At a Glance

Automatic machinery

Main solutions, products

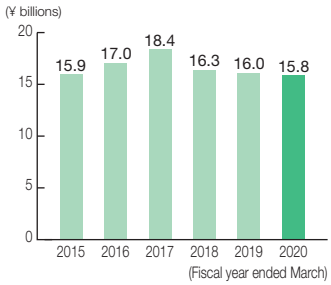
The automatic machinery segment offers a wide array of products, including packaging machines for medical, pharmaceutical and food products, as well as the image inspection technology equipped on those machines, printed circuit board solder paste inspection machines, manufacturing machines for devices for vehicles that use lithium-ion battery, and other products.

Packaging machines
- Pharmaceutical products packaging machines
- Medical-use packaging machines
- Food packaging machines

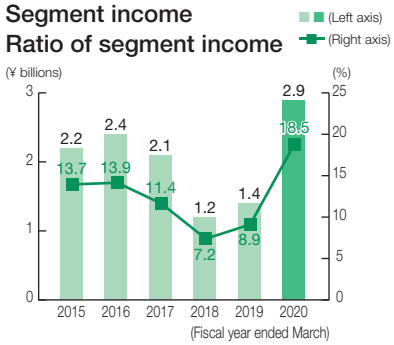
Industrial machinery
- Lithium-ion battery manufacturing machines
- 3D solder paste inspection machines
- Lamp manufacturing equipment

Inspection machines
- Blister sheet and foreign material inspection machines for pills

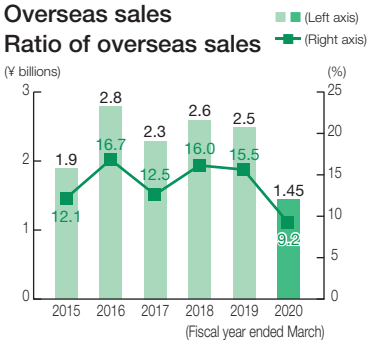
Net sales



Segment income
Ratio of segment income



Overseas sales
Ratio of overseas sales



Component products

Main solutions, products

The component product segment consists of a diverse lineup of products, including pneumatic components and drive units equipped on automatic production equipment for a variety of industries, fluid control components used for semiconductor and medical processes, and other products.

Pneumatic control components
- Directional switching valves

Pneumatic auxiliary components
- Refining and pressure adjusting components
- Sensor components

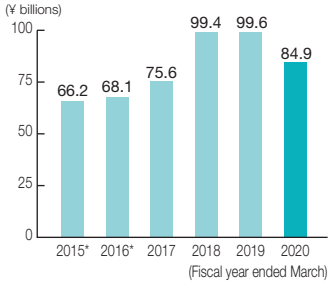
Electric motion components
- Direct drive motors
- Electric actuators

Drive components
- Pneumatic cylinders
- Assistance devices

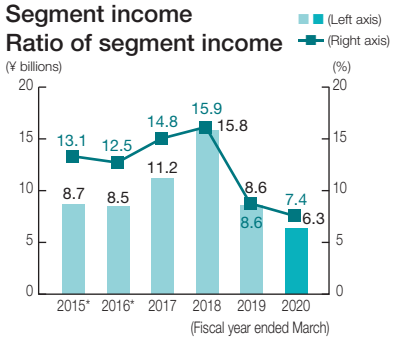
Fluid control components
- Fluid control valves
- Valves used in medical analysis
- Combustion gas valves
- Explosion prevention valves

Fine system components
- Process gas valves
- Chemical liquid valves
- Vacuum valves

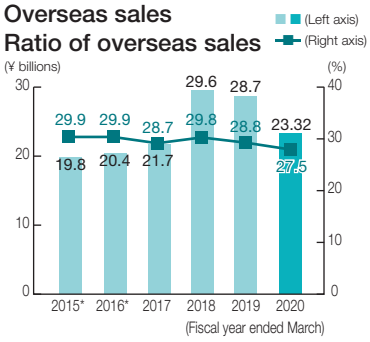
Net sales



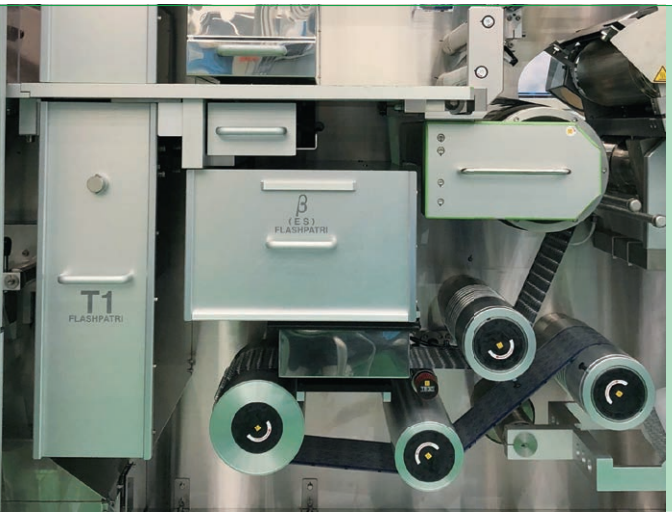
Segment income
Ratio of segment income



Overseas sales
Ratio of overseas sales

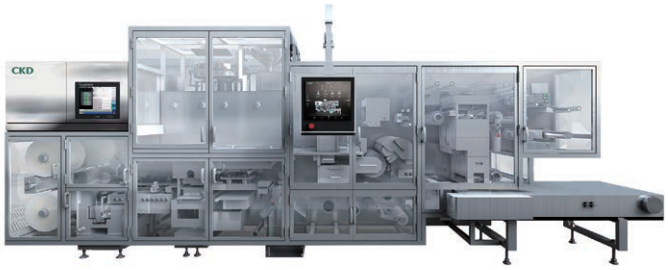


* Figures from fiscal years ended March 31, 2015 and March 31, 2016 exclude impact from accounting period changes.



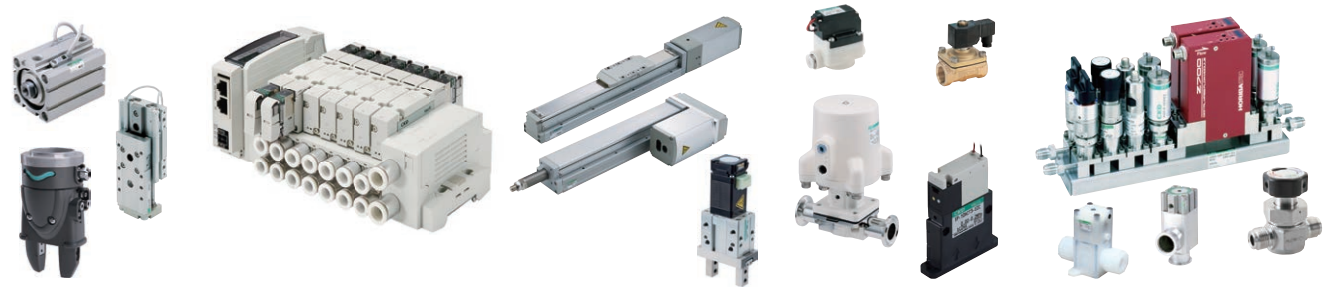
In order to meet rising market demand for labor saving and automation that is accompanying the shrinking of the working population, we are working to strengthen the functions and expand the applications of the image inspection technology that we have cultivated through our pharmaceuticals packaging and circuit board mounting processes. Furthermore, we will advance product development that uses ICT to enhance production stability and productivity, and contribute to our customers' manufacturing operations.

Automatic packaging systems



Multiple CKD products, such as drive units and fluid control components, work in tandem to contribute to the manufacturing (monozukuri) that takes place at factories around the world. Recent years have seen factories make progress in incorporating IoT into their operations, and that has spurred demand for machinery capable of interacting within a variety of networks. In the component product segment, we are working to address a host of needs, including to respond to the advance of IoT technologies, and automation and energy conservation within a framework for development that leverages our core technologies while collaborating closely with our customers.

Drive components **Pneumatic control components** **Electric actuators** **Fluid control components** **Fine system components**



President's Message

We will take advantage of automation technology to further accelerate efforts toward the new era, contributing to the automation of customers both in Japan and abroad.

Kazunori Kajimoto
President

CKD formulated a long-term management vision called the "10-Year VISION" in 2016, and is now strengthening initiatives with an eye on 2025. As a pioneer in fluid control and automation, our aim is to become a Total FA Worldwide Supplier while achieving automation for our customers in Japan and overseas. As we head into a new era characterized by DX, post-pandemic changes, and other major shifts, we plan to accelerate our realization of 10-Year Vision and open up the future. At the same time, we will contribute to the creation of an affluent society, meet the expectations of our shareholders, and create happiness for our employees and their families. We will continue to grow as a "people-friendly company" and make efforts to contribute to society through our business, with the aim of achieving a sustainable society.

Our Response to the COVID-19 Pandemic and Our Condolences to Anyone Affected by It

All of us at CKD would like to express our sympathies to those affected by the COVID-19 pandemic, their families, and all concerned parties, and to offer our deepest condolences to those who have lost someone in their lives. We also extend our heartfelt gratitude to everyone engaged in treatment and prevention of this infectious disease around the world, and to those cooperating with these efforts.

To overcome this adversity, CKD established a crisis management committee in April 2020 and is enforcing contagion prevention measures that include work from home, staggered working hours, and social distancing inside company facilities. To prevent coronavirus contagion, we are making every effort to continue our business and meet the many requests for cooperation we have received from customers engaged in the development and production of pharmaceuticals and medical devices. As we continue to place our highest priority on the safety and health of our customers, business partners, cooperating companies, global employees, their families, and other related parties, we will strive to maintain our production activities and carry out our social responsibility to support the automation of manufacturing.

Digitalization is moving forward under the COVID-19 pandemic, and the era of a new normal is expected to arrive. We will work hand-in-hand with our stakeholders to get through this drastically changing business environment.

Fiscal 2019 Results

Our consolidated financial results for fiscal 2019 include net sales of ¥100.7 billion (down 12.9% year on year), operating income of ¥5.2 billion (down 23.0% year on year), ordinary income ratio of 5.2% (up 0.5 points year on year), and ROE of 4.5% (down 1.5 points year on year).

Harsh conditions continued from the beginning of fiscal 2019, against the slowing of the Chinese economy due to the US-China trade friction, postponement of semiconductor capital investment, and restrained investment due to drug price reductions. The second half of the year saw brighter signs as the electronic industry undertook capital investments aimed at the proliferation of next-generation communications. Coronavirus infections spread from around February 2020, however, affecting production and sales in China and constraining capital investment in countries including Thailand and Indonesia, primarily in the automobile industry.

In fiscal 2020, economic activity is making an early restart in China, with normalization of production activities progressing throughout the country's manufacturing industries. Capital investment in semiconductors has remained firm in Taiwan and South Korea. In Japan, a cautious stance continues toward automobile-related capital investments, but the proliferation of 5G combined with telework-related demand have resulted in the expansion of semiconductor capital investment. In addition, the effects of our company-wide productivity improvements and cost reduction activities have made contributions to enhancing our profitability.

Looking back on past Medium-Term Management Plans

	First Medium-Term Management Plan Fiscal 2010–2012	Second Medium-Term Management Plan Fiscal 2013–2015	Third Medium-Term Management Plan Fiscal 2016–2018
Title	NEW CKD 2012	GLOBAL CKD 2015	Challenge CKD 2018
Target numbers for the final fiscal year	▪ Consolidated net sales: ¥85.0 billion ▪ Operating income ¥9.0 billion ▪ Ordinary income ratio: 10.6%	▪ Consolidated net sales: ¥85.0 billion	▪ Consolidated net sales: ¥100.0 billion ▪ Operating income: ¥10.0 billion ▪ Ordinary income ratio: 10.0%
Business performance in final fiscal year	▪ Consolidated net sales: ¥65.0 billion ▪ Operating income: ¥3.2 billion ▪ Ordinary income ratio: 5.0%	▪ Consolidated net sales: ¥85.1 billion ▪ Operating income: ¥8.0 billion ▪ Ordinary income ratio: 9.4%	▪ Consolidated net sales: ¥115.7 billion ▪ Operating income: ¥5.4 billion ▪ Ordinary income ratio: 4.7%
Basic Policy	▪ Improvement of overseas and domestic sites ▪ Continued strengthening of profit structure ▪ Strengthening of products for growth markets ▪ Development of new businesses based on fluid control and automation	▪ Globalization of products, sales, and production	▪ Evolve best-in-Japan products to be the best in the world ▪ Challenge new business activities and markets ▪ Strengthen our business foundations
Review	▪ We focused on business expansion in growth markets and economic growth in China and other Asian emerging economies, and engaged in actions to expand business in overseas markets. ▪ In our overseas businesses, we increased our overseas sales bases to 56 bases in 12 countries, and expanded fiscal 2012 overseas sales to 1.7 times fiscal 2009 sales to ¥13.5 billion.	▪ We worked to expand bases in Japan and overseas, with overseas production in 5 countries and 74 sales bases in 15 countries. ▪ We expanded fiscal 2015 overseas sales to 1.7 times fiscal 2012 sales to ¥23.2 billion.	▪ Cumulative net sales for the three years from fiscal 2016 to fiscal 2018 were ¥325.4 billion, an increase of 34% from the results of the Second Medium-Term Management Plan. ▪ Three-year cumulative net sales of components increased 41% from the previous Medium-Term Management Plan. Sales of components for semiconductor manufacturing equipment increased significantly, partly due to support from the market. ▪ Three-year cumulative net sales of automatic machinery increased 6% from the previous Medium-Term Management Plan. Overseas sales increased 28%, making up for a decline in domestic medical product investment.
Results	**Automatic machinery** • Expansion of sales of pharmaceutical product packaging machines • Start of production of 3D solder paste printing inspection machines in China • Establishment of a service company for pharmaceutical product packaging machines **Component products** • Expansion of sales of medical-related products • Transformation to a business unit structure • Launch of products with optimal quality for the Chinese market **Business foundations** • Introduction of overseas trainee system • Introduction of lifetime employment program • Expansion of systems at overseas bases • Start of construction of a new plant in China • Construction of the ERP software system (automatic machinery)	**Automatic machinery** • Development of pharmaceutical product packaging machines for the Chinese market, and receipt of orders • Roll-out of new-model food packaging machinery in domestic and Asian markets • Strengthening of service and support structure • Response to increased demand for 3D solder paste printing inspection machines for vehicle circuit board inspection, and launch of new-model high-precision machinery **Component products** • Development of valves for medical analytical equipment • Launch of 52 models in the FP Series for the food industry • Development of products to support state-of-the-art miniaturization in the semiconductor industry • Pneumatic valve model change-over • Strengthening of commercialized pneumatic valve variations at the Chinese plant • Progress in converting the Yokkaichi Plant into a mother plant for components **Business foundations** • Completion of new plant in China • Start of operation of production plant in Indonesia • Completion of a new building for the assembly of pharmaceutical product packaging machines at the Komaki Plant	**Automatic machinery** • Strengthening of the production and sales structure for pharmaceutical product packaging machines in China • Launch of pharmaceutical packaging sheet inspection machines to support reduction of labor • Development of monitoring system • Start of preventive maintenance service • Establishment of new forms of packaging such as V-Pack • Expansion of sales of 3D solder paste printing inspection machines **Component products** • Integration of business with CKD Nikki Denso Co., Ltd. • Strengthening of electric motion products in collaboration with alliance partners • Strengthening of network support for pneumatic valves • Launch of IO-Link-equipped products • Launch of products that help resolve social issues, including assistive devices, components for the food industry, and nitrogen gas extraction units • Establishment of a technology development base in Silicon Valley, where cutting-edge industries are concentrated **Business foundations** • Establishment of overseas subsidiaries in India and Europe • Completion of Tohoku Plant and new production building in China • Introduction of the new ERP software system (component products) • Opening of a day-care center at the Head Office/Komaki Plant
Issues	**Automatic machinery** • Construction of sales, production, and service infrastructure to improve profitability and develop overseas business **Component products** • Further expansion of overseas sales, pursuit of emerging economy pricing, and strengthening of initiatives in growth markets	• Construction of a system adapted to globalization • Initiatives aimed at the US and Europe, where demand for components is high • Strengthening of product development and new business development aimed at new growth markets	• Expansion of the electric motion product business and new businesses • Expansion of overseas sales • Strengthening of global-oriented business foundations • Human resource development

Long-Term Management Vision

10-Year Vision Title

GO CKD

Aspiration

Total FA Worldwide Supplier

- Contributing to an affluent society
- Meeting the expectations of shareholders
- Caring for employees and their families

Medium-Term Management Plan

Build-up CKD 2021

Basic Policy

Evolve products from being best in Japan to becoming globally recognized products

Challenge new business activities and markets

Strengthen our business foundations

Basic Requirement

Human resource development

Looking Back on Past Medium-Term Management Plans

Although CKD achieved sales of ¥104.2 billion in fiscal 2006, a record at the time, the Company was hit sharply by the global financial crisis, resulting in a severe management environment in which fiscal 2009 sales halved from fiscal 2006 sales to ¥50 billion. At the time, the Company set management plans every term but did not formulate medium- to long-term management plans. We also faced issues of needing to undertake innovative initiatives and improvement of our corporate structure more dynamically and from a medium- to long-term perspective. At the same time, expectations for growth from the effects of policy measures and an upturn in the economic environment existed inside and outside the Company. Confirming that the decline in our business had halted, we deemed the time for action to be at hand and put forth our first Medium-Term Management Plan, called NEW CKD 2012, in April 2010. This plan did not reach its targets however, as Japan-China relations deteriorated over the Senkaku Islands dispute and economic activity stagnated. Our second and third Medium-Term Management Plans advanced globalization and our business foundations and steadily grew sales.

Progress and Future Development of the Fourth Medium-Term Management Plan: Build-up CKD 2021

Build-up CKD 2021, our fourth Medium-Term Management Plan, was launched in April 2019 as a three-year period for strong growth and laying foundations for the future, to achieve the 10-Year Vision. We are engaged in the plan under three basic policies, with fiscal 2021 sales of ¥143.0 billion, operating income of ¥14.3 billion, and an ordinary income ratio of 10% as management targets. An explanation of our progress and future development of Build-up CKD 2021 follows, broken down by Basic Policy.

Basic Policy 1, “Evolve products from being best in Japan to becoming globally recognized products,” sets an aim of maintaining a high share in Japan and rolling out distinctive products in overseas markets to become No. 1 globally. In the automatic machinery business, we leveraged our China Plant to the fullest to achieve Japanese quality locally and launched the automatic pharmaceutical packaging machine FBP-300W for the Chinese market. In addition, our VP9000 3D solder paste inspection machine has been well-received in Europe and the United States for its design and operability, resulting in many orders since its launch in

June 2019. In the component products business, we increased production capacity through full operation of our automated, state-of-the-art Tohoku Plant. In North America, we made effective use of the CKD-USA Technical Center to strengthen relationships with new customers. In China, we began τDISC production at CKD Nikki Denso Co., Ltd. in a new production building, and organized a system to provide high-performance products demanded by the Chinese market in a timely manner. In the future, we will improve development functions and management capabilities in local markets and strengthen local responsiveness to accelerate globalization and further expand overseas net sales. Building optimal supply chain management and enhancing global competitiveness are also becoming vital issues. We recognize these as management challenges and will address them.

In our Basic Policy 2, "Challenge new business activities and markets," we will take on a number of challenges aimed at the launch of new businesses and the opening of new markets. In the electric motion product business, we accelerated our growth strategy for the business by simultaneously launching five models of electric actuators and one model of a controller, by developing integrated products together with CKD Nikki Denso and by strengthening systems for cooperation between the sales departments of both companies. In pneumatic components, we released the HP Series of high durability components that contribute to the reduction of waste by increasing customers' productivity and reducing the number of maintenance work. With strengths in developing and selling both electric motion products and pneumatic components, CKD will develop the best mix of proposals to meet the demands of our customers. In new businesses, we released Facilea, an easy-to-use visual programming tool that applies image processing technology cultivated over 20 years of automating inspection processes that require specialized knowledge. We also have added a new series to our popular PowerArm, offering environments for comfortable work to people around the world. We will also broaden our service business, centered on the automatic machinery business of CKD Field Engineering Corporation, and develop it into a foundation for the future.

In Basic Policy 3, "Strengthen our business foundations," we are strengthening the foundations of our production and sales. In North America, we plan to launch operation at a production plant in the US state of Texas around the autumn of 2021. The purpose of the plant is to strengthen our production system to meet growing demand in the fluid control components field. We are constructing a new production plant in India and forming alliances with local partners in Europe, moving ahead with preparations despite the COVID-19 pandemic. We can now also use our new ERP software system strategically to carry out activities that lead to improvements in productivity and profitability. Viewing the utilization of digital technology as critical in establishing a sustainable business foundation, we will achieve aggressive digitalization that offers proposals to customers and defensive digitalization that enhances productivity at our production sites. Moreover, we will strengthen our approach to corporate social responsibility through our environmental and business activities, so that we can become a highly sustainable company.

Approach to Management Issues and Initiatives Aimed at ESG (Environment, Society, Governance)

CKD engages in activities that connect to the Sustainable Development Goals (SDGs), seeking the resolution of social issues and the development of society through our business. Toward that end, we will establish sustainable business foundations and co-create social contribution-oriented businesses and products with an eye toward the SDGs, to provide new corporate value to our stakeholders. With regard to the environment, we will strive to reduce energy usage in our infrastructure and production processes, and to develop and expand sales of low environmental load products. With regard to society, we will make employee engagement our most important issue and strengthen our human resource development to let diverse human resources maximize their abilities. With regard to governance, we will achieve sound and efficient management with enhanced transparency, so that we can remain a respected and trusted company.

All of CKD's employees will work as one to resolve social issues and improve our corporate value. We ask all of our stakeholders for their continued support.

Financial/Capital Strategies

Financial/Capital Strategies

The three-pillared basic policy of the financial strategy comprises: (1) improvement of corporate value, (2) the building of a sound financial base, and (3) shareholder return. The fiscal year under review saw the completion of large-scale investments and we improved operating cash flow by reducing inventories. Also, we achieved a shareholders' equity ratio of 60.5% and a net D/E ratio of +0.05 times through improving the balance sheet by shrinking interest-bearing debt, and we are maintaining a sound financial position.

	FY Ended Mar. 2019	FY Ended Mar. 2020	YoY Comparison	Comment
Total assets	¥136.9 billion	¥136.0 billion	-¥0.9 billion	Decreased by the completion of large-scale investment and shrinking borrowings
Total shareholders' equity	¥80.3 billion	¥82.2 billion	+¥1.9 billion	Increased by retaining part of net income
Cash and cash equivalents	¥12.0 billion	¥18.4 billion	+¥6.3 billion	Increased by improving operating cash flow
Interest-bearing debt	¥28.6 billion	¥23.0 billion	-¥5.5 billion	Decreased by shrinking borrowings
Shareholders' equity ratio	58.6%	60.5%	+1.9 points	Increased due to a decrease in interest-bearing debt
Net D/E ratio	+0.20 times	+0.05 times	-0.15 points	Declined due to a decrease in interest-bearing debt
ROE	6.0%	4.5%	-1.5 points	Declined in accordance with a decrease in profit

ROE

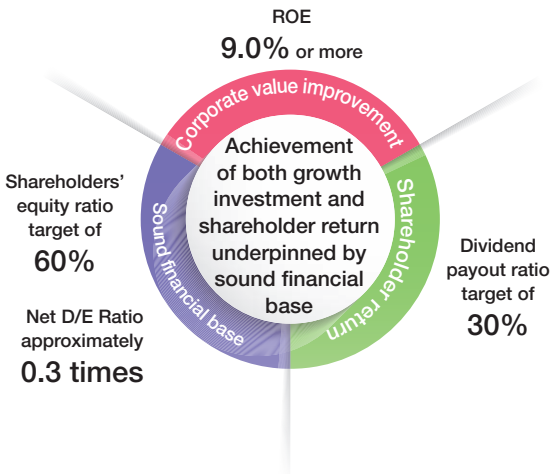
We will strategically advance investment based on the Medium-Term Management Plan, which is aimed at achieving the growth strategy in our 10-Year Vision, and take on the challenge of entering new businesses and markets. We will also strive to improve corporate value with the goals of raising profitability and stably maintaining ROE of 9% or more.

Building a Sound Financial Base

We are building a stable financial base that can flexibly respond to growth investments for business expansion. Since we are an equipment-related company and are influenced by economic conditions, we have set a shareholders' equity ratio of 60% or more as the standard for optimal financial leverage. In preparation for unforeseeable circumstances, we have secured enough cash on hand to enable us to flexibly respond to even the most sudden need for funds. Also, in preparation for the effects of the COVID-19 pandemic, in June 2020 we established a commitment line comprising syndicated loans totaling ¥10 billion as an emergency borrowing facility. Furthermore, in March 2020 we reinforced capital and procured funds by issuing share acquisition rights aimed at realizing sustainable growth. Additionally, external borrowing is managed so that the net D/E ratio remains at around 0.3 times to enable financial soundness to be maintained while we work to diversify financing.

Shareholder Return Policy

The basic policy involves working to improve corporate value by investing in facilities and R&D to enhance the management base and further expand the business while providing stable dividends to shareholders. Since we are pursuing a growth strategy based on our 10-Year Vision and the Medium-Term Management Plan, the plan is to mainly utilize investment for capital investment and R&D. As a reference, the dividend payout ratio is set at 30% to ensure stable returns to shareholders after securing sufficient capital for growth investment.



Business Overview and Outlook

Automatic Machinery Business Division

Yoshiaki Kitahora
Executive Officer
General Manager of Automatic Machinery Business Division

Strategy

We in the Automatic Machinery Business Division welcome change and endeavor to evolve automation technology along a multitude of avenues as an organization that continually offers automatic machinery that satisfies customers around the world. We have made this our 10-Year Vision through which we will differentiate ourselves from competitors. We incorporate the requirements and requests of each individual customer into our automatic machinery, whether it be equipment that packages pharmaceutical or food products with heat-processed film, 3D solder paste inspection systems that feature image inspection technology, or lithium-ion battery manufacturing machines that perform high-speed wrapping of multiple materials. We strive to satisfy customers by providing quality products that meet their needs for delivery and cost.

Fiscal 2019 Report

In Fiscal 2019, sales of winding machines for lithium-ion batteries increased, but sales of 3D solder paste printing inspection systems to China decreased. Sales of pharmaceutical products packaging machines declined due to the impact of a contraction in capital investments made by pharmaceutical manufacturers in Japan. Although overall net sales in the segment fell year on year, improved earnings lifted segment income above that of the previous fiscal year.

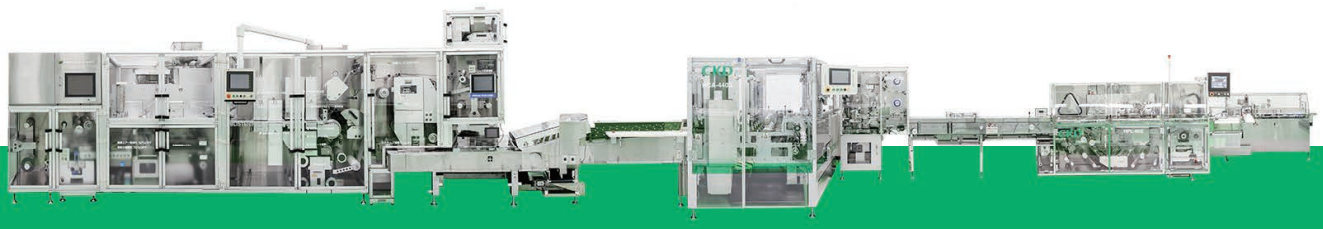
In the pharmaceutical product packaging field, we have been working to expand sales in the Chinese market by advancing Chinese-Japanese joint development of equipment models tailor-made for the Chinese market and carrying out activities to strengthen production at the China Plant and to build a framework in which to offer services. In the Japanese market, we have been strengthening our ability to manufacture molds in-house, which are necessary for launching new generic pharmaceuticals. We have also been using IoT to strengthen proposals for enhancing customers' productivity and saving labor.

In the food packaging field, we are working to grow sales of V-pack packaging equipment and collaborating with package material manufacturers to develop new types of packaging, as well as launching marketing efforts for these.

In the industrial machinery field, we strengthened efforts to capture a greater share of the market for 3D solder paste printing inspection systems in Europe and the United States by introducing new products with renewed exterior design that offers improved visibility and operability. With regard to winding machines for lithium-ion batteries, we are working to capture domestic demand and focusing our efforts on next-generation batteries. In China, our largest market, we are working on ongoing collaborations with Chinese companies.

Value Provided through Business

Main Products that Create Value	
Automatic packaging systems	These systems contribute to providing safe and secure products with equipment that packages pharmaceutical products (tablets, capsules) and food items.
Inline medical product inspection systems	These systems facilitate safe and secure pharmaceutical products with high-speed and highly accurate inspections for pill flaws, foreign particle contamination, torn sheets and other problems.
3D solder paste inspection machines	These machines contribute to raising productivity and quality guarantees for the printed circuit board mounting process with printed circuit board solder paste inspection machines.
Lithium-ion battery manufacturing machines	These are systems that contribute to environmental efforts and the spread of eco-friendly vehicles with machines to manufacture lithium-ion batteries for electric vehicles (EVs) and other automotive uses.



Pharmaceutical products packaging Eco Blister [FBP-600E]

Upcoming Topics

We see global market development as a priority topic. Therefore, in the pharmaceutical products packaging field we need to strengthen production at the China Plant, which has become a product manufacturing hub, and to build a framework in which to offer services so that we can expand sales to markets in ASEAN countries and East Asia, particularly China. In the industrial machinery field, we are focusing on responding to price competition in the market, so we need to introduce price adjusted 3D solder paste printing inspection systems into the East Asia and ASEAN markets. Additionally, eliminating the use of plastic has become a social issue which poses great risks in the packaging fields, so we will strengthen our response to this issue together with pharmaceutical, food product, and package material manufacturers.

Future Initiatives

We plan to grow our business by restructuring into a market-oriented organization that brings together sales and technology to respond swiftly to market demand. In the pharmaceutical product packaging field, one of our focus areas, we will increase sales of medium-speed (3,000 pills/minute) equipment models that are tailor-made for the growing Chinese market and accelerate development of high-speed (6,000 pills/minute) models. We will then use these China-specific models as a base for development into other East Asia and ASEAN markets. Furthermore, in the mature Japanese market, we will strengthen our service businesses through CKD Field Engineering Corporation and work to improve customer satisfaction. In the food packaging field, we aim to work with partners to enhance our ability to propose new types of packaging and raise the cost competitiveness of our existing equipment models. We will develop this as a new business, using the image inspection technology we have cultivated in the pharmaceutical product packaging field.

Ever Further Evolution!

Development and sale of the FBP-300W, an automatic pharmaceutical packaging machine for the Chinese pharmaceutical market

The pharmaceutical industry in China is demonstrating dramatic growth. Additionally, in 11 major cities including Shanghai and Beijing, the Chinese government is advancing centralized pharmaceutical procurement measures which are creating demand for pharmaceutical production equipment that can realize high quality, stable production at low costs.

In order to increase pharmaceutical product packaging machine sales in the Chinese market, we are leveraging the full advantages offered by our China Plant, (Wuxi, Jiangsu Province) and reviewing the design of all components used in order to lower costs by increasing local procurement, and we have realized Japanese levels of quality through local production. To realize the foreign material contamination prevention required of pharmaceutical product packaging machines, we have enhanced visibility and cleanability by adopting a flat design that includes a fully transparent front cover and by removing cover frames to realize a smoother surface. We have also incorporated a touch panel similar to those on smartphones, making various settings and operations easier for users.

Business Overview and Outlook

Component Products

Components Business Division

Katsunori Hayashida
Director and Executive Officer
General Manager of Components Business Division

Strategy

In the component products segment, we have set "Total FA Worldwide Supplier" as a goal for ourselves in the 10-Year Vision. We are working to build a broad lineup of FA systems to meet diversifying customer demands that include high speed/high precision, small size/high definition, safety/high quality, and digitalization, and to provide new value and creativity. Toward that end, we will tackle technological innovation, develop differentiated products, provide services, strengthen our global production foundation, and offer products to build a business structure that can meet the needs of customers worldwide.

Fiscal 2019 Report

In the Japanese market, orders for fine system components and related components were slow due to a temporary adjustment phase in investment of semiconductor manufacturing equipment. In overseas markets, sales declined as capital investment slowed in the Chinese and South Korean markets amid US-China trade friction and Japan-Korea trade conflict.

During the COVID-19 pandemic, we made use of the fluid control technology that is the cornerstone of our component products business to strengthen our manufacturing and engage in sales of components that go into ventilators, oxygen concentrators, and other medical equipment, as we worked to supply products that are demanded worldwide.

We are strengthening our domestic and overseas production systems to adapt to ever-accelerating changes in the external environment. Looking at our domestic plants, we increased the number of items produced at the Tohoku Plant, which began operation in fiscal 2018 as a BCP measure. At our China Plant, we installed a clean room and increased the number of fine system components produced to meet the increasing demand for semiconductor manufacturing equipment in China ahead of the nation's "Made in China 2025" plan. At our South Korea Plant, we increased the number of items produced to meet demand for locally produced products, and promoted local procurement and local processing of materials and parts.

To meet an ever-increasing need for automation amid a declining working population, we enhanced our product lineup with the Facilea visual programming tool for image processing, the HP Series of high durability components that prolong the maintenance cycle of equipment, and PowerArm, which reduces manual labor at production sites. Doing so, we have built a lineup of new products that can meet the needs of customers.

Value Provided through Business

Main Products that Create Value	
Pneumatic control components	These devices control the refinement of airflow, pressure adjustments, the driving of a cylinder, and so on. We develop automatic systems responding to a broad range of industrial needs and propose pneumatic technologies in consideration of environmental preservation and energy conservation.
Drive components Electric motion components	As pneumatic cylinders are easily automatic, they are used in a wide range of industrial fields. Proposals are made using high precision and user-friendly electric actuators, and automation in line with customer needs is realized with control technologies that utilize air and electric motion.
Fluid control components	Under the concept of high quality and wide variation, we are utilizing fluid control technologies to launch a broad range of products, from various types of valves, product series that meet the needs of medical and pharmaceutical processing, as well as food processing and environmental products such as water treatment systems.
Fine system components	With a broad range of products covering supply systems to exhaust systems of semiconductor and flat panel displays, we are able to provide state-of-the-art process control. We support the electronic device industry with our fine system components which can be used in clean environments.

Tohoku Plant

Kasugai Plant Collaborative robot assembly line

Upcoming Topics

Looking at the external environment, we view adaptation to ever-changing market needs, to working style reforms after the COVID-19 pandemic, and to the decrease in the working population as issues to address. There are needs for faster development, global design, unit products aimed at factory automation and unmanned operation, supply chain management (SCM) construction for the speedy provision of products, and diversification of working styles. Looking at our internal environment, the themes faced by the Components Business Division are stable production and supply of products, development of human resources that can play active roles globally, and the challenge of forward-looking research and development.

Future Initiatives

We will strengthen our efforts to address the SDGs and will make progress toward the goals of the SDGs through our development, production, and sales processes.

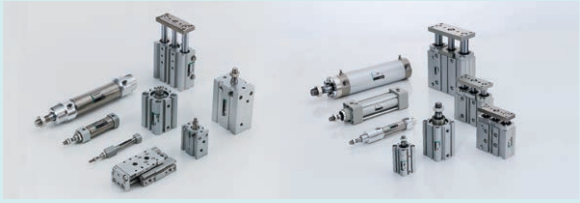
To meet the growing need for FA systems and automation, we will strengthen our production foundations globally by promoting production in optimal locations, production cooperation in Japan and overseas, and streamlining of logistics with the aim of timely supply of products. We will also promote flexible production systems and automation to enhance our ability to keep up with rapidly changing market conditions. In the area of products, we will develop and provide high-performance products and FA systems that enable predictive detection in response to the globally-expanding trend toward smart factories. We will also tackle the solutions business to expand new business domains. Elsewhere, we will promote CSR activities with roots in local communities, emphasizing diversification of working styles, BCP measures, development of low environmental load products, and the safety and health of working employees in order to build a sustainable supply structure.

Ever Further Evolution! HP Series High Durability Components

There are growing needs for automation and the IoT at manufacturing sites, as well as heightened demand for FA systems that enable stable operation and production facilities that do not stop.

As a manufacturer, we have developed the HP (High Productivity) Series based on three concepts of products 1) No breakdowns, 2) notification of service life and 3) can be quickly replaced during maintenance. In addition to improved durability in a variety of usage environments, the series offers a sensor-based predictive maintenance function and sophisticated positioning accuracy and reproducibility that eliminate the need for fine adjustment after replacement.

By achieving stable operation through high durability, the series can prevent production losses caused by equipment



failure or maintenance while also reducing the frequency of defective product disposal, contributing to the reduction of environmental impacts.

As an “FA Total Supplier” that supports automation, we will contribute to the realization of a richer society and the creation of a new era.

Business Overview and Outlook

Component Products

Sales and Marketing Division

Shinji Yuhara
Director & Executive Officer
General Manager of Sales and Marketing Division

Strategy

Our division will incorporate Digital Transformation (DX) into our sales activities and flexibly adapt to the New Normal to address the FA industry in which digitalization is accelerating. Through proposals for the FA market that combine pneumatic components, fluid control components, fine system components, and electric motion components, we will advance the comprehensive construction of automation and labor-reducing technologies that will give rise to a sustainable society. Moreover, we will work to become a truly global company and to become an "FA Total Consultant," a goal set forth in the 10-Year Vision for the Sales and Marketing Division.

Fiscal 2019 Report

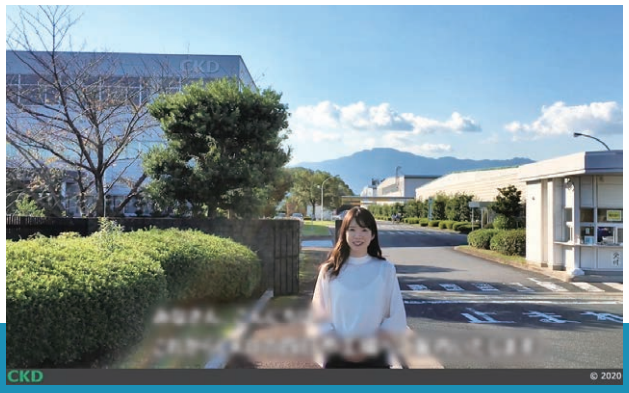
Although fiscal 2019 saw a strengthening of concerns over slowing world economic growth and political risks such as US-China trade friction, we foresaw an acceleration of investment in automation as labor shortages emerge. Amid these circumstances, however, many companies approached investment cautiously in the first half of the fiscal year while the market environment stagnated. The environment began to gradually pick up from the beginning of the second half, as a result of semiconductor and electronic component companies beginning to make positive moves toward investments to support new technologies such as 5G communications and AI. In 2020, just as market conditions took on an upward trend, the COVID-19 emerged in China and infection cases surged worldwide.

In Japan, we entered the second half of the fiscal year under unprecedented conditions of self-restraint from going out or attending outside business meetings, implementing telework, prohibitions against travelling abroad and during lockdowns or other prohibitions against social interactions. Despite this, in our business performance through the end of fiscal 2019, we received orders related to projects in which we had been active for months, and arrived at fiscal 2020 without any significant decrease.

To summarize our activities in fiscal 2019, we considered how to efficiently carry out sales activities in an environment of never-before-experienced severity, and engaged in sowing the 'seeds' of sales worldwide in growth markets where capital investment is active. The automobile industry is facing what is being called a once-in-a-century turning point. Full-scale planning of CASE-related investments for the shift to electric automobiles is underway, and medium- to long-term growth is foreseen in the semiconductor and electronic component industries amid the introduction of new technologies for DX.

By engaging in product planning through the strengthening of marketing functions to meet diverse automation needs and by globally carrying out human resource education to enhance the capabilities of our sales staff, CKD will continue to exert its unique strengths and will continue to aggressively enter growth markets.

The Sales and Marketing Division has set "FA Total Consultant" as its ideal form in the 10-Year Vision. By proposing automation and labor reduction that draw on our diverse product lineup and by engaging in product planning and sales expansion that lead to the reduction of environmental impacts, we will actively incorporate the concepts of the SDGs and develop sales activities that let us contribute to the creation of a sustainable society.



Online observation tour of the Yokkaichi Plant

SEMICON TAIWAN

Upcoming Topics

The COVID-19 pandemic brought significant changes in people's lives in fiscal 2020. The pandemic continues without signs of abating, creating major impacts on corporate operations and economic activities. This has forced a shift from face-to-face sales to remote sales, and a need to establish a new sales style that asks how we can provide added value to customers.

Future Initiatives

The pandemic has also brought sudden changes to production sites. Securing social distance has become a necessity, automation and labor reductions are accelerating on the production floor. Taking this shift as an opportunity, we plan to promote the upgrading of products such as electric motion components, Human Assist Products (PAW), image inspection software, and nitrogen gas extraction units as an "FA Total Supplier" that fuses the core technologies of automatic machinery, pneumatic, control, and labor-saving components. We aim to be a company that offers solutions for a carbon-free society, people-friendly workplaces, quality improvement, and stable manufacturing.

The evolution of robots will continue to accelerate, and the need for robots to reduce labor will increase at production sites. By selecting and proposing the best combinations of pneumatic hands for compactness and speed and electric motion grippers for precision grasping at robot extremities, we contribute to our customers' production efficiency.

We also view the reduction of maintenance man-hours as a key issue under labor shortages, and will contribute to the realization of production facilities that constantly operate by offering the high durability HP Series of products and others that resist harsh environments. We will also plan products that actively incorporate the concepts of the SDGs as we aim to become an "FA Total Consultant" that coordinates next-generation smart factories.

Ever Further Evolution!

Varied Options for Increasingly Versatile Robots
Electric Motion & Pneumatic Grippers for Robots

Activities performed by robots have expanded at production sites. To tackle the issue of improving productivity, we have applied the technologies we have built up in pneumatics and electric motion to robotic handling components. Our FFLD Series electric actuator grippers, LSH-HP Series pneumatic linear slide hands, and RLSH, RHLF, and RCKL (recipient of the Good Design Award 2020) pneumatic grippers for collaborative robots are expected to solve issues at sites where robots have been adopted.

Easy image processing even for beginners
Visual programming tool for image processing

Amid a growing need for factory automation to improve productivity, we released the Facilea visual programming tool for image processing. Applying over 20 years of image processing technology built up through automatic machinery, Facilea can be easily used by anyone to automate inspection processes that rely on human labor.

Tree of Growth

Pneumatic auxiliary components

2015
- Visual programming tool for image processing [Facilea]
- Flow rate sensors [FSM3]
- Nitrogen gas extraction unit [NS]
- Antibacterial, bacteria-removing filter [SFC/SFS]
- **Speed control valve with adjusting dial [DSC-C]**
- Digital gap switches [GPS3]

2005
- Outdoor FRLs [FRMW]
- Air unit [CXU]
- Fine buffers [FBU2]
- Flow rate controllers [FCM]

1995
- Precision suction plates [PVP]
- **Flow sensors [FSM]**

1985
- Flow sensors [PF]
- Membrane super dryers [SD]
- Electronic regulators [ER]

1975
- **FRLs [C Series]**

1965
- **F.R.L. kit [K Series]**
- Refrigerated air dryers

Drive components

2015
- Certified grippers for collaborative robots
- PowerArm [PAW]
- Linear slide hand [LSH-HP]
- **PowerArm [PFB2]**

2005
- Linear slide cylinder [LCG/LCM/LCR/LCW]
- Global cylinder [SCG-STG]

1995
- Find speed cylinders
- Air bearings [LBC]
- Table-shaped rotary actuators [GRC]

1985
- Magnet type rodless cylinders [MRL]
- **Rodless cylinders [SRL]**
- Guided cylinders [STS-STL]

1975
- **Compact cylinder [CS]**

1965
- Intermediate position stopping cylinders
- Medium bore size cylinders [SCA]

1945
- **Air cylinders [CA]**
- Cellular cylinders [CAV]

Electric actuators

2015
- Electric Actuator 2-Finger Gripper [FFLD]
- SCARA robot [KHL, KHE]
- Electric actuators [EBM-G, EBS-G]
- Electric actuators [FLCR, FLSH, FGRC]
- Electric actuators [KBX]
- Electric shuttle mover [ESM]
- Low dust generation and belt types [ECV]

2005
- Belt type [ETV]
- Slider type [ETS]
- Electric actuators [ELCR/ESSD ERL/ESD]

1995
- Electric actuators [KBA]
- Small table sliders [KSA]

Electric motion components

2015
- ABSODEX [NX4]
- **τ DISC [ND-s]**
- ABSODEX high precision type [AX7000X]

2005
- ABSODEX compact type [AX6000M]

1995
- Linear P&P units [PPLX]
- Dustproof and waterproof types ABSODEX [AX8000]

1985
- **ABSODEX**
- P&P units
- **Parallel cams [PCI]**

Labor-saving components

1975
- Compact 3-axis machining centers

1965
- Index units [CTIU]

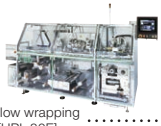
Our pursuit of automatic machinery development and diversification sprung from the seeds of vacuum tube appliance manufacturing. We have used our core technologies as a platform to establish new machinery product fields and continue to develop technologies that meet customer needs. Going forward, we will provide wide-ranging support to manufacturing operations worldwide with our myriad of product lineups.

Automatic machinery

- 3D solder paste inspection machine [VP9000]

- Pharmaceutical products packaging Eco Blister [FBP-320E]

- Winding machines for lithium-ion batteries [PEW-380]



- Medical pillow wrapping machines [HPL-80E]
- Food packaging machine "Eco Blister" [CFF-360E]

- Blister packers for pharmaceutical products and medical devices [MBP-500M]
- Automatic pharmaceutical products packaging machine "Eco Blister" [FBP-300E]

- **Automatic pharmaceutical products packaging machine "Eco Blister"[FBP-600E]**
- PTP foreign particle inspection machine "Flash Patri" [FP600]
- LED backlight manufacturing systems
- **Lithium-ion battery manufacturing machine**

- 3D solder paste inspection machines [VAL-710O]
- Tantalum capacitor manufacturing systems
- Chip mounters
- **Food blister packers [CFF]**

- Blister packers [FBP]

- Electrolytic capacitor winding
- High speed horizontal production of straight tube fluorescent

- Midget bulb units (Stop taillights)
- Blister packers [DBP]
- Index units [RTA]
- Turret drilling machines

- **Light bulb and fluorescent manufacturing**
- **Vacuum tube manufacturing**

Pneumatic control components

- Intrinsically safe explosion-proof pilot 3,5-port valves [4GD※※EX]

- Pilot-operated 3,5-port valves [4GR]

- Outdoor pilot-operated 5-port valves [4F2/3]

- Direct acting 3-port valves [3QR]

- Wire-saving block manifolds [MN4E0]

- **Pilot-operated 3, 5-port valves [4GA-4GB]**

- Wire-saving block manifolds [MN4S0]
- Wire-saving 4-port valves [4T]
- Pneumatic valves [4K]
- **Pneumatic valves [4F]**

- 4-way pneumatic valves [PDC]

- AC solenoid [DS]

Fluid control components

- Thin pilot operated 2-port solenoid valves for compressed air [SP Series]

- Water flow rate sensors [WFK2]

- Automatic sprinklers with resin solenoid valves [GSV2]
- Capacitance electromagnetic flow rate sensors [WFC]
- Electric needle valves for chemical liquids [MNV]
- Wireless diaphragm valves [SWD-MWD]

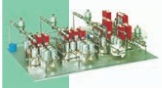
- Metal-free solenoid valves for chemical liquids [MR16]

- Integrated water units [WXU]

- Gas combustion composite valves [GHV]
- Cylinder valves [SAB]

- Valve for chemical liquids [AMD part 3R]
- Pilot regulators for chemical liquids [PMP]
- Process gas regulators [PGM]
- Multipoint float level switches [KML]
- Proportional vacuum pressure control systems [VEC]
- Metal-free solenoid valve for chemical liquids [MYB-MEB]

- **Integrated gas feeding systems [IAGD]**



- Water flow rate sensors [WFK]

- **Special purpose valves**

- **Chemical liquid valves [AMD]**

- High vacuum valves [AVB-AVP]
- Pilot kick general purpose valves [ADK-APK]
- Process gas valves [AGD-MGD]
- Ultra-high vacuum valves [HVB]
- Chemical liquid valves [AMB]

- **Direct acting general purpose valves [AB-AG]**

- Solenoid valves for water [WV]

Fine system components

Core Technologies

CKD's core technologies are divided into the automatic machinery area, which includes pharmaceutical products packaging machines and the component products area, which includes products such as pneumatic and fluid control components that are used in equipment automation. Our customer base covers a wide range of industries, including automobiles, semiconductors, healthcare, pharmaceuticals, and food products. We use these core technologies to fulfill the various requirements of our customers, such as for products that are labor-saving, clean, miniaturized, high-speed, high-frequency, and long-life. Going forward, we will engage in further R&D and business development based on the CKD Corporate Philosophy.

Technology Chart

	Core Technologies	Semiconductors	Medical and pharmaceuticals	Food products	Rechargeable batteries	Electronic components	Automobiles	Machine tools
Automation	Image processing technology		Foreign material inspection machines of blister sheets for pills			3D solder paste printing inspection systems		
	Resin film formation technology		Pharmaceutical products packaging machines	Food packaging machines				
	Resin film sealing (welding) technology		Pharmaceutical products packaging machines	Food packaging machines				
	Pill filling technology		Pharmaceutical products packaging machines					
	Film transportation technology		Pharmaceutical products packaging machines	Food packaging machines	Winding machines for lithium-ion batteries			
	Servo control technology				Winding machines for lithium-ion batteries			
Fluid control	Compact coil design	Directional control valves				Directional control valves	Directional control valves	
	Low-sliding friction technology	Valves for process gas				Pneumatic cylinders	Pneumatic cylinders	
	Flow circuit analysis technology	Valves for chemical liquids	Fluid control valves					
	Miniaturization process management technology	Valves for chemical liquids						
	Water hammer reduction technology	Valves for chemical liquids						Fluid control valves
	Air servo control technology	High vacuum valves Electro pneumatic regulators				Electro pneumatic regulators		
	MEMS technology	Sensor components			Sensor components	Sensor components	Sensor components	Sensor components
	Diaphragm design technology	Valves for chemical liquids Valves for process gas	Valves used in medical analysis	Fluid control valves				
	Clean technology	Valves for chemical liquids Valves for process gas	Valves used in medical analysis	Fluid control valves				
	Compact resolver technology	Direct drive motors				Direct drive motors		
	Gas separation membrane technology			Refining and pressure adjusting components	Refining and pressure adjusting components	Refining and pressure adjusting components		
	Porosity control technology	Static pressure bearing suction cups			Suction plates	Static pressure bearing suction cups		

CKD'S Development Process

Product plan → Development plan → Design → Functional evaluation → Quantity production evaluation

Development Project System

We carry out new product development by gathering specialists from various departments to form a product development team. By dedicating a small but elite group to the task, we enhance development quality.

Quality Assurance

We evaluate and record quality in every phase of development to ensure products are high quality. Our thorough quality control system based on quality engineering meets the customers' every need in terms of quality.

For more information regarding CKD's core technologies, see CKD Technical Journals on our website (Japanese only).
https://www.ckd.co.jp/company/giho/