

At a Glance

The Yaskawa Group deploys the technology and knowhow of the highest global standards to its products and services through business activities in the three core business segments of Motion Control, Robotics and System Engineering.

Business Overview

MOTION CONTROL

- AC servo & controller business

AC servo motors are incorporated in production equipment for electronic parts, semiconductor products, etc., that require high precision.



AC servo Σ -7series and machine controller MP3300

MOTION CONTROL

- Drives business

AC drives are used in social infrastructure, such as HVAC, escalators and elevators, and contribute to energy-saving.



Yaskawa AC drive new series



Matrix converter U1000



PM motor

ROBOTICS

- Arc and spot welding robots
- Painting robots
- Handling robots
- Clean/vacuum transfer robots for semiconductor and LCD manufacturing equipment

Our main product is vertical articulated robots, which contribute to automation of welding, painting, assembly and transportation at production sites in various fields, mainly in the automotive market.



Robot controller YRC1000



Arc-welding robot MOTOMAN-AR1730



Collaborative robot MOTOMAN-HC20DT

SYSTEM ENGINEERING

- Steel plant business
- Social system business
- Environment & energy business
- Industrial electronics business

Our advanced technological capabilities in system engineering and electrical products contribute to the automation and stable operation of steel plants, water treatment plants and large crane equipment, and to the expansion of the use of renewable energy in environmental energy markets such as photovoltaic power generation and large-scale wind power generation.



Generator and converter for large-scale wind turbines



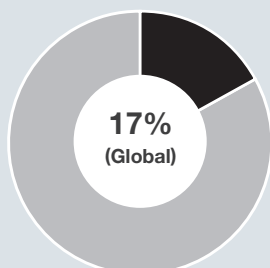
Medium-voltage matrix converter



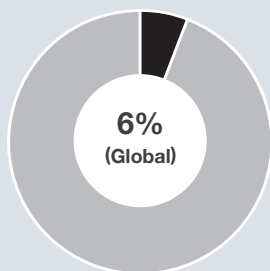
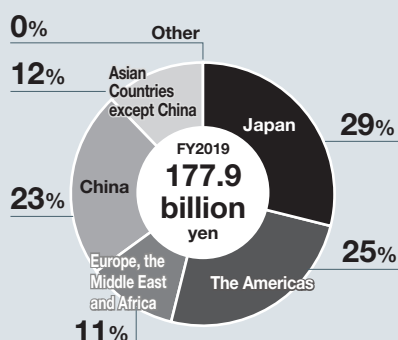
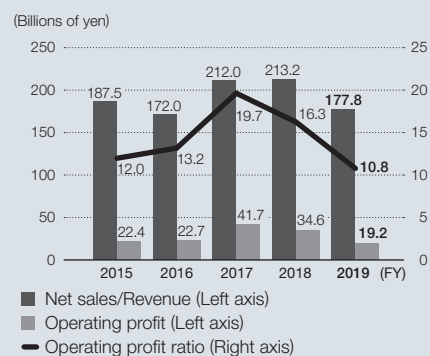
PV inverter

Market Share
(Company estimate)

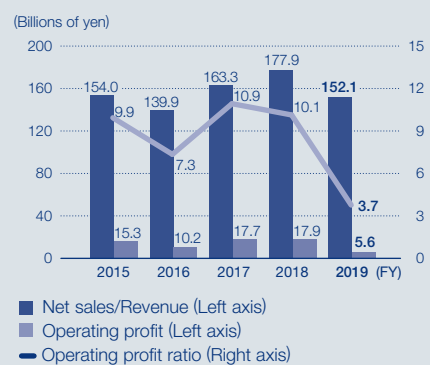
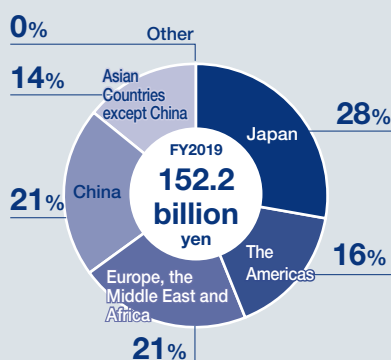
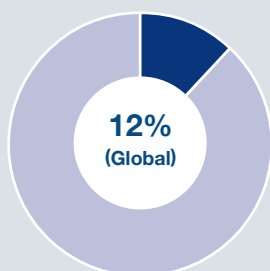
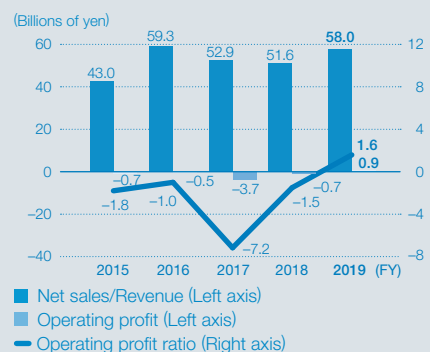
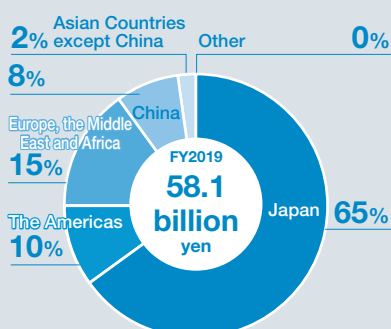
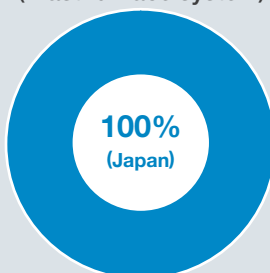
AC servo drives



AC drives

Breakdown of Revenue by
Region in FY 2019Net Sales/Revenue, Operating Profit,
Operating Profit Ratio*

Industrial robot

Steel plant facilities
(Blast furnace system)

* Results up to FY 2017 are based on Japanese GAAP, and results after FY 2018 are based on International Financial Reporting Standards (IFRS).

MOTION CONTROL

• AC Servo & Controller Business

Enhancing machine performance as major components incorporated in production equipment



SWOT Analysis of Business

Strengths:

Strengths of Our Business and Differentiation

- Developed the world's first "minertia motor" which is the prototype of the current servo motor in 1958
⇒ World-class performance and quality
⇒ Brand value as global No.1 market share
- Hold strong relationships of trust with leading companies in various manufacturing equipment
⇒ Contributing to the advancement and performance of machines through the pursuit of leading-edge technologies

Opportunities:

Business Opportunities

- Growing demand for industrial automation
- Industry sophistication, including 5G, IoT, and self-driving

Weaknesses:

Challenges

- Speed-up of the process from development to mass production
- Reinforcement of production response to rapid changes in demand
- Evolution from component sales to sales of integrated solutions

Threats:

Business Risks

- Supply chain disruptions associated with geopolitical risks
- Pricing strategies by manufacturers in emerging countries
- Response to new product launches by other companies
- Emergence of an actuator that can surpass the motor in performance and have the potential to replace the motor

"Challenge 25" (2019 – 2021) Goals

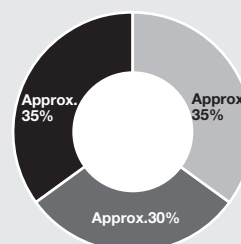
We will further advance our solutions capabilities through "i³-Mechatronics" and expand our components to respond to changes in the production systems. We will also build a highly profitable business structure and establish ourselves as the global No.1 leading company.

Progress on the "Challenge 25"

Financial Targets*	Progress of Measures	FY2019 Results*
Revenue: 240.0 B.JPY Operating profit: 43.4 B.JPY Operating profit ratio: 18.1%	Development: <ul style="list-style-type: none"> • Began development of strategic products to realize "i³-Mechatronics" Production: <ul style="list-style-type: none"> • Systematic expansion of models produced by the method of YASKAWA Solution Factory Sales: <ul style="list-style-type: none"> • Restructured the organizational structure to enhance customer service • Strengthened relationships with customers and create sales opportunities through top sales activities Improved profitability: <ul style="list-style-type: none"> • Improved productivity of indirect operations by applying the latest production methods 	Revenue: 177.8 B.JPY Operating profit: 19.2 B.JPY Operating profit ratio: 10.8% <ul style="list-style-type: none"> • Revenue decreased due to U.S.-China trade friction and the outbreak of a new coronavirus although semiconductor-related demand is recovering. • Profit decreased due to the impact of a decline in utilization rate from revenue decline and inventory cut-backs amid sluggish demand.

* Motion Control Segment

Revenue Breakdown
by Application
(FY2019 Results)



- 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.)

Global Market Outlook for AC Servo (Company estimation)

Estimated market size in FY2021

**Approx.
870 billion yen**

Average annual market growth
for 2018 – 2021 (CAGR)

2.4%

MOTION CONTROL

• AC Drive Business

Contributing to sustainable development of society and industry by realizing energy-saving and higher performance of machinery through optimum motor control



SWOT Analysis of Business

Strengths:

Strengths of Our Business and Differentiation

- Power electronics technology and high-efficiency motor technology that lead in energy-saving performance
- Control and sensing technologies based on motor drive cultivated over many years
- Knowledge of machinery and equipment founded on system engineering
- Worldwide sales and service bases, development centers, and production plants

Opportunities:

Business Opportunities

- Expansion of infrastructure investment
- Continual expansion of energy conservation needs
- Accelerate factory automation including 5G and IoT
- Enhancing the performance of industrial equipment through AI, etc.
- Rise of market in emerging countries

Weaknesses:

Challenges

- Improvement of development speed including new technologies
- Improvement in cost competitiveness
- External procurement of main parts

Threats:

Business Risks

- Intensification of cost competition due to the rise of emerging manufacturers and the self-manufacture of drive products by some customers
- Parts procurement risk due to factors such as rapid growth in the 5G and EV sectors
- Impact of falling crude oil prices on investment in oil and gas-related facilities

“Challenge 25” (2019 – 2021) Goals

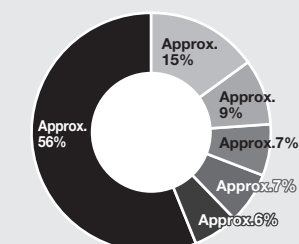
With an aim of achieving a 10% market share, we expand drive applications (General machinery, oil and gas, elevators, cranes, etc.) steadily and establish a foundation for expanding market share in energy-saving applications. (HVAC, fans, pumps, etc.)

Progress on the “Challenge 25”

Financial Targets*	Progress of Measures	FY2019 Results*
Revenue: 240.0 B.JPY Operating profit: 43.4 B.JPY Operating profit ratio: 18.1%	Development: <ul style="list-style-type: none"> • Began development of new application-specific AC drive and high-capacity AC drive Production: <ul style="list-style-type: none"> • Established a high-efficiency production system through the introduction of a new production system Sales: <ul style="list-style-type: none"> • Strengthened systems to identify potential needs together with customers • Strengthened development of energy-saving markets, particularly in Asia Improved profitability: <ul style="list-style-type: none"> • Increased productivity and profitability by launching new products globally 	Revenue: 177.8 B.JPY Operating profit: 19.2 B.JPY Operating profit ratio: 10.8% <ul style="list-style-type: none"> • Although oil & gas-related demand in the U.S. was firm in the first half of the fiscal year, revenue were sluggish due to weak demand for capital investment mainly in China and other Asian countries.

* Motion Control Segment

Sales Breakdown
by Application
(FY2019 Results)



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

Global Market Outlook for AC Drive (Company estimation)

Estimated market size in FY2021

**Approx.
1.35 trillion yen**

Average annual market growth
for 2018 – 2021 (CAGR)

1.6%

ROBOTICS

Answering expanding automation needs of production sites to open up new opportunities of use



SWOT Analysis of Business

Strengths:

Strengths of Our Business and Differentiation

- Developed Japan's first all-electric articulated robot in 1977
⇒ Respond to diversified automation needs with the world's broadest product lineup
⇒ Hold top-class global market share
- The servo motor, which is the most important factor for the performance of the robot, is manufactured in-house.
⇒ Securing competitive advantage by improving robot performance and reducing production costs

Weaknesses:

Challenges

- Improving the speed of product development as the basis for realizing the "i³-Mechatronics" concept
- Establishing and expanding sales channels of collaborative robots
- Strengthening production capability when demand is rapidly increasing

Opportunities:

Business Opportunities

- Expanded demand for labor saving and automation in general industries
- Manufacturing innovation in the automobile industry
- Enhancement of production through IoT

Threats:

Business Risks

- Decline in demand for capital investment due to geopolitical risks
- Excessive expectations for market growth
- Rise of emerging manufacturers

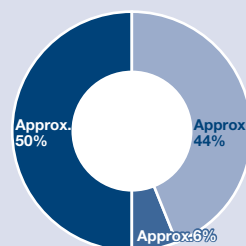
"Challenge 25" (2019 – 2021) Goals

Achieving growth that exceeds the growth of the robot market

Progress on the "Challenge 25"

Financial Targets	Progress of Measures	FY2019 Results
Revenue: 210.0 B.JPY Operating profit: 27.3 B.JPY Operating profit ratio: 13.0%	Development: <ul style="list-style-type: none"> • Based on the "i³-Mechatronics" concept, we developed products with the aim of realizing "Autonomous and decentralized manufacturing driven by data" (Autonomous robots, digital twins, etc.). • Expanded lineup of collaborative robots (Dust-proof, drip-proof specifications, for food, high payload) • Expanded lineup of robots for general industry (SCARA robot, palletizing robots) Production: <ul style="list-style-type: none"> • Plant in Slovenia began full-scale mass production Sales: <ul style="list-style-type: none"> • Created sales opportunities and won new orders by promoting the "i³-Mechatronics" concept. Improved profitability: <ul style="list-style-type: none"> • Continuous improvement in production and sales profitability due to the effect of switching of models • Improvement of added value through production automation 	Revenue: 152.1 B.JPY Operating profit: 5.6 B.JPY Operating profit ratio: 3.7% <ul style="list-style-type: none"> • Sales declined due to U.S.-China trade friction and the impact of the outbreak of new coronavirus. • Sales of automobile-related products were firm in Japan, while overseas sales slowed due to restrained capital investment. • In the general industrial sector, automation investment continued to lack momentum, particularly in China. • Profit decreased due to the impact of a decline in utilization rate from revenue decline and inventory cutbacks.

Sales Breakdown by Application (FY2019 Results)



- Automotive-related applications (arc welding, spot welding, painting, etc.)
- Semiconductors- and LCDs-related applications
- General / Other (handling, etc.)

Global Market Outlook for Industrial Robots (Company estimation)

Estimated market size in FY2021

Approx.
1.26 trillion yen

Average annual market growth for 2018 – 2021 (CAGR)

3.0%

SYSTEM ENGINEERING



Supporting prosperous life and society through technologies and proven performance accumulated over a century

SWOT Analysis of Business

Strengths:

Strengths of Our Business and Differentiation

- Power conversion technology and automation/remote technology for energy saving and high efficiency
- Reliable technological and customer service capabilities that can meet the needs for PV inverters and electrical products for large-scale wind power generation in the diversifying renewable energy market, as well as a rich record of delivery
- Achievements in the field of electric systems for water supply and sewage and system technology development capabilities
- 100% domestic share of systems for blast furnaces in steel plants
- Share higher than 50% in port crane market in Japan, China and Southeast Asia
- Top-class share in Japan in the industrial electric business including film, textiles, and paper machinery

Weaknesses:

Challenges

- Improvement in cost competitiveness
- Improvement in product development speed
- Creation of Business Synergies

Opportunities:

Business Opportunities

- Growing momentum for renewable energy utilization and market expansion
- Expansion of the wind power market from Europe and America to Asia
- Demand for labor-saving and efficient electrical systems for steel plants and water and sewage systems using IoT, AI, robots, etc.
- Increase in the investment for production of new materials for EVs
- Full automation and remote operation of harbor cranes

Threats:

Business Risks

- Oligopolization of wind turbine manufacturers and in-house production
- Modification of feed-in tariffs and grid interconnection regulations for renewable energy
- Reduction of added value by in-house engineering for customers
- Intensifying cost competition
- Decline in infrastructure investment in Japan

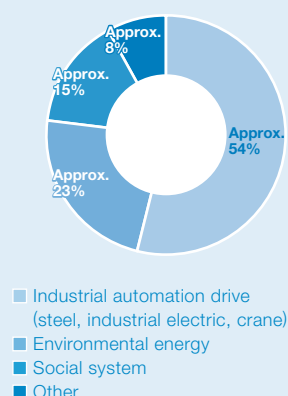
“Challenge 25” (2019 – 2021) Goals

Achieve stable earnings by strengthening profitability in the environmental energy businesses and pursuing high profitability in the social systems and industrial automation drive businesses

Progress on the “Challenge 25”

Financial Targets	Progress of Measures	FY2019 Results
Revenue: 60.0 B.JPY Operating profit: 1.8 B.JPY Operating profit ratio: 3.0%	Development: <ul style="list-style-type: none"> • Development of PV inverter “XGI 1500” for U.S. market and domestic release • Promotion of miniaturization of induction motors and development of large-capacity drive panels and integrated controllers Production: <ul style="list-style-type: none"> • Construction of test facilities for next-generation large generators for wind power generation • Centralized product development, engineering, and production of industrial drive system equipment and motors Sales: <ul style="list-style-type: none"> • Continued orders for large-scale wind power projects • Implementation and examination of value-added proposals for social systems, steel, industrial electric, and cranes Improved profitability: <ul style="list-style-type: none"> • Reorganization of the U.S. solar business • Withdrawing from unprofitable areas and strengthening approaches to high-profit markets 	Revenue: 58.0 B.JPY Operating profit: 0.9 B.JPY Operating profit ratio: 1.6% <ul style="list-style-type: none"> • While domestic sales of steel plant-related products and electric systems for water supply and sewerage remained firm, sales in the environmental energy field, including solar and large-scale wind power generation, declined. • Overall segment sales increased due to the impact of new consolidation, and profit returned to profitability through structural reforms, etc.

Sales Breakdown by Business
(FY2019 Results)



Global Market Outlook (Company estimation)

Estimated market size in FY2021

Generator and converter for offshore wind power generation:

**Approx.
95 billion yen**

Three-phase distributed PV inverter:

**Approx.
400 billion yen**

Industrial automation drives
(Yaskawa's served market):

**Approx.
200 billion yen**

Average annual market growth
for 2016-2040 (CAGR)

Wind power
6.0%

Solar power
10.3%

Industrial automation drives
1.0 ~ 3.0%