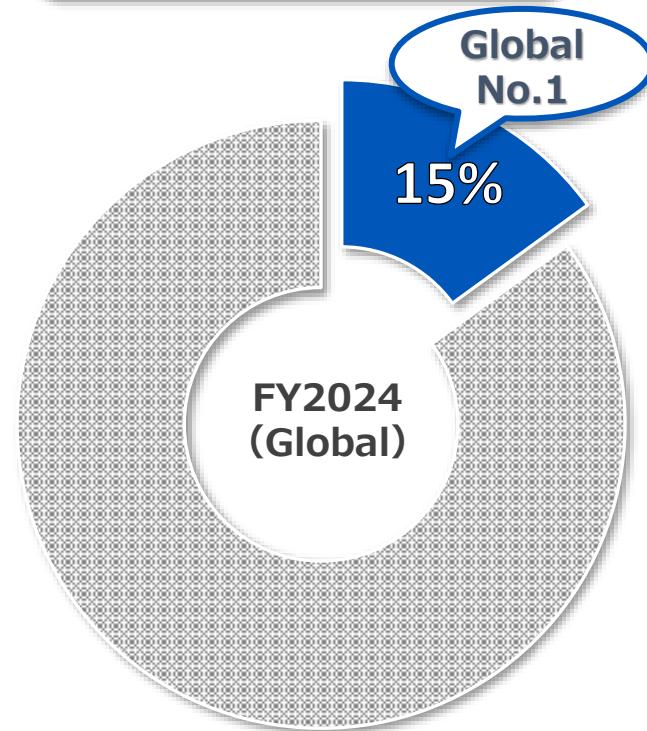
Breakdown of revenue by region



Revenue breakdown by application



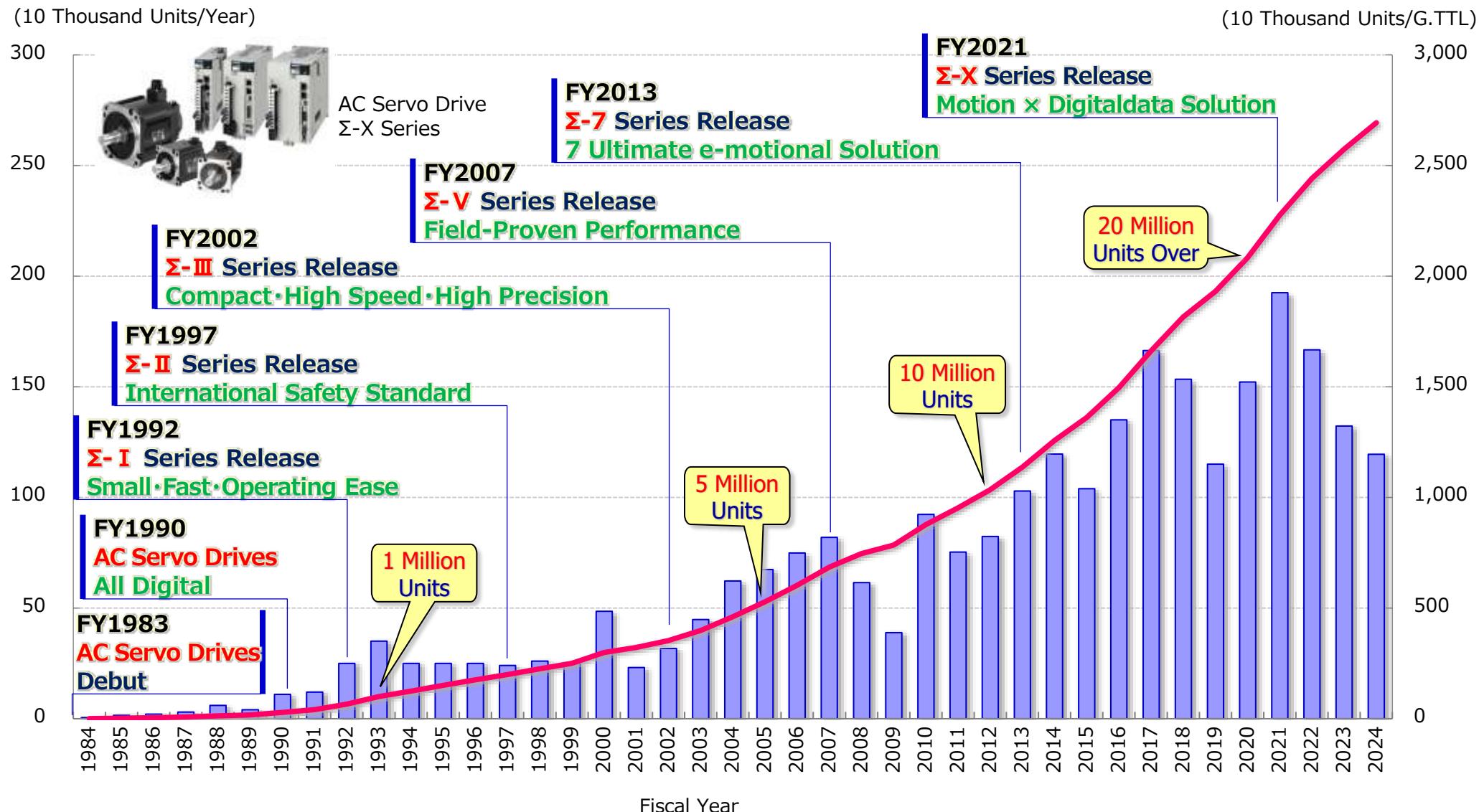
Market share



[Note] Company estimate

- Electronics-related industries including semiconductor, FPD and electronic components
- Machinery-related industries including machine tool, metal processing, press machine and robots
- Other (Packaging, textile, injection molding, etc.)

Total Shipment



New Product Features (1/3)

Features of Σ -X Series – Improvement of motion performance

Maximum motor rotation speed

The maximum rotation speed of the motor has increased from the earlier value of $6,000 \text{ min}^{-1}$ to $7,000 \text{ min}^{-1}$.



Applicable models:
All SGMXJ and SGMXA models



Equipped with a high-resolution 26-bit encoder

The resolution* of the encoder has been increased to 26 bits, four times that of the earlier model.

24 bits of encoder resolution is position precision resolving 1 revolution of a motor to 67 million pulses

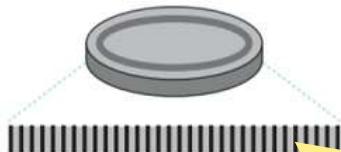
Earlier model

Encoder resolution 24 bits
≈ 16 million pulses/rev



Σ-X

Encoder resolution **26 bits**
≈ **67 million pulses/rev**



Four times
that of
the earlier
model

Increased position resolution/stop precision
→ Precise stops

*Ability to measure how finely a motor rotation can be split

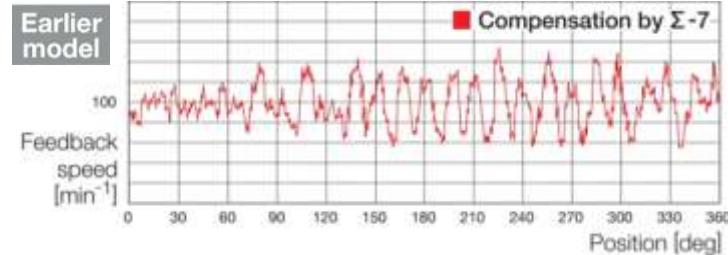
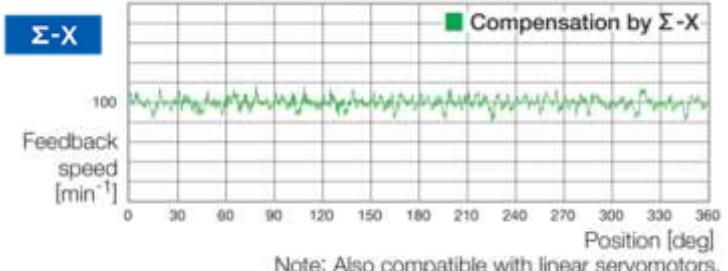
Speed frequency response

Speed frequency response has changed from 3.1 kHz for the earlier model to 3.5 kHz. Maximizing the following performance for the speed reference improves equipment productivity.



Improved control precision and smoothness

Smoother drive is possible from a more effective speed ripple compensation algorithm for cogging compensation. This helps reduce inconsistency in equipment machining precision and quality.



New Product Features (2/3)

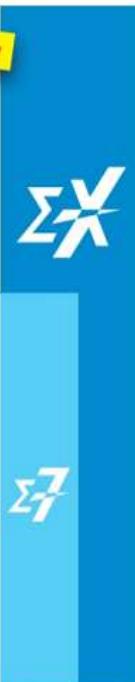
Features of Σ-X Series –Sensing and use of data

The servomotor acts as a sensor and collects various data. It can be used for preventive maintenance of equipment.

Σ-X uses the servomotor as a sensor to sense and monitor the parts used by the servo and the servo's installation environment. This can be useful for accurately determining maintenance periods and for preventing sudden failures.

■ Sensing Items

Encoder Power-on Time	
Encoder Supply Voltage	
Encoder Battery Voltage	
Motor Rotation Count	
Maintenance Prediction Monitor: Bearing	
Maintenance Prediction Monitor: Oil Seal	
Acceleration Sensor Monitor	
Estimated External Disturbance Torque	
Number of Serial Encoder Communications Errors	
Settling Time	
Amount of Overshoot	
Residual Vibration Frequency	
Estimated Vibration	
Maximum Value of Accumulated Load Ratio	
Number of MECHATROLINK Communications Errors	
Margin until Overload	
Temperature Margin until Servomotor Overheats	



● Both installation environment information and the service life of parts used by the servo can be monitored.	
 SERVOPACK	 Servomotor
Environment Monitor	Environment Monitor
Installation Environment	Good(59%)
Overheat Margin	Good(55%) 
Main Circuit Power-on Time	1hr52min52sec
Number of Serial Encoder Communications Errors	0[times]
Number of MECHATROLINK Communications Errors	0[times]
Life Monitor	Maintenance Prediction Monitor 
Built-in Fan	----
Capacitor	99.99%
Surge Prevention Circuit	99.98%
Dynamic Brake Circuit	99.99%

New Product Features (3/3)

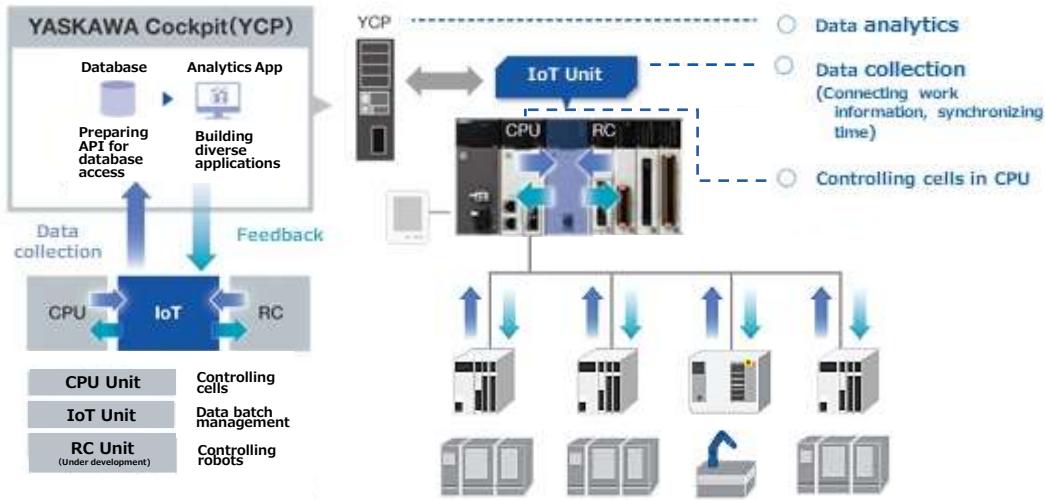
YRM controller



YRM-X controller

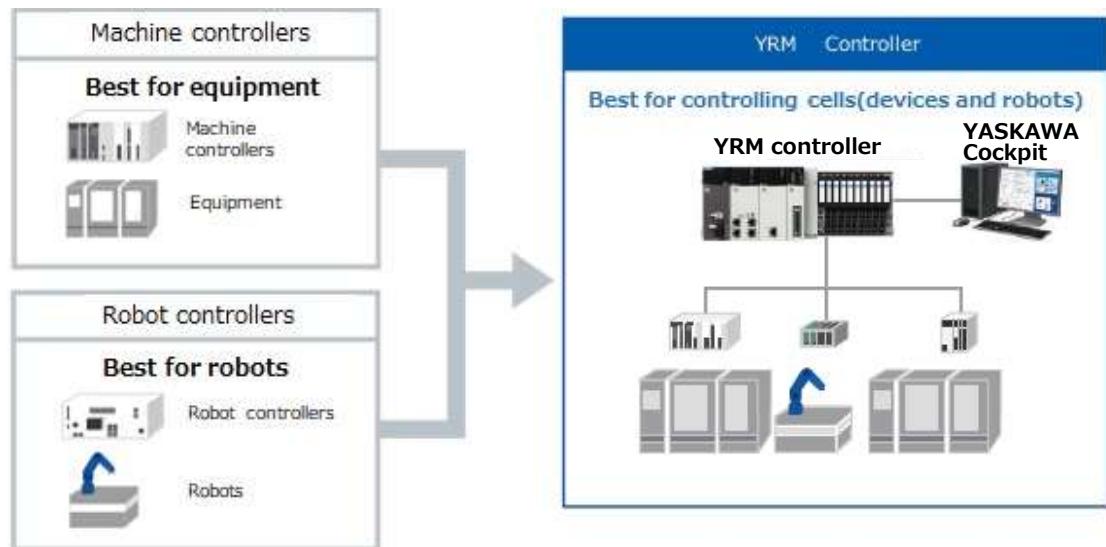


YRM1010



① Controller controlling cells

Cells : A connected equipment where data relatedness exists
e.g.) Facilities composing devices or/and industrial robots etc. and working on common tasks

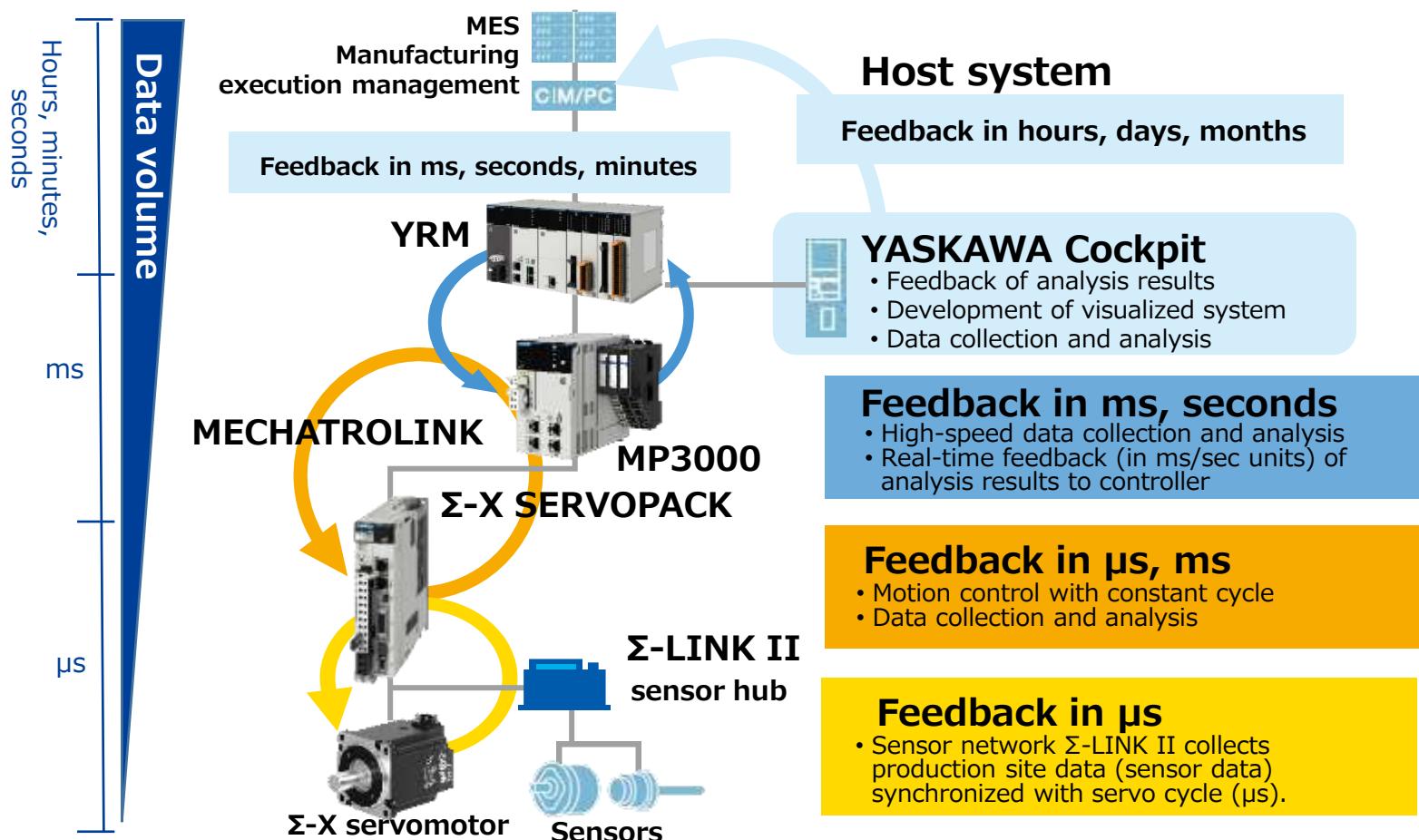


② A controller that enables to **integrate equipment, robots, and data** and turn data into movement

- Real-time understanding of the status of an entire cell by acquiring **synchronized data** of equipment and robots is possible. **The results of analysis** of the acquired data **are fed back to the entire cell** as "data" and "motion" to realize automation of manufacturing (stable operation, stable quality, and process improvement).

Products realizing i³-Mechatronics

- Products realizing i³-Mechatronics enable the collection and use of time-aligned data
- While Σ -X enables the acquisition of small amounts of data at a high frequency of μ s, YASKAWA Cockpit and YRM controller enable the collection and analysis of large amounts of data in seconds and use them for feedback.

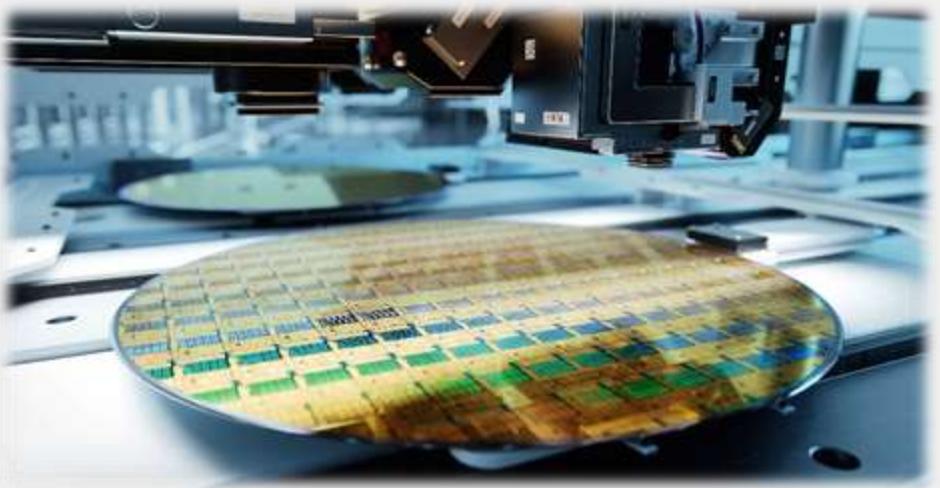
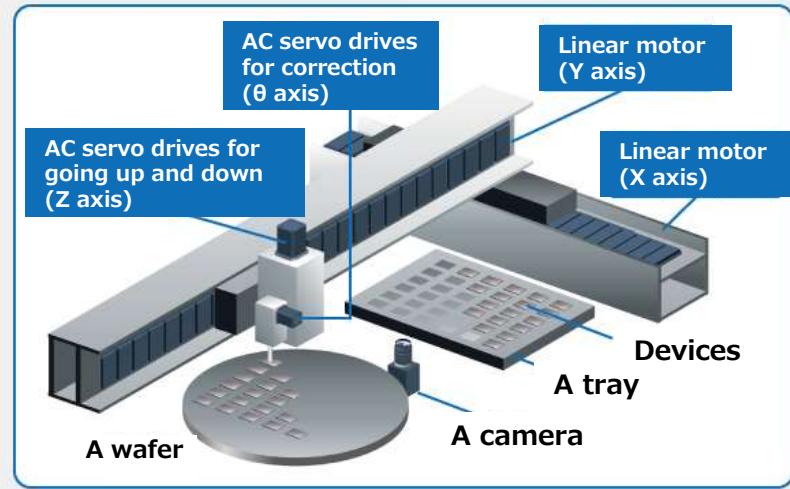


(Reference) Application of AC servo & controller



Electronic component

Structure of die bonder



Semiconductor production equipment



Metal processing machine



Injection molding machine

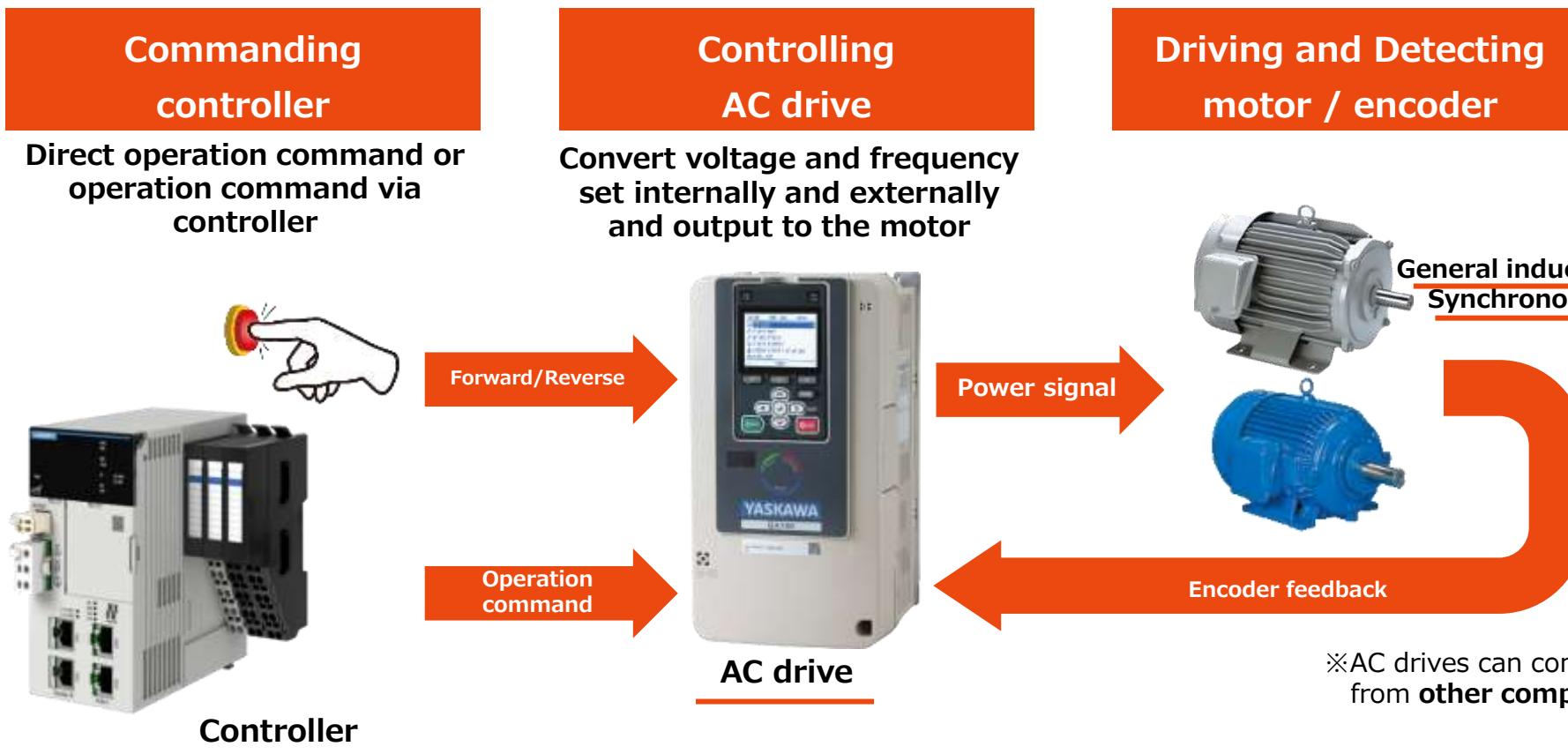
1-2. Drives



Product Basics (1/3)

What is an AC drive?

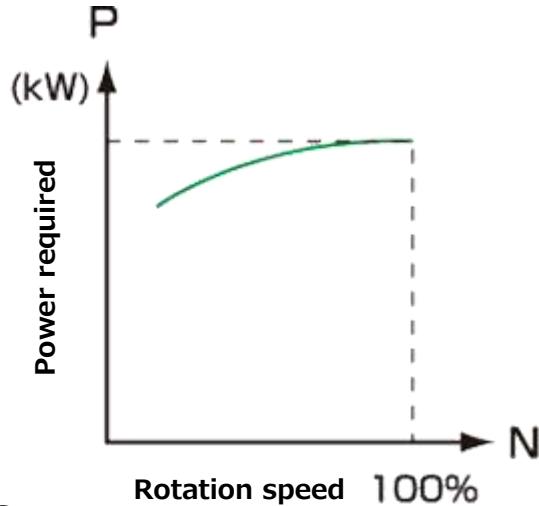
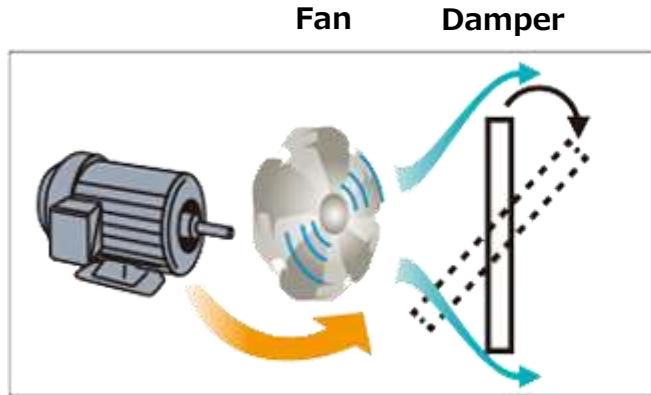
Device for controlling rotation speed by changing voltage and frequency supplied to motor



Product Basics (2/3)

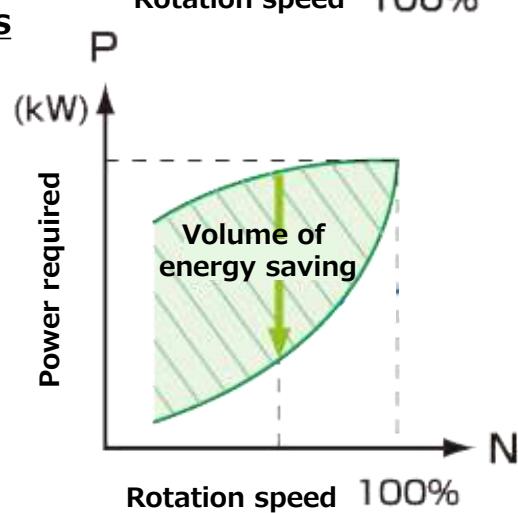
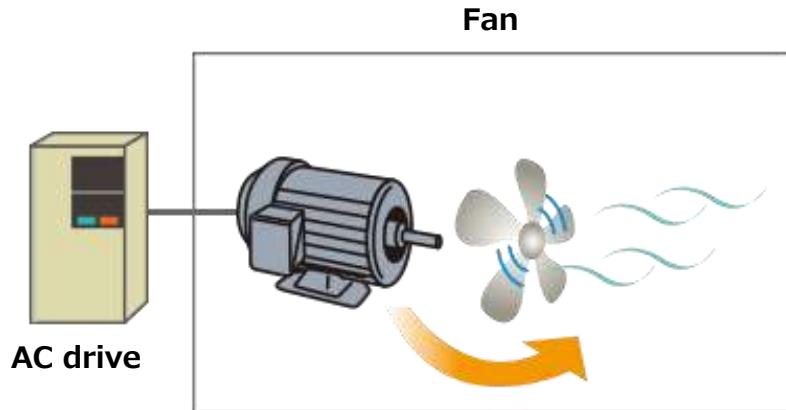
What are energy conservation benefits of AC drives?

◆ Conventionally, motors had constant speed + damper



Without AC drives, the rotational speed of the motor cannot be changed, so the air volume is adjusted with a damper (on-off valve).

◆ Variable speed motor control by AC drives

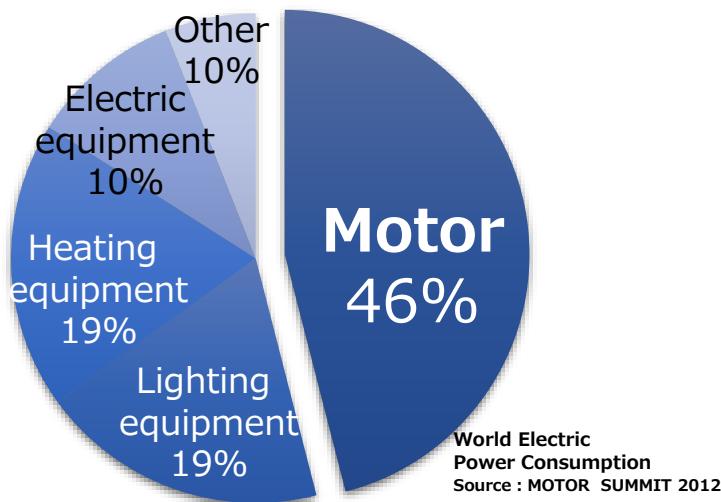


AC drives can adjust the motor speed according to the required air quantity, resulting in saving a lot of energy.

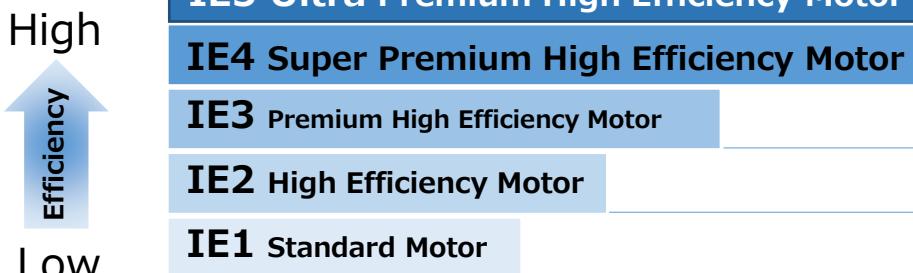
Product Basics (3/3)

The reason AC drives are needed

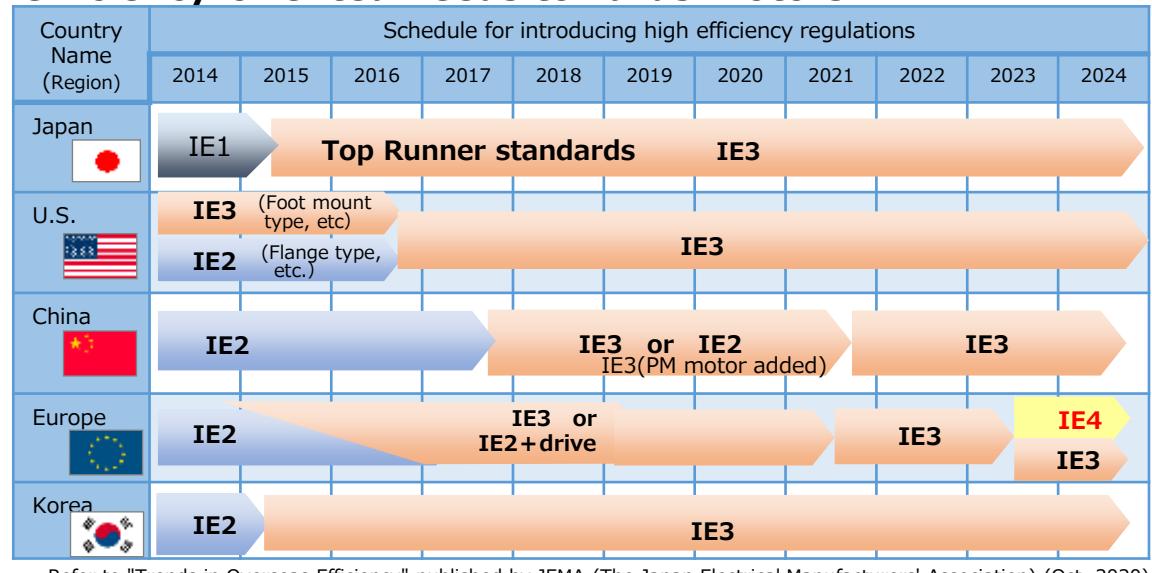
- ◆ Motor takes about half of the world's electric power consumption



- ◆ High efficiency motors require AC drives
Efficiency Classified



- ◆ Global regulations have accelerated the high efficiency-oriented needs towards motors



Motor Type

Permanent magnet motors, Magnet-assisted Synchronous reluctance motors	AC drives required
Permanent magnet motors, Magnet-assisted Synchronous reluctance motors	
Permanent magnet motors, Synchronous reluctance motors	
Induction motors	
Induction motors	AC drives required in EU

Applications and Market

Fluid machinery

- Air conditioning system
- Fan pump
- Compressor
- Vacuum pump



AC Drive/PM motor



**Supports motion control
for broad applications**

General industrial machine

- Metal processing machine
- Food machine
- Wood processing machine
- Textile machine
- Resin molding machine
- Chemical machine
- Papermaking and printing machines
- Packaging and filling machines
- Environment-related machine
- Life-related machine



Conveyance machine

- Conveyor
- Crane
- Hoisting machine
- Multistory parking garage



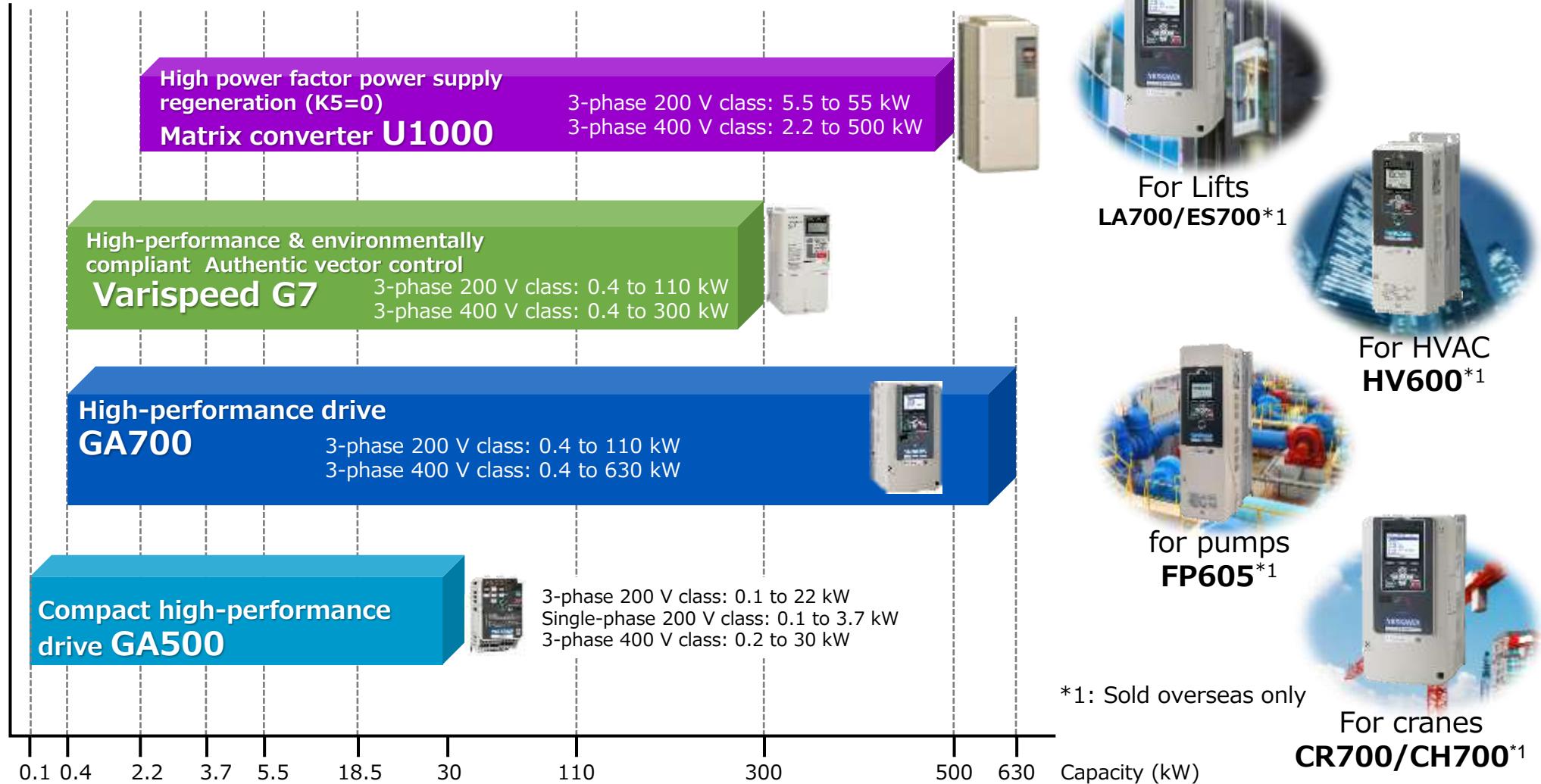
Lift

- Elevator
- Escalator
- Light Lift
- Automated warehouse



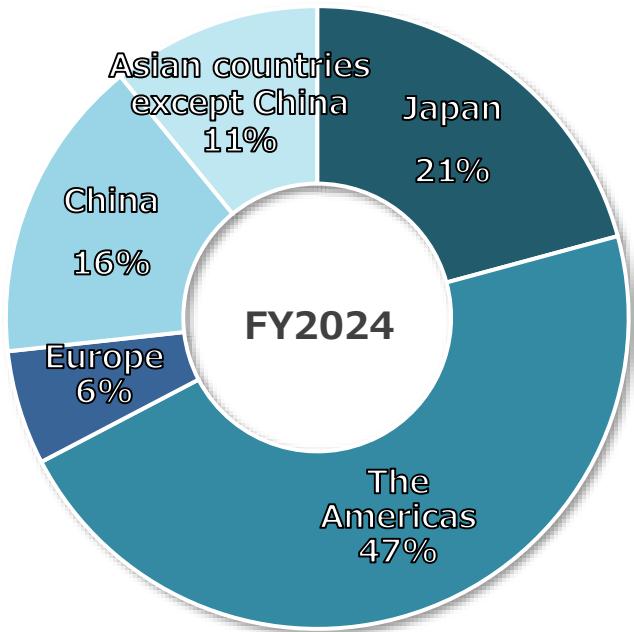
Product Lineup

Develop lineup for application-specific products, including power supply regeneration and vibration suppression functions

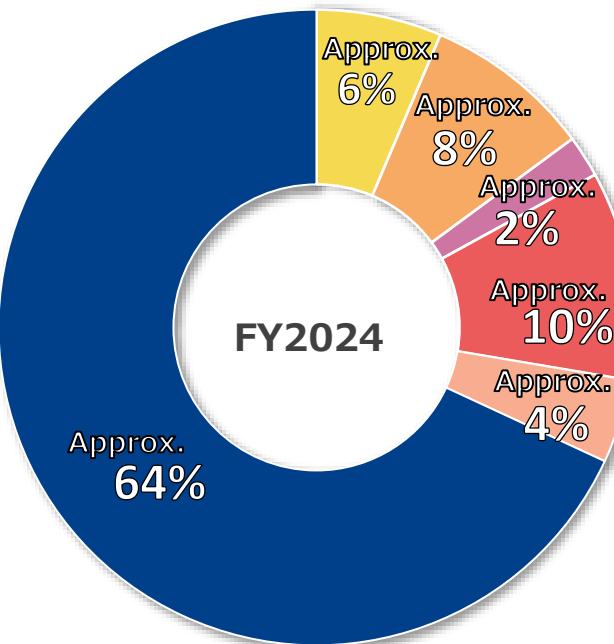


Revenue Breakdown by Region and Application, Market Share

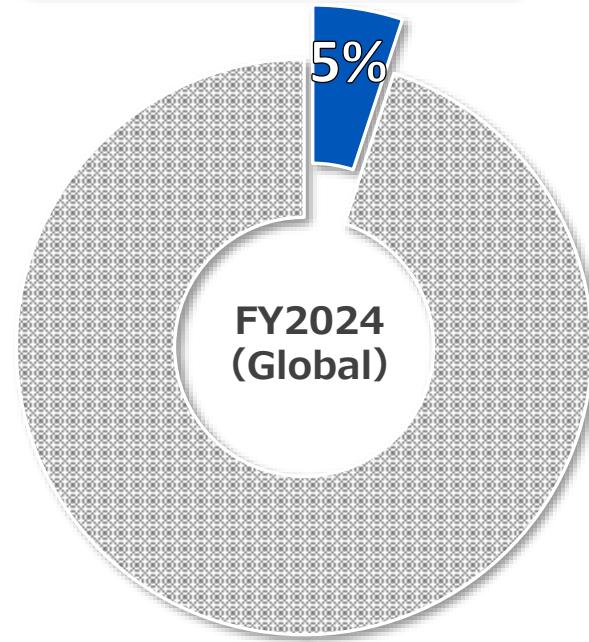
Breakdown of revenue by region



Revenue breakdown by application



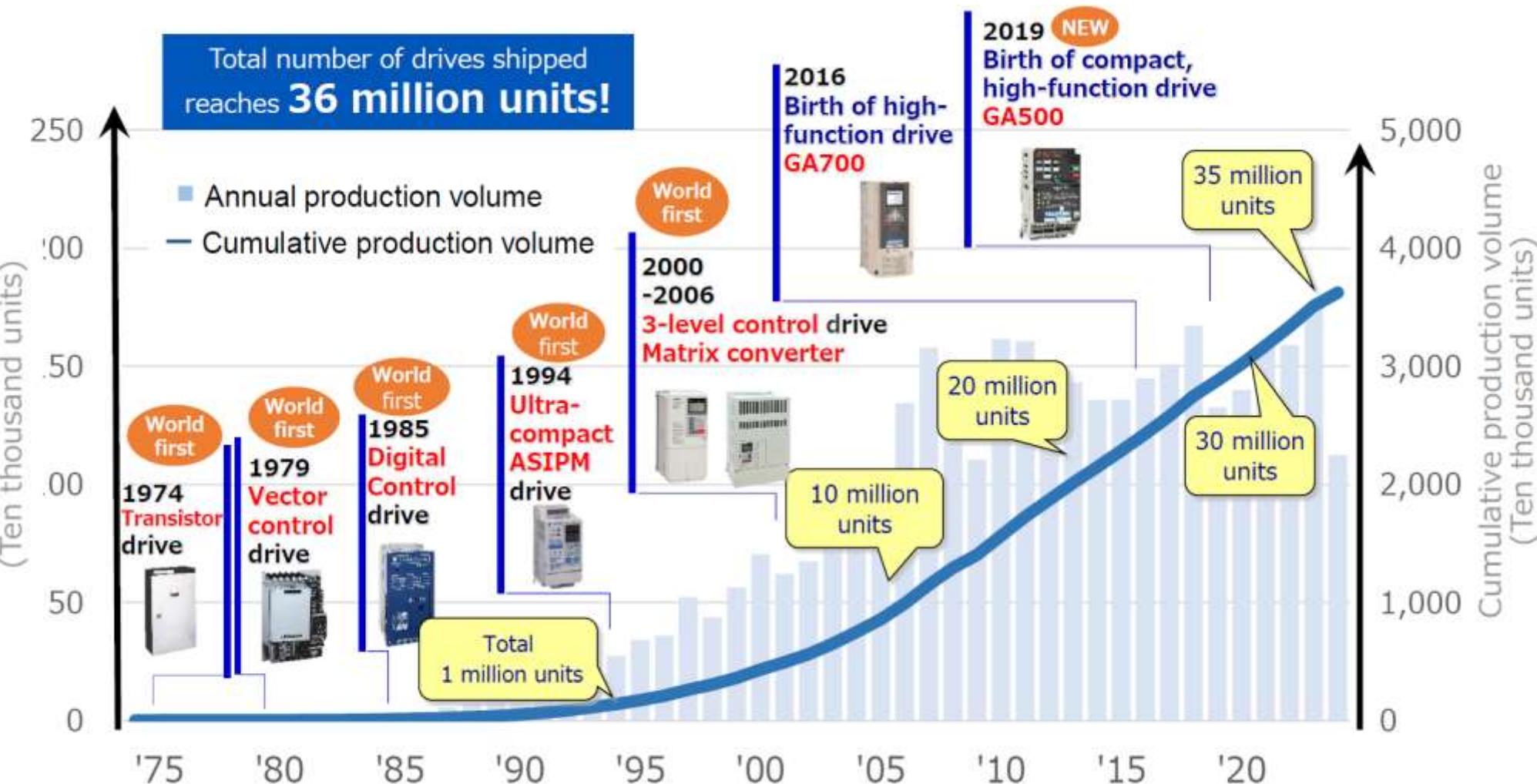
Market share



[Note] Company estimate

- Air-conditioning systems for buildings (HVAC and compressors)
- Cranes and hoists
- Oil & gas
- General-purpose machinery / Other (Textile machinery, metal processing machinery, packaging machinery, conveyors, etc.)
- Pumps and fans
- Elevators

Total Shipment

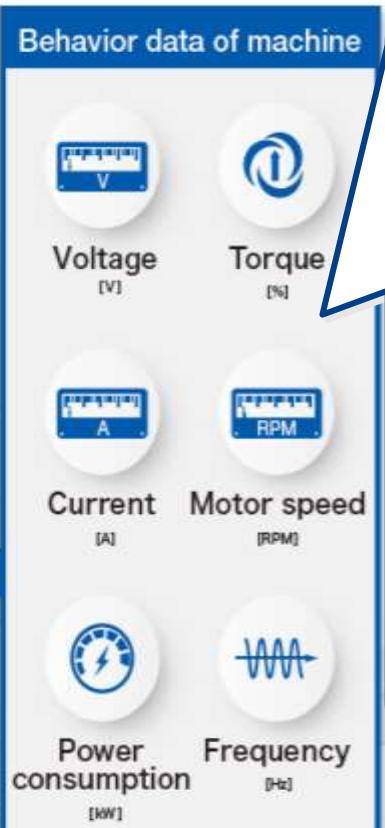


Features of Yaskawa's products (1/4)

Unique detecting function

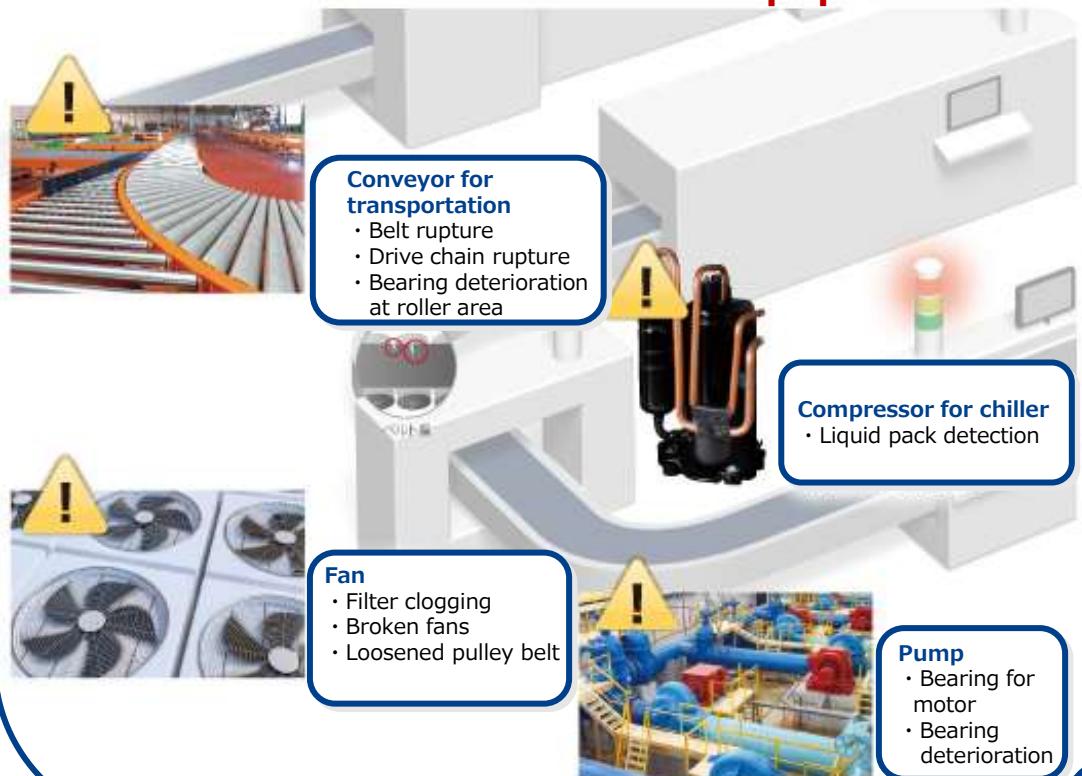
Monitoring machine behavior data through AC drives and preventing serious troubles by detecting machine changes in detail

YASKAWA AC Drives



Using behavior data

to detect deterioration of machine and equipment



Features of Yaskawa's products (2/4)

Energy-saving initiatives 1

Selling **PM motor** achieving high-efficiency, energy-saving operation when used in combination with AC drives

Lineup



Eco PM motor flat type

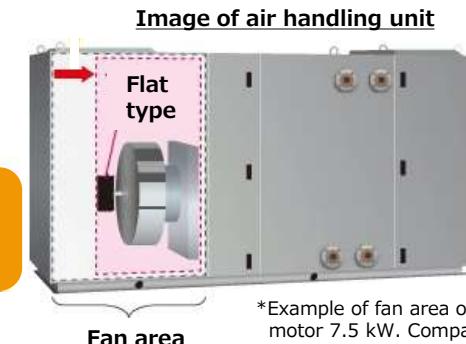
- Achieving the highest (IE5) efficiency of the five efficiency classes
- Contributing to space-saving, resource-saving, and energy-saving by significant reduction of motor length
- Decreasing noise level by reduction of fans



IPM motor SS7

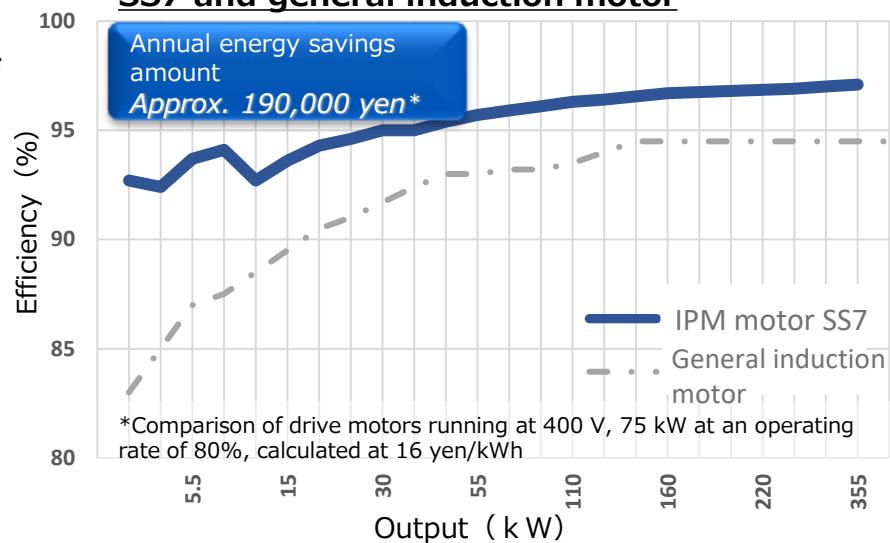
- Realizing the high efficiency which is nearly the second highest (IE4) of the five efficiency classes
- Compact and lightweight, contributing to resource conservation

Installation area
25% * reduction



*Example of fan area of motor 7.5 kW. Comparison with induction motor.

Comparison of efficiency between IPM motor SS7 and general induction motor



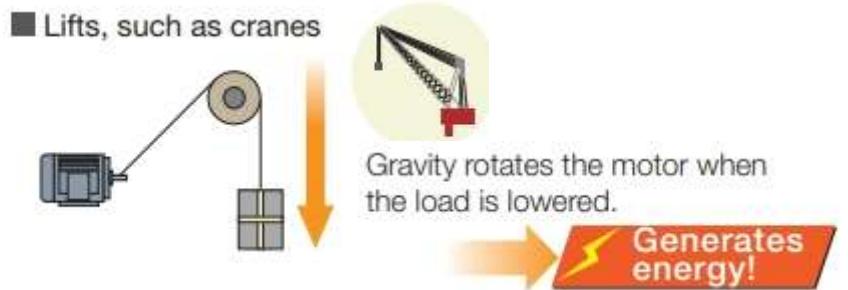
Features of Yaskawa's products (3/4)

Energy-saving initiatives 2

Save energy by reusing the regenerative energy

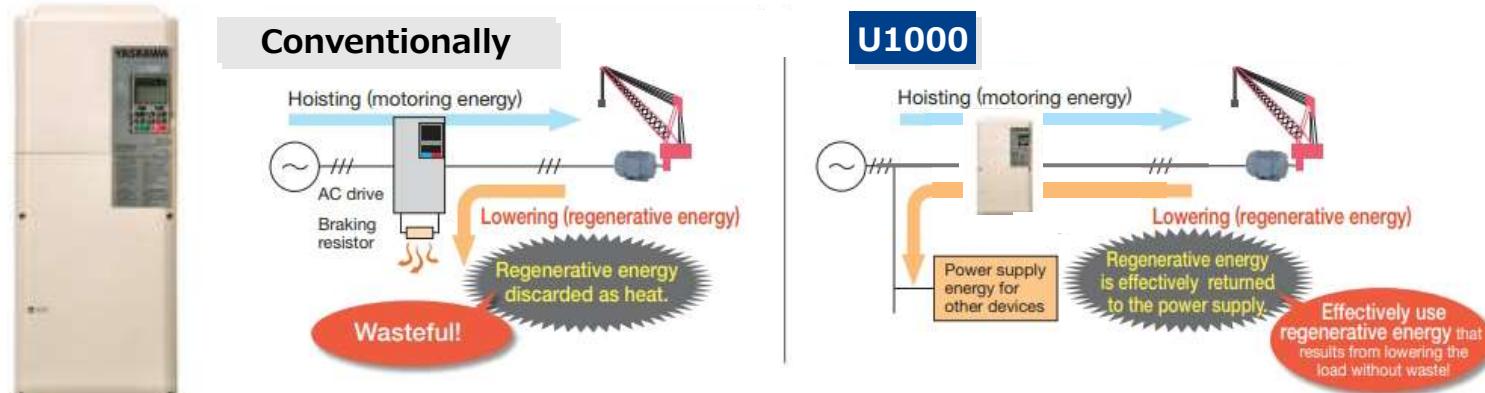
Regenerative energy

- Energy generated by the motor
- When the crane lowers the load, the weight of the load rotates the motor and generates energy.



Low Harmonics Regenerative Matrix Converter U1000

- Return the regenerative energy which was conventionally discarded as heat to the power supply and reuse



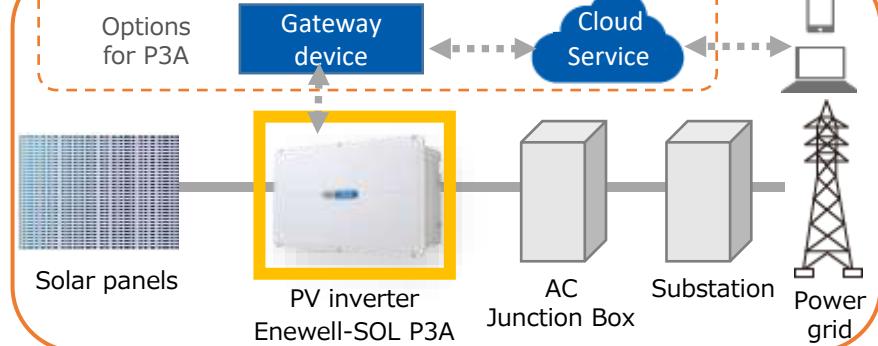
Features of Yaskawa's products (4/4)

PV inverter for solar power generation*

Supporting a wide range systems, from self-use and low-voltage grid connection less than 50kW to mega solar.

For low voltage commercial Systems (10~50kW)	For Medium and High voltage systems
 Public facilities Newly installed self-consumption	 Plant / Factory
 Ground mounted small scale Solar Replace and Repowering	 Utility scale Solar
 Good for self-consumption 9.9kW 200V class 3-phase transformer-based Enewell-SOL P2H HF transformer integrated.	 Optimized for self-consumption 25kW 200V class 3-phase Enewell-SOL P3A Helps slim down PV system with integrated self-consumption features.

System configuration



*Device for converting DC power generated by solar panel into AC power

(Reference) Application of AC drives



Cranes



Fans



Pumps



Conveyors



Automated
warehouse

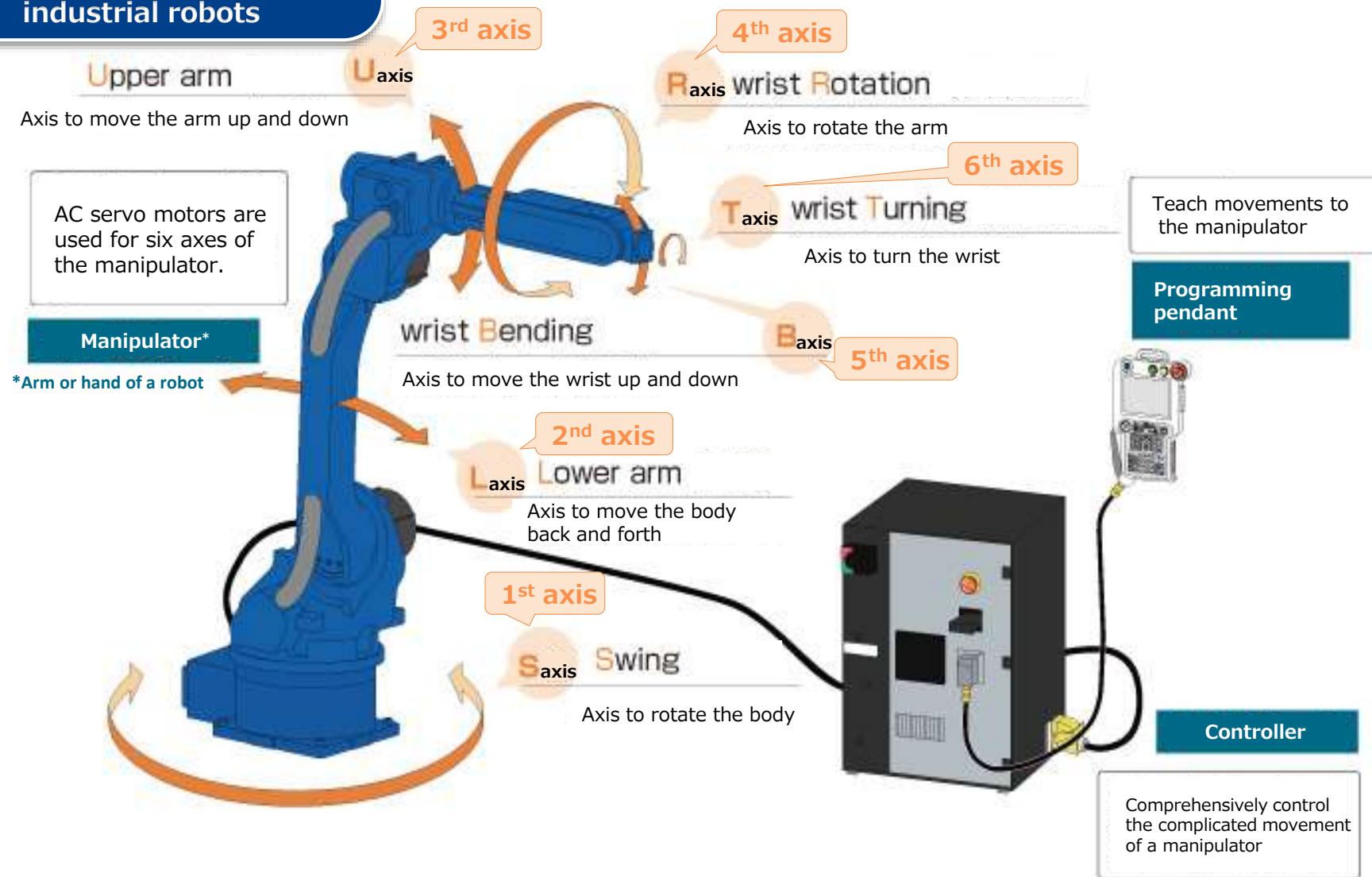
YASKAWA

2. Robotics



Product Basics (1/2)

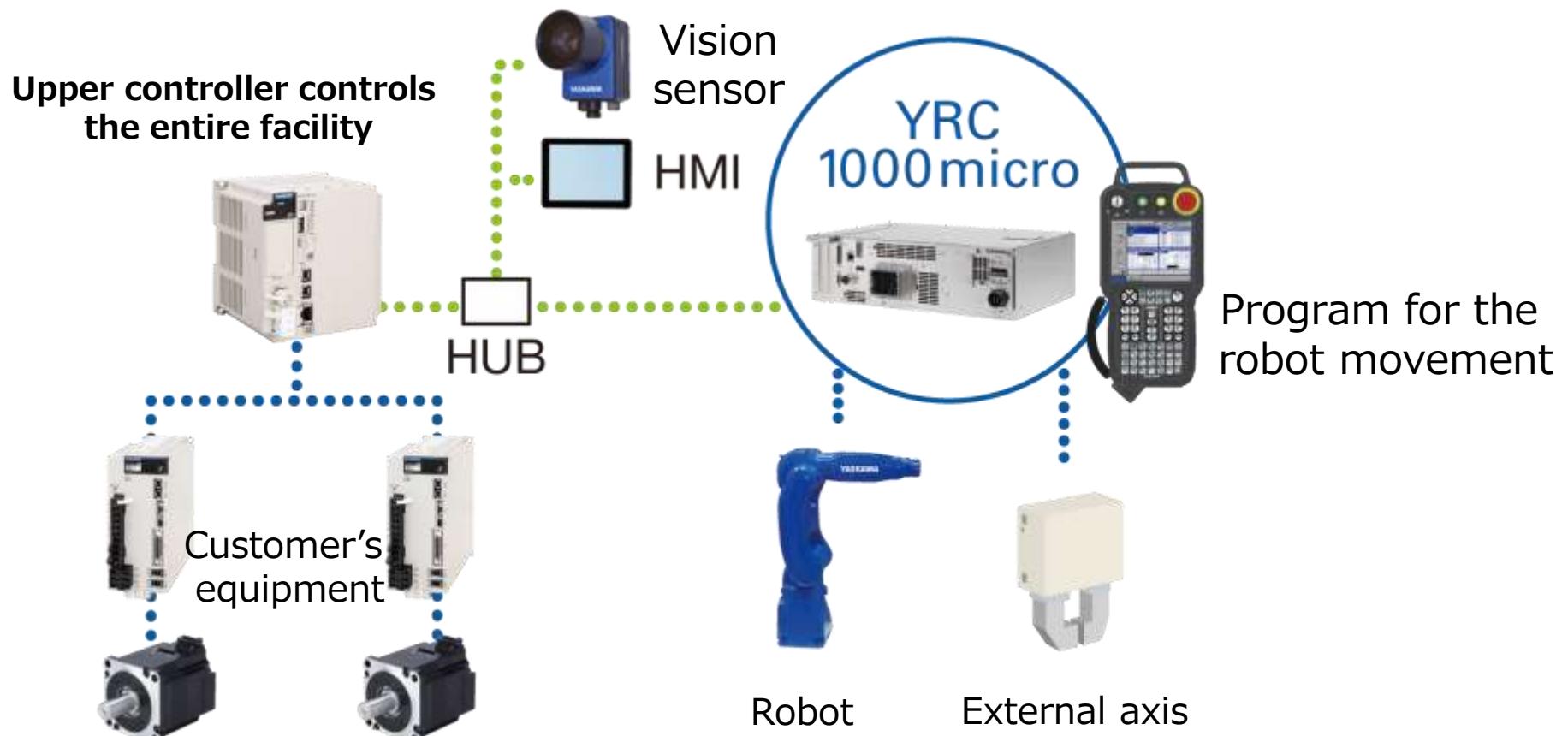
Basic configuration of industrial robots



Product Basics (2/2)

Image of robot control

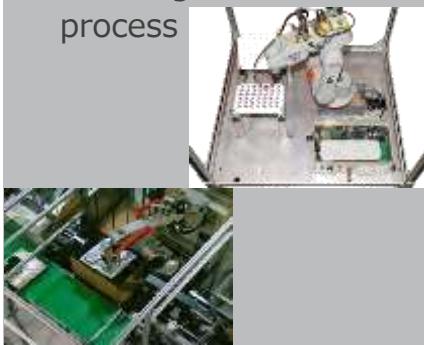
- A robot motion program is created in the dedicated robot controller (e.g.: YRC 1000 micro) with a teach pendant.
- The upper controller such as MP controller controls the entire facility including starting the operation program and collecting operation status data.



Applications

Home appliance, smartphone

- Assembly process
- Grinding process
- Inspection process



Robots



Automotive-related

- Welding process
- Paint process
- Assembly process



Semiconductor

- Wafer transportation process



Logistics · Food · Medical

- Picking process
- Packing process
- Palletizing process
- Pre-inspection process



Product Lineup

Industrial robots for Automotive and Other markets

Arc Welding



Spot Welding



Paint



Picking, Packing, Palletizing



Handling



Clean room robots (Semiconductor)

Semicon. Wafer Transfer

SEMISTAR-M,V series

Clean Robot



Vacuum Robot



VD31HQF

GEKKO MD124D

VD31HDA

Collaborative



Dual Arm

Handling, Assembly



SIA10F SDA10F



MH5BM



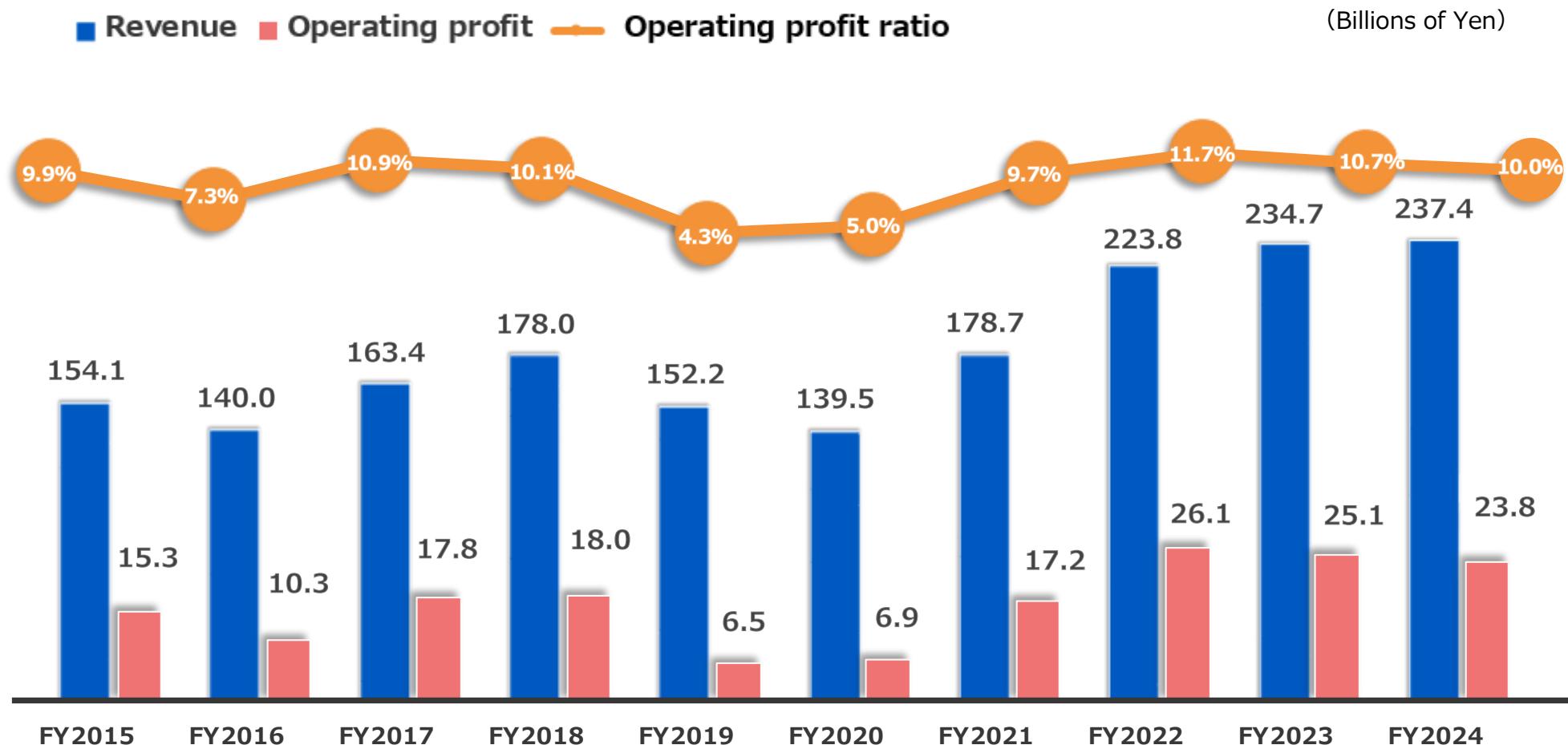
BMDA5



BMIA10

CSDA10F

Revenue / Operating Profit (Robotics)

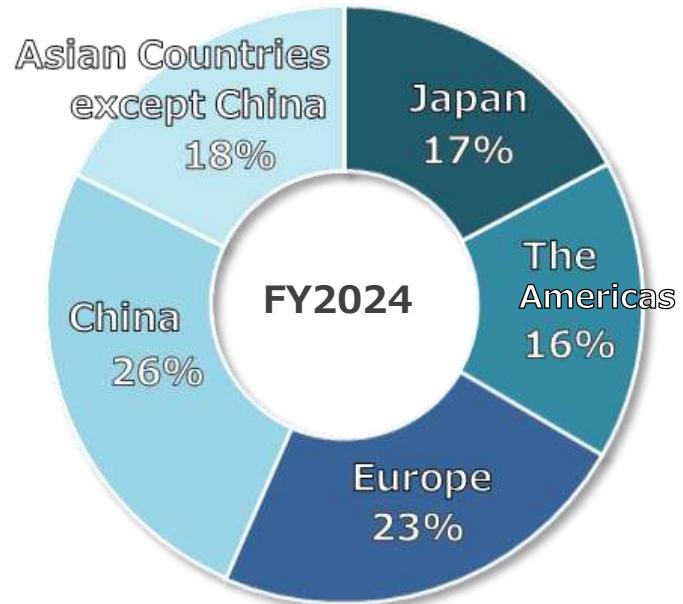


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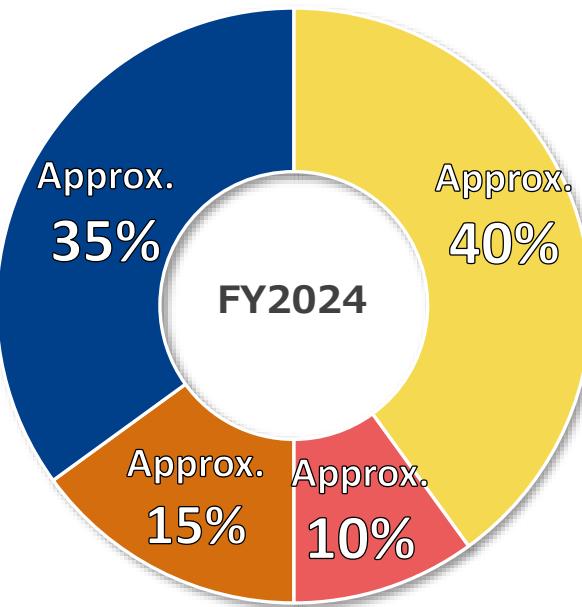
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Revenue Breakdown by Region and Application, Market Share

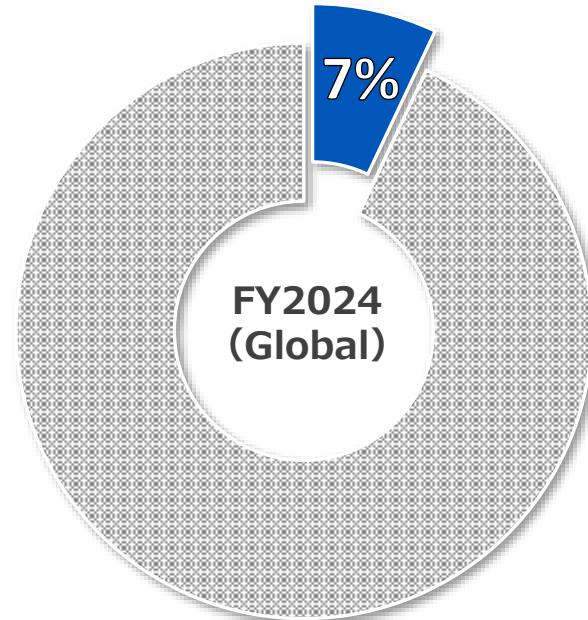
Breakdown of revenue by region



Revenue breakdown by application



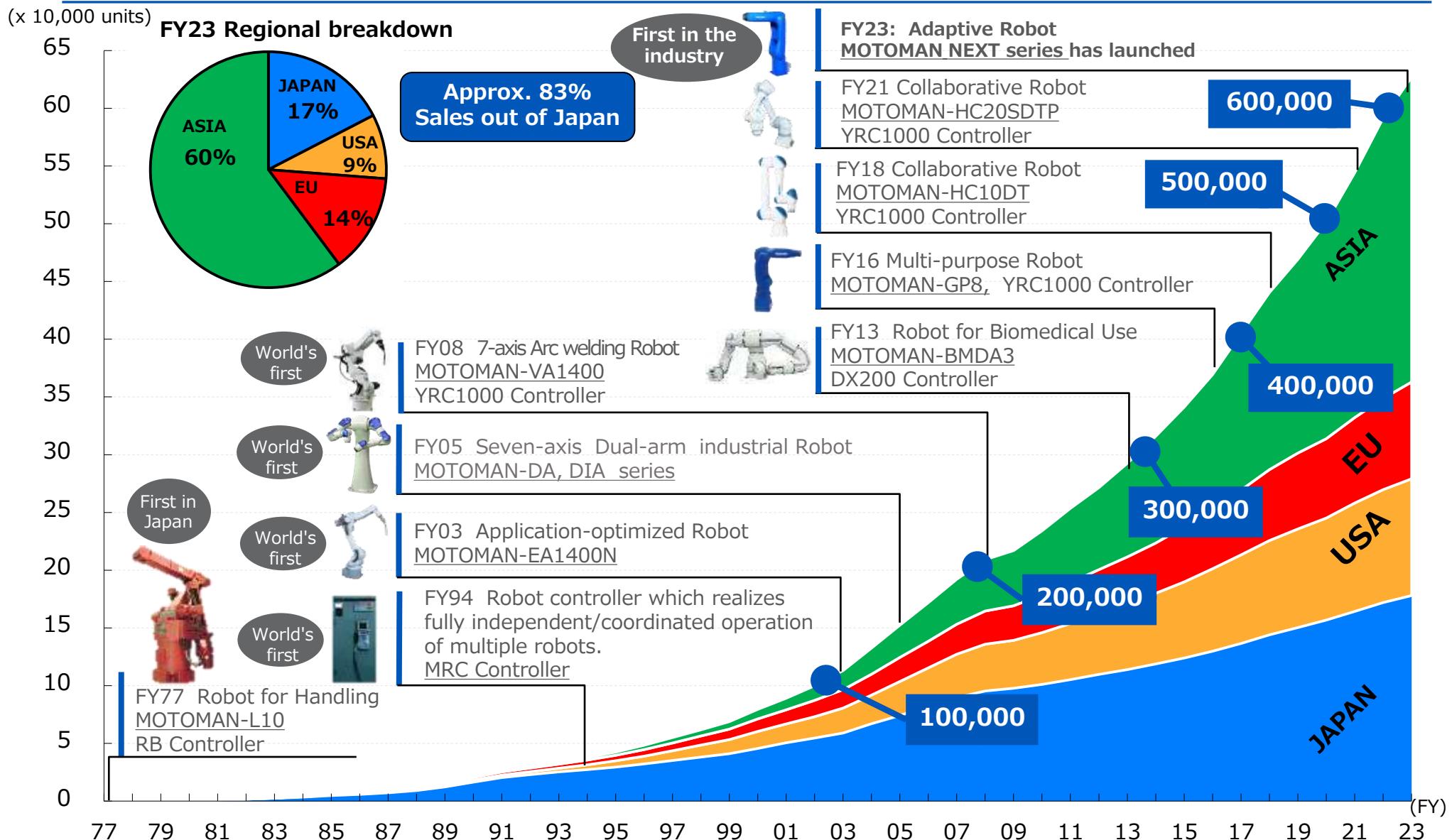
Market share



[Note] Company estimate

- Automotive-related applications
(Arc welding, spot welding, painting, etc.)
- Semiconductor and LCD related applications
- Customer service
- General / Other (3C, Handling, etc.)

Total Shipment



Yaskawa's Robots (1/4)

Arc welding

An adhesion method by melting base material. It contributes to the automation of parts processing in various industries, including

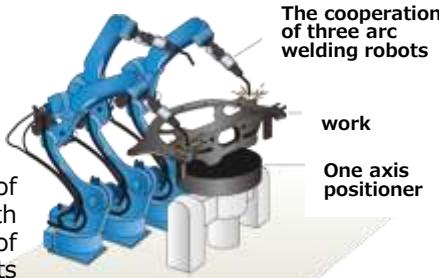
the automotive industry. It increases productivity by expanding flexibility of robot posture and speeding up operation.



AR1440



The work point of arc welding



The cooperation of three arc welding robots

work

One axis positioner

Arc welding of auto parts with the cooperation of three robots

Spot welding

A welding method in which two steel plates are crimped together, a large electric current is passed through them, and make them high temperature. It is used in automobile body joining



SP225H

Hollow arm is designed for spot rigging.

SP100B

7-axis structure enables to install in high density



Car production line
Spot welding system

Laser welding

A welding method in which metal is melted and joined by a laser beam.



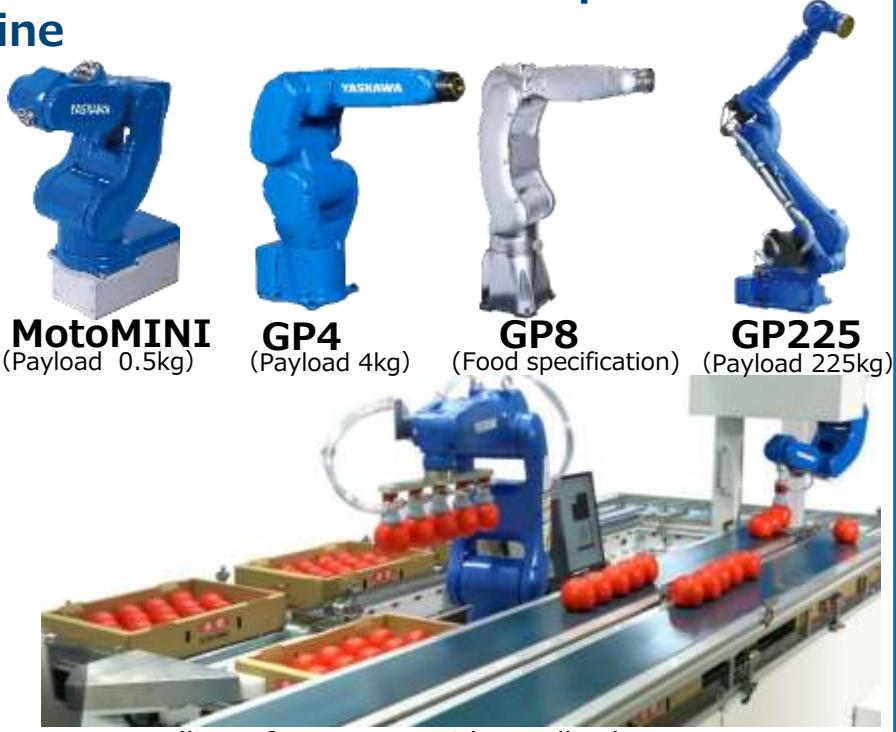
MOTOPAC-RL2D

Laser welding package

- Robot controller and laser scanner are fully synchronized.

Handling

Provide wide variation of robots (payload: 0.5 - 600kg) to contribute automation of customers' production line



Collaborative

MOTOMAN-HC series is designed to collaborate with human

Realize the cost reduction

- 1) Elimination of the safety fences by the safe structure and function.
- 2) Saving spaces because of elimination of safety fences.

Smart functionality

- 1) Robot teaching can be simplified by the direct teaching function and Smart Pendant.

Expansion of the applicable area by extensive product lineup

- 1) Dust & Drip-Proof Specifications
- 2) Food Specifications
- 3) High payload type
- 4) Hand-carry type



HC10SDTP
(Dust & Drip-Proof Specifications)



HC20DTP
(Dust & Drip-Proof Specifications)



HC10DTFP
(Food Specifications)



HC10DTP
(Hand-carry type)

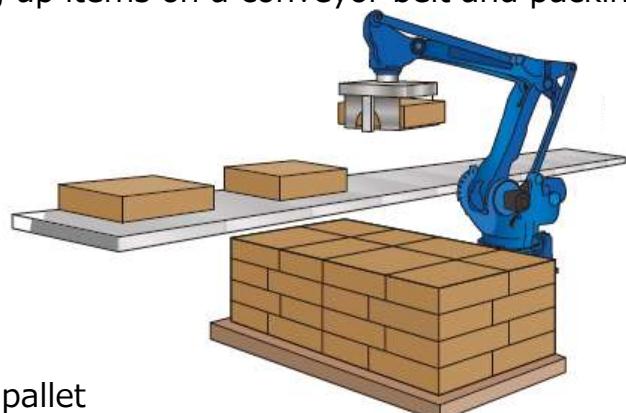
Picking•Packing•Palletizing

Contributing to automated conveyor system for food, cosmetics and pharmaceuticals



Picking • Packing

Grabbing and lining up items on a conveyor belt and packing them in boxes



Palletizing

Placing boxes on a pallet

Painting

- Installing a paint gun and painting cars and small parts
- Explosion-proof for work in an environment with flammable gases



Automobile Industry
(Painting Car Body)
MPX2600

General Industry
(For medium-size
work piece)
MPX1950



Car painting by
painting robot and
door opener robot

Bio Medical

Best for automation in Bio-Medical field which requires hygiene control

- Resolve challenges such as manual variations and errors, risk of exposure to powerful drugs, and long routine work
- Use of analytical equipment and containers used by humans



MHシリーズ

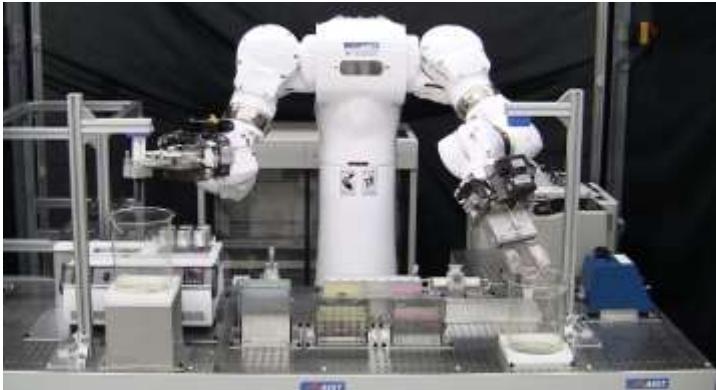
BMIA10

BMDA5

CSDA10F

Application Examples

- Bio analysis
- Drug development
- Preparation of anticancer



Clean Robot

A wide range of products to meet diverse needs

[Clean robot]

High speed and reliable clean robot for wafer transfer



MU201

M122

MU124

GEKKO
MD124D

[Vacuum robot]



VD31HDA



VD31HQF



VS22LDS

Adopting a direct-drive system that does not require a speed reducer

Surrounding equipment designed for wafer transfer

Traverse axis Pre-aligner



TL1010

PVS1130

New technologies (1/3)

Industry's first adaptive robot MOTOMAN NEXT series



Aim

Automation of "unautomated areas," where workers make judgments and do tasks, such as indefinite state, shape, and size of items, changes in work order, and interruptions.

Examples

Human-centered workplace, such as restaurant backyards



Heavy-duty workplace, such as logistics warehouses and airport unloading



Hazardous work, such as post-processing at medical sites



Features

① Autonomous control unit

An autonomous control unit is adopted to make a motion planning and perform based on the recognition and judgment process of the environment and the position data acquired from the sensor.

② Optimal motor developed in-house

An optimal motor developed in-house is adopted to enhance its capability to follow commands from the controller (minimize the difference between the commanded position and the actual position).

③ Open platform

The development environment is opened up, so customers and partners utilize their know-how and technologies for robot applications.

Optimal reducer
Arm weight
lightening

Optimal
motor

Improvement of
path precision &
absolute value
precision

high-speed signal

Features of manipulator

YASKAWA Cell Simulator

- An engineering tool that can provide total support from design to launch, to checking the operation of the entire cell, to analyzing and redesigning the operation in a digital twin.
- It can build a digital twin with high accuracy using environmental data.

Features

① Cell engineering

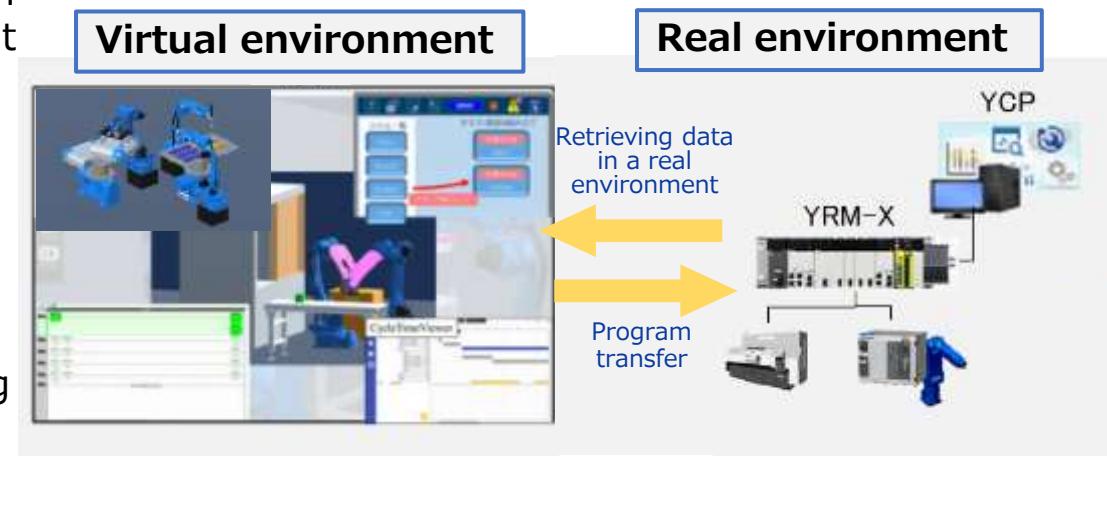
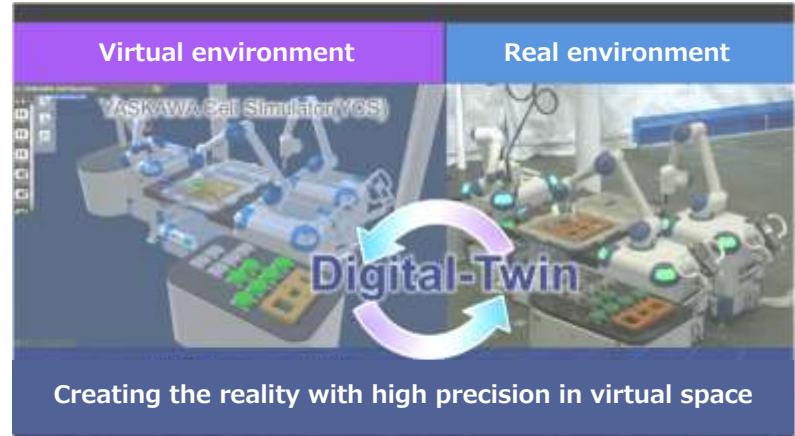
From designing to checking the operation all in one place in the virtual environment

② Cell motion analysis

Analyzing the differences between a real environment and a virtual environment.

③ Cell replanning

Performing the same work as engineering in a real environment by using data from a real environment in a virtual environment.



Food process automation

Automating solution for "labor shortage", "rising labor cost", and "countermeasures against contamination" in food industry

Automation for process required special skills

- Foreign matter contamination and sanitary
- Inline support for production



Sandwich bagging cell

Laborsaving for simple work

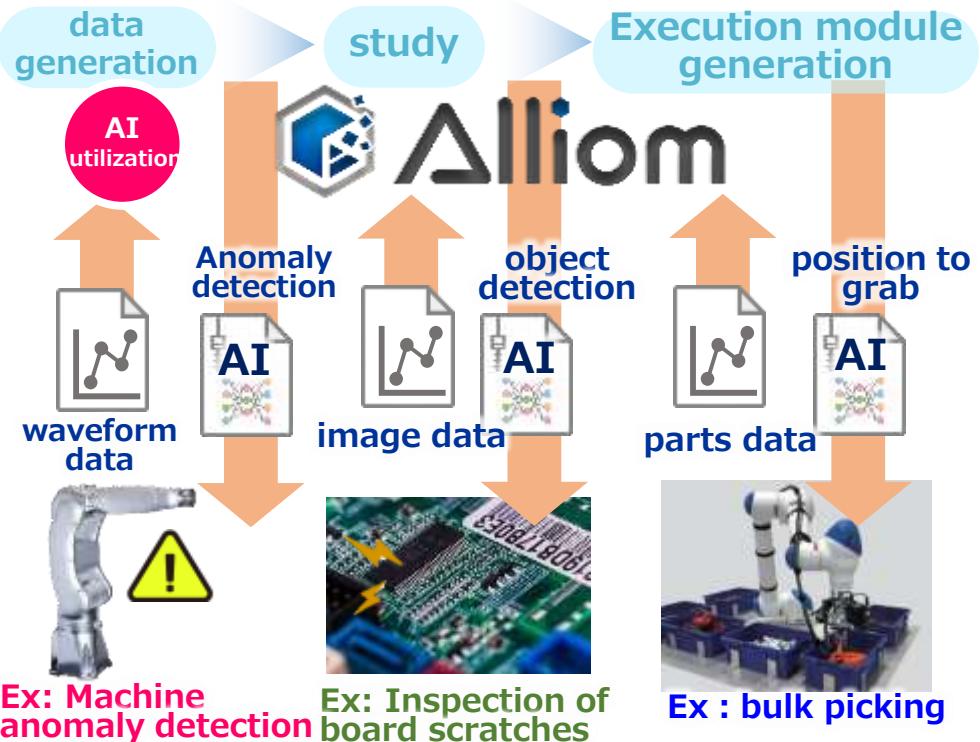
- Installation space similar to people
- Foreign matter contamination and sanitary
- Cells applicable to various processes



Topping cell

Artificial intelligence (AI)

Developing AI(Alliom) for manufacturing and industrial robots in the subsidiary, AI Cube Inc.
Expansion of automation area in the FA field



3. System Engineering

Notes :

- From FY2024, we have revised the segment classification of PV inverter to be included in Drives business. Figures for FY2023 are also presented based on the revised information.

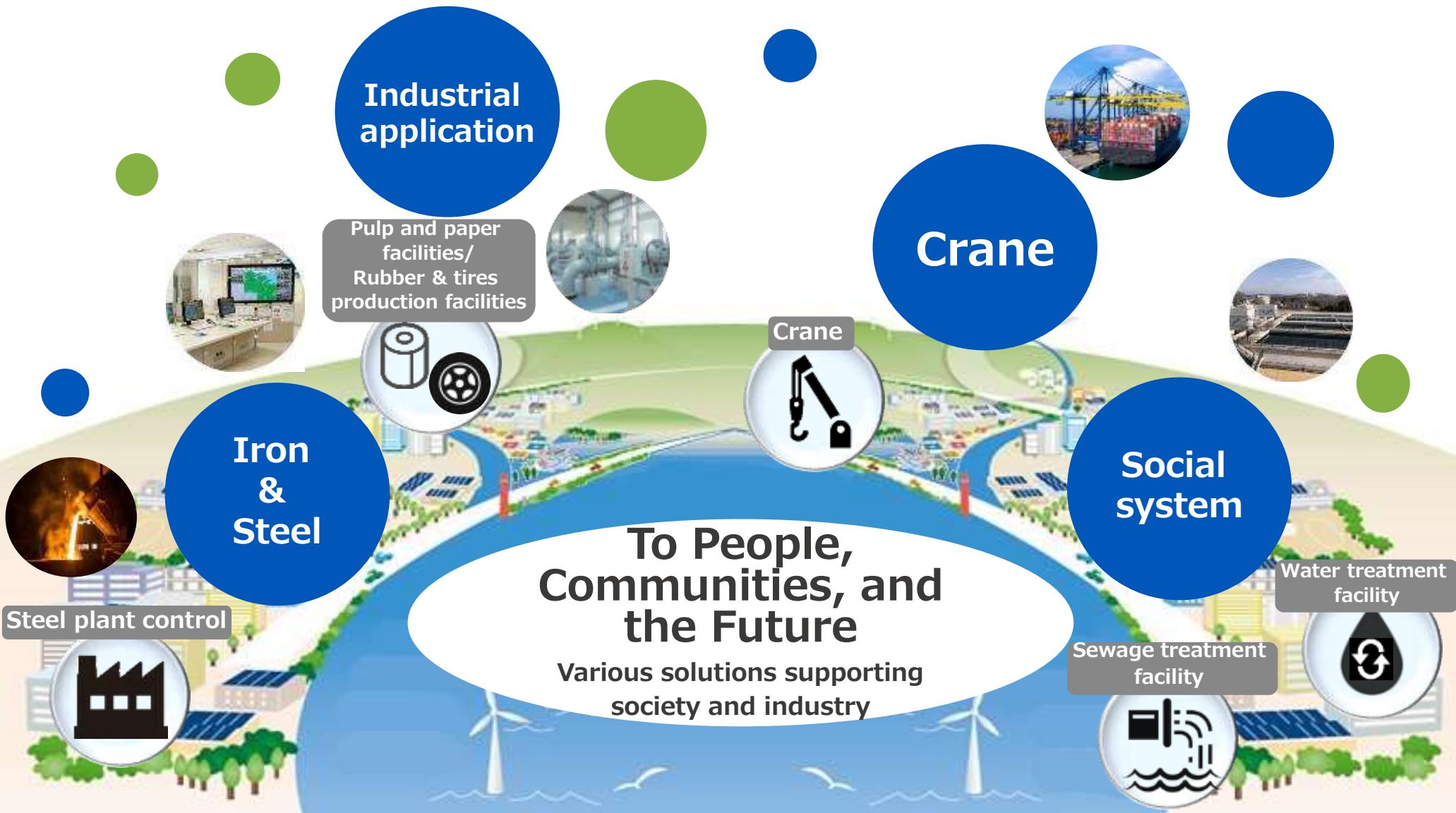


Monitoring and control of water supply and sewerage systems

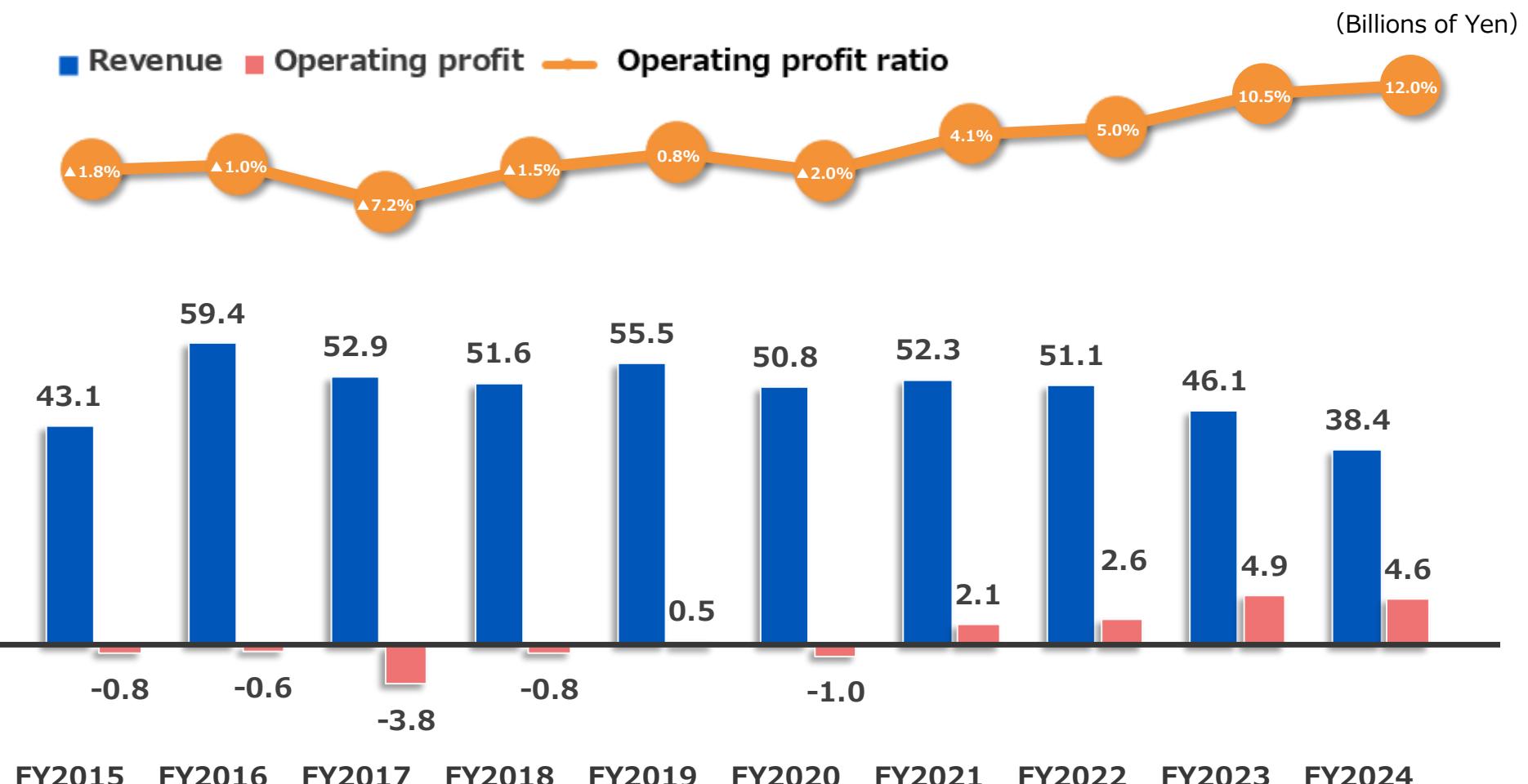


Supply of control systems and electrical products for continuous casting facilities

System engineering business



Revenue / Operating Profit (System Engineering)



Note1: Data up to FY2017 are based on Japanese GAAP.

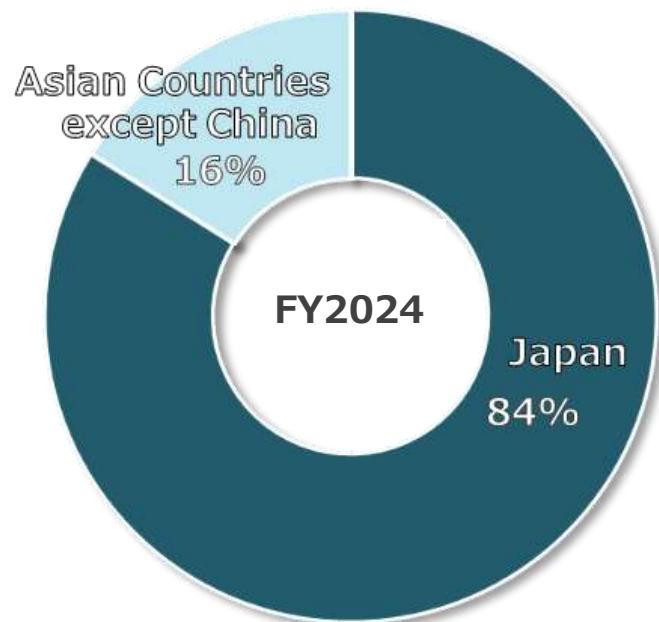
Note2: The Company changed its accounting period starting FY2017 from March 20 to the last day of February. As a transitional year for this change, FY2017 was from March 21, 2017 to February 28, 2018.

Note3: Revisions were made to the division of businesses segments starting FY2017. The PV inverter business, which was previously included in Motion Control, is included in System Engineering. Figures and profit ratios of each segment for FY2016 reflect this change. The change is not applied to figures and profit ratios for the period up until FY2015.

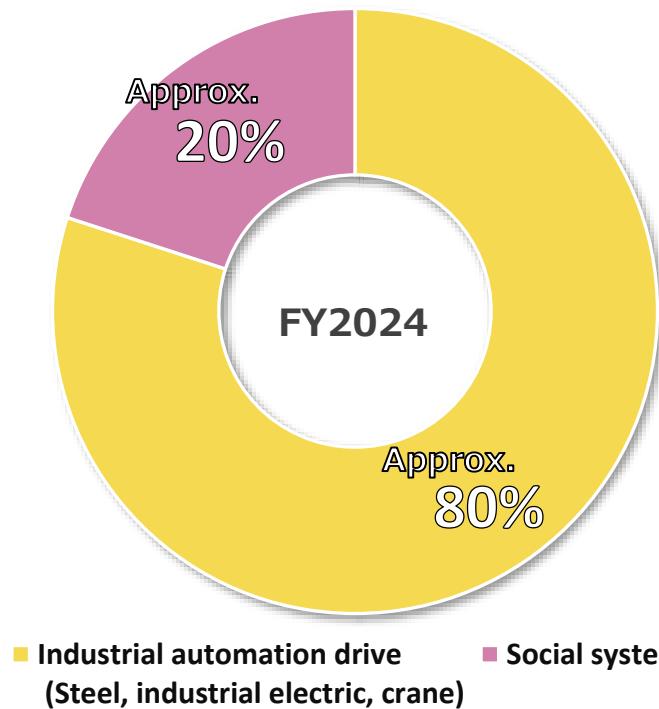
Note4: Revisions were made to the division of businesses segments starting FY2020. The high voltage AC drives, which was previously included in System Engineering, is included in Motion Control. Figures and profit ratios of each segment for FY2019 reflect this change. The change is not applied to figures and profit ratios for the period up until FY2018.

Revenue Breakdown by Region and Application, Market Share

Breakdown of revenue by region

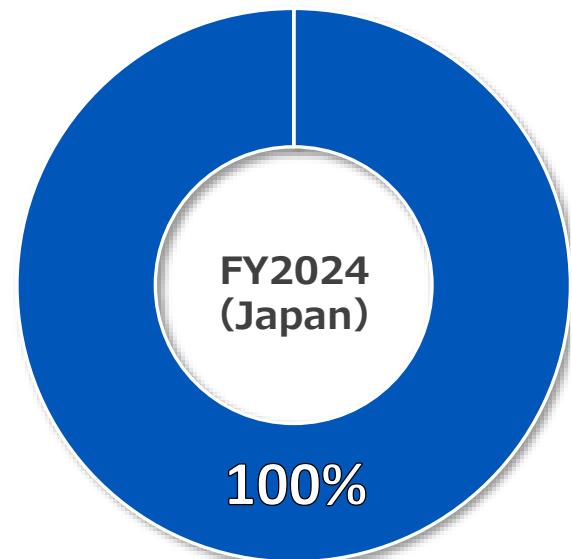


Revenue breakdown by application



Market share

Steel plant systems (Blast furnace)



[Note] Company estimate

Social system business

Yaskawa supports the advanced operating management and maintenance management of social infrastructure including water treatment plant.

Main target facilities

Waterworks Facility



Centralized Monitoring & Control Facility



Sewerage Facility



Centralized Monitoring & Control Facility



Electric products for water supply and sewerage

Monitoring control



Human Machine Interface
CP-540

Power receiving and distribution
electricity self-generation



Medium-voltage
Enclosed
Switchboard



System Controller
CP-3550

Iron & steel business

Contributing to stable continuous operation with high reliability by providing dedicated control systems and electrical equipment that meet the needs of various facilities in steel plants

Key process	Features of the equipment	Application features/Yaskawa strengths
Blast furnace	  <ul style="list-style-type: none">The process of making hot metal from iron oreStable operation and long-term continuous operation under adverse environment are required.	<ul style="list-style-type: none">① 100% share of raw material charging control in Japan② Stable production of consistent quality pig iron in response to changes in the operating environment③ High-reliability products and system redundancy enable long-term continuous operation
Continuous casting	 <ul style="list-style-type: none">Step of solidifying molten iron from a blast furnaceStable operation is essential because equipment shutdowns have a major impact on operations.	<ul style="list-style-type: none">① Domestic market share: 50% or more② System redundancy and reliability design for stable operation③ Implement backup control to prevent internal coagulation in case of trouble.
Process / cold rolling	  <ul style="list-style-type: none">Final process of steel manufacturing processContinuously process connected steel plates (Surface processing, heat treatment processing, etc.)	<ul style="list-style-type: none">① High-precision and high-function line control that makes the most of years of accumulated control technology② High-precision control of steel plate speed, tension, slack, etc. by drive system③ Large number of products delivered in Japan and overseas

Industrial application business

We contribute to the engineering in various industries, including pulp and paper, textiles, rubber and tires, film, metal processing, and plastics industries which we have a lot of experience and reliability, with our outstanding continuous drive technology.

System construction examples

Paper-making control system



Film manufacturing · machining facility control system



Equipment system for synthetic fiber, carbon fiber, and synthetic leather



YASKAWA