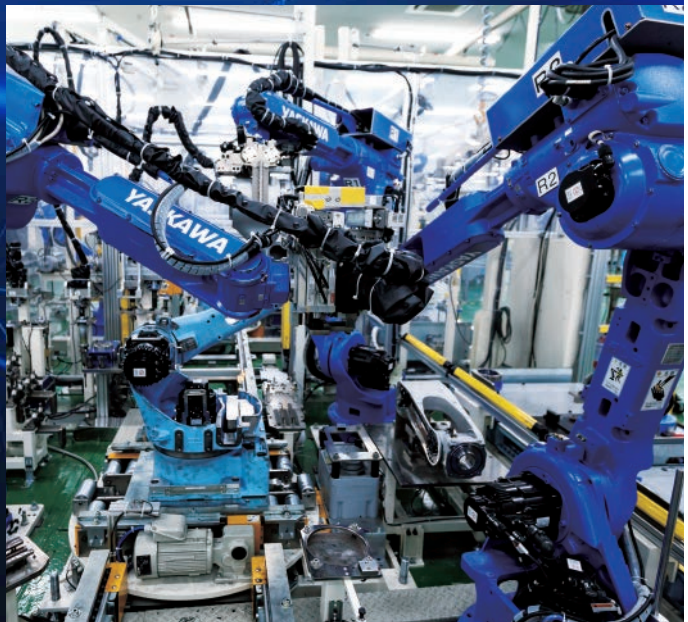
Toward the Realization of the Automation Revolution

Since its establishment in 1915, Yaskawa Electric has defined “Motors and their applications” as its business domain, and has always supported the cutting-edge industries of the age with its products and technologies.

Based on the business policies and memorandum of our founder, Mr. Daigoro Yasukawa, Yaskawa Group’s management principle has a mission to “Contributing to the development of society and the welfare of humankind through business operations” with focus on quality, profitability and market orientation. This mission has been firmly passed down to the present and rooted in the organization.

Today, the business environment of the Yaskawa Group is undergoing dramatic changes, including changes in the global population structure, environmental problems caused by increased energy consumption, and changes in production sites due to the rapid evolution of information and communications technology.

Based on the management principle, we will utilize our core technologies to contribute to the resolution of clients’ management issues while creating new added value for society, and thereby achieve sustainable growth.



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Cover Explanation

The manufacturing base for AC servo, "YASKAWA Solution Factory" in Iruma City, Saitama Prefecture, began operations in FY2018 to create new value at manufacturing sites. We have applied solutions that combine the latest IT technologies with motion control technologies we have cultivated over many years to our production sites to realize the evolution of manufacturing.

Our History

Since its establishment, Yaskawa Electric has held its mission of being “a company founded on technology” in order to undertake the business by its own technologies and continued to make challenges into the latest technology of the times. In 1969, Yaskawa led the world in putting forward the concept “mechatronics” combining mechanism and electronics. In 1970s, Yaskawa shaped an idea of “unmanned factories” which are automated plants where human and machines coexist. And Yaskawa has begun the full utilization of digital data and announced the concept “i³-Mechatronics*” (i cube Mechatronics) for creating new value at manufacturing sites in 2017. In 2018, YASKAWA Solution Factory was established to realize the unmanned factory which had been planned for a long time.
Yaskawa Group continues to take on challenges for realizing new industrial automation revolution.

* Yaskawa’s solution concept for realizing a new industrial automation revolution

1915
Founding

Three-phase induction motor
Yaskawa’s first commercial product

The first VS motor 5HP
Variable speed motor

Minertia motor
A motor that became the basis for the servo motor available today.
A revolutionary product that had a response rate 100 times greater than conventional motors.

Promoter
Keiichiro Yasukawa

Keiichiro Yasukawa, the promoter of Yaskawa absorbed new knowledge and philosophies from the West. He engaged himself in mining, later expanding his business to spinning, steel, railway and banking. He personally funded the opening of Meiji College of Technology, a vocational school for training engineers. The school later became Kyushu Institute of Technology, and continues to produce numerous engineers to this day.

Founder
Daigoro Yasukawa

Electric motors were starting to advance into all industrial segments as replacements for steam engine at the beginning of the Taisho period. Daigoro Yasukawa, the fifth son of Keiichiro, was among those who learned the fundamentals of such leading-edge technology. In 1915, with his father promising “to provide financial support, but not interfere with the way you run the business”, Daigoro founded our predecessor, Yaskawa Electric Manufacturing Co. The company started its business by manufacturing electric motors for mining, where the imported products dominated and domestically produced motors were scarce. Daigoro wished to contribute to the nation by exporting domestically produced motors to overseas as “motivation of establishment”, and aimed at undertaking the business with the company’s own technologies, not by copying the leading Western products.

Motion Control

Electric Motors and their Applications

Evolution of Products and Technologies

1917 Commercialized “three-phase induction motor”
1927 Commercialized “super synchronous motor”
1928 Commercialized “three-phase induction motor with ball bearings”
1953 Commercialized the first VS motor
1958 Invented the “minertia motor” DC servo motor
1968 Developed automation equipment “MOTO-FINGER”, “MOTO-ARM” and “MOTO-HAND”

1915-
Startup period

1950-
Motor manufacturer

Developments in Management

- Focusing business on electric motors and their applications
- Focusing on motors as hardware and intelligence as software to control motors

- Aiming for mechanical automation by leveraging advancements in control technology
- Establishment of Yaskawa’s first overseas subsidiary YASKAWA Electric America, Inc. (1967)
- Proposed concept of “Mechatronics” ahead of the world (1969)

Development of society and industry

Coal mining equipment shifted from steam engines to electricity (motor)

Energy shifted from coal to oil and the heavy and chemical industries developed

Development of DNA (corporate culture)

Company founded on technology

Pursuing customer satisfaction

Quality-oriented

FY1981 Annual sales exceeded **100** billion JPY

FY2014 Annual sales exceeded **400** billion JPY

FY2015 Centenary

Japan's first all-electric vertical articulated industrial robot

MOTOMAN-L10

World's first transistor AC drive

VS-616T

World's first general-purpose vector control AC drive

VS-616G5

World's first multiple robot cooperative control

MOTOMAN-UP6

World's first dual-arm industrial robot for volume production

MOTOMAN-DA20

World's first matrix converter

Varispeed AC

MotoMINI The smallest and lightest robot in industry

Robotics

Power Conversion

Σ series World's smallest and lightest

World's first GaN power semiconductor equipped

servo motor with built-in amplifier

1974 Commercialized general-purpose transistor AC drive "VS -616 T"
1977 Commercialized "MOTOMAN-L10" all-electric vertical articulated industrial robot
1992 Commercialized "Σ series" AC servo drives
1995 Commercialized "VS-616G5" vector control AC drive
1998 Commercialized "MOTOMAN-UP6"
2005 Commercialized new generation robot (dual-arm and 7-axis)
2005 Commercialized matrix converter "Varispeed AC"
2017 Commercialized servo motor with built-in amplifier
2017 Commercialized collaborative robot MOTOMAN-HC10

1970–
Automation provider

- Announced the concept of "unmanned factory", automated plant with support of machines (1970)
- Aggressively devoted management resources into the rapidly growing mechatronics market; unveiling new products back-to-back
- YASKAWA Electric Europe GmbH established (1980)

1990–
Mechatronics promoter

- Changed the company name from YASKAWA Electric Manufacturing Co., Ltd. to YASKAWA Electric Corporation on the occasion of 75th anniversary (1991)
- YASKAWA Electric (Singapore) PTE. LTD. established (1991)
- YASKAWA Electric Korea Corporation established (1994)
- YASKAWA Electric (Shanghai) CO., LTD. established (1999)

2005–
Total solution provider

- Launch of "i³-Mechatronics", a new solution concept (2017)
- Established YASKAWA Solution Factory to realize "unmanned factory" (2018)

Expansion of mass production-oriented manufacturing of automobiles, home appliances, etc. due to Japan's high economic growth

Popularization of personal computers and progress in computerization

Spread of the Internet and smartphones

Transition to a data-driven society through the use of IoT and AI

Mechatronics as a forward-looking business concept

Policy management

Glocal management

Our Identity

Since its founding, Yaskawa Electric has continued to pursue the latest technologies and supported the development of cutting-edge industries in each era, and has achieved growth over the past 100 years.
Although there have been many difficulties since our founding, we have become a company that is active on a global scale as a result of the wisdom of the people in each era and the bold challenges they have made without fear of failure. The six DNAs that Yaskawa Group has developed over the years — (1) a company founded on technology, (2) pursuing customer satisfaction, (3) quality-oriented, (4) mechatronics as a forward-looking business concept, (5) policy management, and (6) *glocal* management — have become important corporate cultures that serve as the Group's strengths today.

Six DNAs

that have been nurtured since our founding (Corporate Culture)

1. A company founded on technology
2. Pursuing customer satisfaction
3. Quality-oriented
4. Mechatronics as a forward-looking business concept
5. Policy management
6. *Glocal* management

Strength

- R&D focused on the world's first and best technologies
- Customers' trust
- Ability to transform
- Ability to execute business
- Global management rooted in local communities

i³-Mechatronics

New value with "i cube", digital data solution

Integrated
Intelligent
Innovative

"i³-Mechatronics" is Yaskawa Group's solution concept in "Vision 2025".

By implementing the three "i"s for problem solving in the order of "integrated", "intelligent", followed by "innovative", we aim at achieving total optimization.

We solve problems by comprehensively visualizing (integrated) and analyzing/learning (intelligent) customer's production site data. Then, we will realize automation revolution (innovative) in manufacturing.

We will also implement "i³-Mechatronics" within Yaskawa Group and achieve "digital transformation (YDX)" while advancing manufacturing.

Business Model Transformation

Maximizing value creation through the strengths based on the six DNAs

Advances in information and communications technology are rapidly evolving the world into a data-driven society. Collecting, correlating, analyzing and utilizing large amounts of data is becoming the basis of social development.

Yaskawa Group has adopted "i³-Mechatronics (i cube mechatronics)" as its vision for a new form of factory automation, and is building on its corporate culture cultivated thus far to lead the evolution of manufacturing in a data-driven society through the use of IoT and AI. In addition, we will pursue balanced ESG management and open a new era, aiming to be a company that can further contribute to "Sustainable Development Goals (SDGs)".

Global Network

The DNA of Yaskawa Group's "*Glocal* management" is based not only on globally-minded management, but also on the ability to respond locally in the best way possible with roots in local communities anywhere in the world. Currently, we have business bases in 30 countries and regions around the world. We provide strong support for our customers' global businesses through area-oriented and fine-tuned operations.

Europe

Germany
- YASKAWA EUROPE GmbH
- VIPA GmbH

Sweden
- YASKAWA NORDIC AB

U.K.
- YASKAWA ELECTRIC UK LTD.
- YASKAWA UK LTD.

Italy
- YASKAWA ITALIA S.R.L

France
- YASKAWA FRANCE SARL

Spain
- YASKAWA IBERICA S.L.

Finland
- YASKAWA FINLAND OY
- THE SWITCH ENGINEERING OY

Norway
- THE SWITCH MARINE DRIVE NORWAY AS

Netherlands
- YASKAWA BENELUX BV

Slovenia
- YASKAWA EUROPE ROBOTICS D.O.O
- YASKAWA SLOVENIJA D.O.O.
- YASKAWA RISTRO D.O.O.

Czech Republic
- YASKAWA CZECH S.R.O

Poland
- YASKAWA POLSKA SP. ZO. O.

YASKAWA EUROPE GmbH

Middle East & Africa

Israel
- YASKAWA EUROPE TECHNOLOGY LTD.

Turkey
- YASKAWA TURKEY ELEKTRIK TICARET LTD. STI.

South Africa
- YASKAWA SOUTHERN AFRICA (PTY) LTD.

North America

U.S.A.
- YASKAWA AMERICA, INC.
- SOLECTRIA RENEWABLES, LLC

Canada
- YASKAWA CANADA INC.

Mexico
- YASKAWA MEXICO S.A. DE C.V.

YASKAWA AMERICA, Inc.

Japan

- YASKAWA ELECTRIC CORPORATION (Headquarters)

South America

Brazil
- YASKAWA ELETRICO DO BRASIL LTDA.
- MOTOMAN ROBOTICA DO BRASIL, LTDA.

Asia-Pacific

China
- YASKAWA ELECTRIC (CHINA) CO., LTD.
- SHANGHAI YASKAWA DRIVE CO., LTD.
- YASKAWA TSUSHO(SHANGHAI)CO., LTD.
- YASKAWA ELECTRIC (SHENYANG) CO., LTD.
- YASKAWA SHOUGANG ROBOT CO., LTD.
- YASKAWA (CHINA) ROBOTICS CO., LTD.

Korea
- YASKAWA ELECTRIC KOREA CORPORATION

Taiwan
- YASKAWA ELECTRIC TAIWAN CORPORATION

Singapore
- YASKAWA ASIA PACIFIC PTE. LTD.

Thailand
- YASKAWA ELECTRIC (THAILAND) CO., LTD.

Indonesia
- PT. YASKAWA ELECTRIC INDONESIA

India
- YASKAWA INDIA PRIVATE LIMITED

Vietnam
- YASKAWA ELECTRIC VIETNAM CO., LTD.

Malaysia
- YASKAWA MALAYSIA SDN. BHD.

Creating Social Value

Under the slogan, “Contributing to the development of society and the welfare of humankind through business operations” the Yaskawa Group has pursued a variety of initiatives aimed at realizing management principle. In our long-term business plan “Vision 2025”, we have identified five areas in which we aim to create social value through our business, and are working to achieve these goals. By leveraging our unique strengths and further promoting the implementation of management principle, we will contribute to “Sustainable Development Goals (SDGs)” social issues that need to be addressed on a global scale, and aim to realize a prosperous future.

1 Freedom from 3D labor through automation

One of the motivations for Yaskawa to develop robots was to improve the 3D* workplace. By eliminating 3D labor through the effective use of robots and factory automation and optimization, we will create a rewarding workplace for people.

* Dirty, dangerous and demeaning, a word for harsh working conditions

2 Energy conservation and reduction of environmental impact

Motors are used in a variety of equipment and are said to account for more than 50% of the world’s electricity consumption. Robots, production equipment, fans and other factory equipment are also driven by motors, and these improvements in efficiency directly contribute to energy conservation at production sites. AC drive also realizes energy conservation by controlling the rotations of motors and preventing excessive operation of the machine.

3 Increased use of renewable energy

As a response to climate change, which is a global issue, renewable energy sources such as solar and wind power, which do not emit greenhouse gases when generating electricity, are becoming increasingly widespread. Yaskawa Group supports the expansion of the use of renewable energy by providing PV inverters for photovoltaic power generation, and generators and converters for large-scale wind power generation.

4 Stable food supply by vegetable factories

In Japan, food sustainability has become an issue due to a decrease in the number of people engaged in agriculture, a decrease in the self-sufficiency rate of food, the impact of abnormal weather on harvesting, the explosive population growth mainly in developing regions, desertification, and soil pollution caused by agricultural chemicals. Yaskawa Group's vegetable factories that use automated technology can stably produce safe, chemical-free vegetables, contributing to a secure and stable supply of food.

5 Contribution to the medical and welfare fields

With the advent of a super-aging society, there is a labor shortage in medical and welfare fields, and the application of robotics technology is expected. Yaskawa aims to create a market for advanced medical and welfare equipment by applying robot technology cultivated in the industrial automation market to the medical and welfare fields and utilizing open innovation such as alliances and industry-academia-government collaboration.

Value Creation

Yaskawa Group is implementing business strategies to realize “Vision 2025” by capitalizing on the management base it has accumulated over many years. In addition to achieving sustainable growth through this initiative, Yaskawa is contributing to the SDGs through creating social value, thereby helping to realize management principle.

Social Issues and Customers’ Management Issues

Declining birthrate and aging population in developed countries

- Work style reform
- Productivity improvement
- Labor-saving
- Elimination of 3D labor
- Multi-product variable-volume production

Environmental issues and climate change

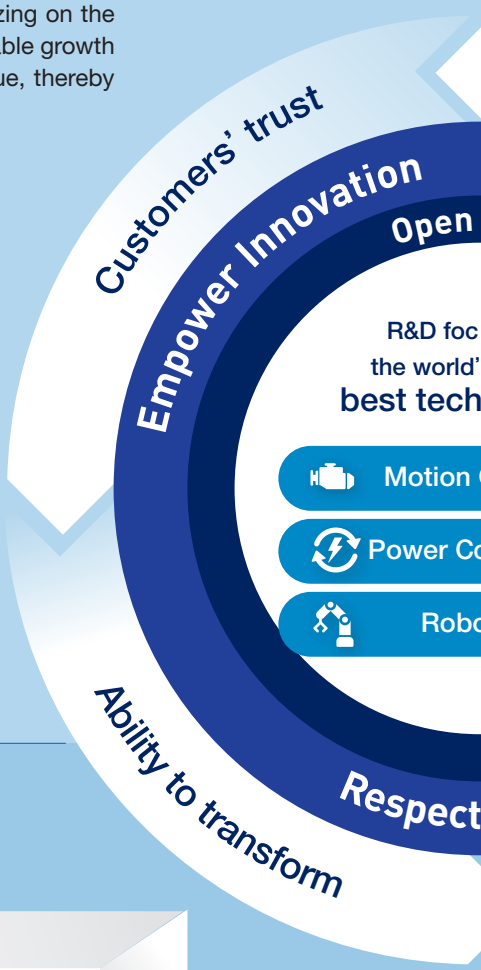
- Decarbonization
- Energy conservation
- Stable supply, safety and security of food
- Utilization of renewable energy

Spread of infection

- Labor-saving and remote operation
- Ensuring social distance

Evolution of information and communications technology

- Digital transformation (DX)
- Information security



Optimal Allocation of Management Capital P31

Business model transformation

Management base to

Digital transformation (YDX) P23

Corporate governan

Value Creation P9

Realization of management principle

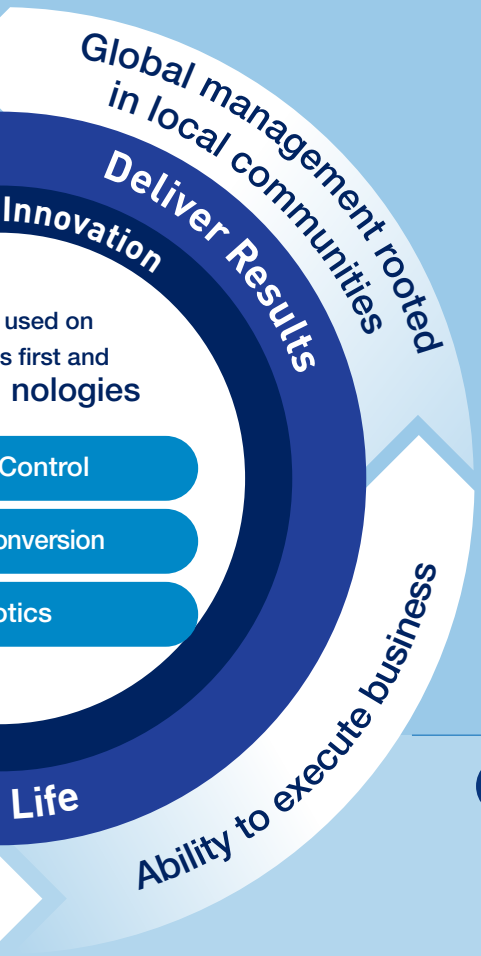
Leveraging the pursuit of our business to contribute to the advancement of society and the well-being of humankind

Energy conservation and reduction of environmental impact	Increased use of renewable energy	Liberation from 3D labor through automation	Stable food supply by vegetable factories	Contribution to the medical and welfare fields

FY2025 Financial Targets

Operating profit over 100 billion yen

ROE 15% or more	ROIC 15% or more	Dividend payout ratio 30% + α



Promotion of Business Strategies P17

Factory Automation/ Optimization

- Realization of revolutionary industrial automation through "i³-Mechatronics"
- Pursuing the global No.1 in core business

i³-Mechatronics

Mechatronics Applications

- Challenge for new mechatronics applications

・Energy Saving
・Food & Agri
・Clean Power
・Humatronics

i³-Mechatronics P19

o support sustainable growth

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