

We will use our integrated technological expertise to create values that point the way to the future.



Kyohei Matsuoka
President, Rolling Stock Company

Rolling Stock Company

President Interview

Globally expanding a rolling stock business that contributes to global environmental preservation

The Rolling Stock Company supplies railway rolling stock and related systems and equipment, and in doing so contributes to the improvement of the infrastructure needed by society. Railways are now receiving so much favorable attention because of efforts to promote worldwide environmental measures, the increasing speed of trains and the economic growth in emerging countries. A modal shift from road to rail is underway, mainly in developed countries where transportation has been reliant on the automobile. Countries everywhere are studying the adoption of high-speed railways, which save energy, have a lower impact on the environment, and provide superior punctuality. There are also expectations for the turnkey supply of complete railway systems as transportation infrastructure for supporting the dramatic economic growth now underway in the developing countries, particularly in Asia. We will focus on supplying rolling stock, which is the key hardware, while also engaging in cooperative ventures with partners in Japan and other countries to respond to demands to serve as a system integrator as well.

We are further engaged in promoting practical applications for the GIGACELL®, a new type of nickel-metal hydride battery that was developed solely by KHI. This GIGACELL battery features a large capacity, quick charging and discharging performance, and has a long life cycle, so it is expected to have applications as a storage device and power leveling system for use with solar, wind and other such types of power generation. In addition to its use in railroad systems, its use in smart grids and other such applications is also anticipated.

The Rolling Stock Company will strengthen its systems for executing international projects and work to further enhance its product lineup. In doing so, we will pursue the global expansion of the rolling stock business. The Green New Deal policy being implemented now in the United States paints a hopeful view for the railway industry, and with our production centers located in North America, we think it likely that we will also be able to contribute to this industrial policy.

Employee Voices

It has been 20 years since I joined the Rolling Stock Company. During those 20 years, the times have changed drastically and customers have become more demanding about quality. The rolling stock manufacturing being performed at the Rolling Stock Company has also entered into a period of reform. If you look inside our factories and offices, you will notice that the number of veteran employees has shrunk and the number of young employees is increasing, so the knowledge and skills of these veterans must be passed on. I think that from this standpoint, we can make our contribution to society by developing our human resources and by paying constant attention to quality, cost, and safety as we manufacture rolling stock that satisfies our customers.

Employee Family Voices (Ms. Kazuha Tani)

My father builds trains of different kinds. He makes really big trains and I think that is really great. I rode on a train that my father built, but it was so huge that I couldn't believe he makes trains like that. I hope he goes on building trains that everyone can ride on and feel safe.



Ryoichi Tani

Senior Foreman, Carbody Final Assembly Section 1, Manufacturing Department, Manufacturing Division, Rolling Stock Company

Outline of Business

The Rolling Stock Company started manufacturing railway rolling stock at the Hyogo Works in 1906. Since then, the company has manufactured many renowned train cars whose names will remain in railway history and we have earned an unshakable position among Japan's foremost manufacturers.

We have manufactured high-speed rolling stock, typified by the Shinkansen "Bullet Trains," as well as express trains, commuter trains, subway trains, freight cars, locomotives, new transit systems, and other varieties of rolling stock. We supply our products not only throughout Japan, but also to the United States, China, Southeast Asia and other parts of the world. In addition to the Hyogo Works, we also have two rolling stock manufacturing plants in the United States. With the Hyogo Works as the mother factory, our three production centers in Japan and North America can respond to the world's demand for rolling stock.

Vision

To become a global rolling stock systems manufacturer engaging in a wide range of businesses from high-speed rail (HSR) to light-rail transit (LRT) with our world-class technologies and quality.

Product Topics



SWIMO: Low-Floor Battery-Powered Light Rail Vehicle (LRV)

This is a low-floor, battery-powered tram-type light rail vehicle equipped with GIGACELL high-capacity, high-power nickel-metal hydride batteries developed exclusively by KHI and is based on the concepts of "people friendly" and "earth friendly."

*Recipient of the 19th Global Environment Grand Award (sponsored by the Sankei Group) in April 2010.

Rolling Stock Company Website ▶ <http://www.khi.co.jp/english/rs/>



Shigeru Murayama
President, Aerospace Company

Aerospace Company

President Interview

Developing the human resources for the aviation industry and the space development business in Japan, and building connections to technology for the next generation

The Aerospace Company is supporting the growth of the aviation industry and the space development business in Japan.

In business oriented toward the Ministry of Defense, we consider our efforts in developing and manufacturing the defense aircraft that are key elements in Japan's national defense to be significant in passing on the technology for designing and manufacturing aircraft to the next generation. In other words, it is significant in terms of developing human resources. In the civil aviation business, it is important for us to continually introduce the most advanced new technologies while also considering how to produce profits. This company is presently participating in the Boeing project to develop and mass-produce an environmentally compliant next-generation passenger aircraft, the 787 Dreamliner. We are handling the forward fuselage, made of carbon fiber composite materials, as well as the main landing gear well and the main wing fixed trailing edge. In the space development business, we have been involved in development of the entirely domestically produced rockets, the H-IIA and H-IIB, for which we are handling the fairing for satellite storage in the nose and the portion of the payload attachment that releases satellites from the launch vehicle. We have also worked on the Japanese Experimental Module "Kibo," that is part of the International Space Station (ISS). The ISS is being operated with the participation of 15 countries around the world, and our work as a member of this project team is contributing to development of the space development business.

Aircraft and space development projects require over 10 years from the start of research to the completion of a final project. Our mission is to cultivate aerospace engineers who can carry forward the inheritance of Japanese technology and so make sure that connections to the next generation are maintained. This company intends to contribute to growth in the aerospace field by securing opportunities to manufacture finished products in business related to the Ministry of Defense and also expanding our civil aviation business.

Employee Voices

So far I have worked on helicopters and space equipment, and right now my work is on the P-1 fixed-wing patrol aircraft, so I have been involved in products that fly either through the air or in space. I don't think of these products merely as tools for transporting people and things. As I see it, these are products that carry a load of dreams and hopes, as well.

What would it be like if there weren't a single company in Japan that manufactures aircraft or rockets? It would feel so lacking if everything like that had to be imported. I feel great pride in this work because I think it gives many people, and not just children, something to pin their hopes and dreams on.

At-Home Evaluation as a Kawasaki Heavy Industries Man

In some ways, I think I have a stricter evaluation waiting for me at home than at the company. "When is Kawasaki going to make an airplane that can fly on batteries? Water would be all right, too!" (That's my wife.) So long as we don't realize these things, it seems I won't get full appreciation. It may be that the public at large has even greater expectations of us!



Yasushi Shiotani

Senior Staff Officer, Assembly Engineering Section, Production Engineering Department, Manufacturing Division, Aerospace Company

Aerospace Company Website ▶ <http://www.khi.co.jp/english/aero/>

Outline of Business

Ever since 1918, when we entered the aircraft sector, the Aerospace Company has been manufacturing a wide range of products as one of Japan's premier fuselage manufacturers.

In business directed toward the Ministry of Defense, we have played major roles in developing and manufacturing a variety of aircraft, including the T-4 intermediate jet trainer, the P-3C anti-submarine warfare patrol airplane, and the OH-1 observation helicopter. We are currently the prime contractor in domestic development of the MOD's next-generation maritime patrol airplane and next-generation transport aircraft.

In the civil aviation field, we are jointly developing and manufacturing the 767, 777, and 787 aircraft with Boeing in the United States. Other work we are engaged in includes manufacturing the Kawasaki BK117 helicopter.

Vision

A leader in Japan's aerospace industry and an aircraft manufacturer with solid international competitiveness in terms of quality, cost, and delivery speed.

Product Topics



XC-2 Next-Generation Cargo Aircraft

This is the successor to the C-1 that is currently in service with the Ministry of Defense. It has improved airspeed, range, and other performance, as well as a newly developed flight management system and an energy-saving loading and unloading system.

We will use our integrated technological expertise to create values that point the way to the future.



Gas Turbine & Machinery Company

President Interview

Yuichi Asano

President,
Gas Turbine & Machinery Company

Suggesting solutions to boost the realization of a low-carbon society

A variety of different CO₂ reduction measures are being adopted throughout the world as ways of achieving a low-carbon society. One such measure is the use of gas-fueled cogeneration systems and other such distributed energy systems. Our company develops and manufactures gas turbines, steam turbines, and gas engines that are the core of these power generation systems. We are well aware that the quality of the products we supply directly determines the quality of the power generation systems themselves, and because of this, we are engaged day and night in efforts to develop the technology and products we need in order to provide products that are highly efficient and environmentally considerate.

On the other hand, the spirit of "Omotenashi" (hospitality in Japanese) is essential. This is the attitude that provides our customers with services that resolve the particular issues they face even before those customers have become aware of what they need. It is an approach that seeks to get close to the customer's heart and mind in order to resolve problems together with the customer, and this is what could also be called the solution business. This is why we established a new Energy Solution Sales Department in April of this year, and why we have been raising our consciousness of "Omotenashi."

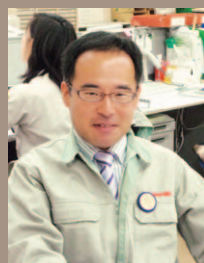
Our company aims to be a global equipment and systems manufacturer in the transportation systems field and the energy and environment field. In the transportation systems field, we are reinforcing our product development capabilities in order to enhance the value of our presence as a partner in the international joint development of civil aircraft engines. Meanwhile, in the energy and environment field, we will focus mainly on expanding our sales in core elements of cogeneration systems, where demand is expected to increase. This includes gas turbines, steam turbines, and gas engines. At the same time, we will also develop our business in other energy-related equipment, such as compressors.

Employee Voices

The Gas Turbine Division manufactures jet engines for aviation and marine use, and power generation devices for cogeneration facilities which make effective use of waste heat. My job is to manage and control profit of the division.

Recent years have brought growing need for machines with less environmental impact, such as transport engines with good fuel economics, and power generation devices with higher efficiency and lower NO_x emissions. In order to meet this challenge we are always making further improvements and conducting more development so that we can supply products that are friendly to the environment, and I feel proud to be engaged in this business.

I hope to go on doing all that I can, using whatever capabilities I have, so that this business can grow and the Kawasaki Group can realize the global mission of "Kawasaki, working as one for the good of the planet."



Hidefumi Yamamoto

Senior Staff Officer, Administration
Section, Administration Department,
Gas Turbine Business Center,
Gas Turbine and Machinery Company

Gas Turbine Business Center Website ▶ <http://www.khi.co.jp/english/gasturbine/>
Machinery Business Center Website ▶ <http://www.khi.co.jp/english/machinery/>

Outline of Business

Ever since the Gas Turbine and Machinery Company started research for jet engines during World War II, the company has been manufacturing jet engines and gas turbines. This includes parts manufacturing for jet engines installed on large passenger aircraft being jointly developed as an international project. And as a pioneer in gas turbines for industrial use, we manufacture aircraft engines, industrial gas turbines, and many types of industrial machineries. We also began producing steam turbines for marine use in 1907. Since that time, we have established a firm position in the industry through our manufacturing of marine steam turbines, marine diesel engines, and all other types of industrial machinery.

Vision

Gas Turbine Business

One of the principal gas turbine manufacturers in the world market, developing global business in the fields of energy and environment and transportation equipment centered on gas turbines as a key hardware.

Machinery Business

A manufacturer developing global business in the fields of energy and the environment and marine through providing products with top-level technology and superior quality.

Product Topics

L20A Green Gas Turbine

L20A Green Gas Turbine is provided as a starter for combined cycle generation to realize the principle of "greater efficiency in energy use and environmental consideration."

Green Gas Engine

Green Gas Engine covers the need for electric power generation of 5 to 7.8 MW. In combination with superior environmental performance, it has achieved the world's highest power generation efficiency of 48.5%.



Plant & Infrastructure Company

President Interview

Toshikazu Hayashi

President,
Plant & Infrastructure Company

Contributing to the world with engineering that unites energy, the environment, and industry

The Plant and Infrastructure Company offers products in the environment and energy field to contribute to resolving the world energy problem, soil and water pollution, and other such environmental problems. As part of this effort, the company is promoting waste heat power generation in China. We have installed approximately 100 waste heat power generation units in cement plants, and they are generating 2,000 MW of electricity. For the future, we intend to focus on the zero-emission eco-town concept to treat the trash and waste water generated by everyday urban living for use as fuel and industrial water, thus creating a complete cycle of energy and resource use within a city.

Meanwhile, in the field of industrial technology, we will design, procure, and deliver fertilizer plants, cement plants, and other chemical plants, as well as industrial plants for coal, steel, nonferrous metal, and so on. We hope in this way to contribute to food production and economic expansion in countries and regions that are trying to achieve growth.

This company is itself an engineering group unparalleled in the world with triple technical capabilities in energy technology, environmental technology, and industrial technology. Our strength is in combining these capabilities to achieve a certain purpose. We intend to go on improving these existing technologies to achieve a synergistic effect that will increase the number of technologies and products that are unique to us and at the top of their field. In the environment and energy field, we are engaging in development of innovative CO₂ sequestration technology and hydrogen-related technology, while in the industrial machinery field, we are working on the semiconductor and liquid crystal fields, and we also plan to expand our challenge to development of automated cell culture systems and other such technology in the medical field.

Employee Voices

My work is in product development and design support for energy and environment-related products. I use quantitative analysis and other such methods in an effort to enable the manufacture of products with higher added value. This fiscal year, I have also been involved in training young engineers through work as an instructor in the K Plant Gijutsu Juku (technical training course for the education of young engineers).

At-Home Evaluation as a Kawasaki Heavy Industries Man

I am also the mother of two small children, and I am making use of our company's child-rearing leave and flex-time systems. Just recently, my husband had to be away for three weeks on a job assignment, and I managed to make it through his absence by coordinating my work hours using flex-time and by doing whatever work assignments I could in advance. The time I spend at the company is short because I am raising my children, but I will go ahead and do the best I can by figuring out how to work more efficiently.



Miki Nakama

Performance Assessment Section,
Corporate Technology Department,
Project Development Division,
Plant & Infrastructure Company

Plant & Infrastructure Company Website ▶ <http://www.khi.co.jp/english/kplant/>

Outline of Business

The Plant and Infrastructure Company has been designing, procuring, and supplying all types of industrial equipment and facilities since the 1960s. These include cement plants, chemical plants, and other such large plants, exhaust gas desulfurizers and other such air pollution control equipment, and boilers for power generation and industrial use.

We further engage in design, procurement, and supply of waste incinerators, sewage treatment units, and other facilities and equipment for environmental protection. We also manufacture LNG tanks and other steel structures as well as shield machines and other excavation machinery for use in underground construction.

In China, we have also undertaken a joint venture with the CONCH Group, the largest enterprise in the Chinese cement industry, to design, manufacture, and market waste heat power generation equipment in cement plants. We are promoting the dissemination of such waste heat power generation equipment in China, and so contributing to energy conservation and environmental protection.

Vision

A plant manufacturer of distinctive character providing products and technology that are involved primarily in energy conservation, resource conservation, and resource recycling, and that are capable of contributing to global environmental preservation and CO₂ reduction.

Product Topics



Waste Treatment Facility for Use in Cement Kilns

This integrates the processes of a cement plant and a waste incinerator to render the waste non-toxic, decrease its quantity, and enable recycling of resources. We are manufacturing these facilities in a joint venture with the CONCH Group in China.

* Nominated for the Blue Sky Award of the United Nations Industrial Development Organization (UNIDO) in May 2010.

We will use our integrated technological expertise to create values that point the way to the future.



Hiroshi Takata
President,
Motorcycle & Engine Company

Motorcycle & Engine Company

President Interview

Manufacturing products that both satisfy the needs of a low-carbon society and fulfill the customer's desire for something "Fun to Ride"

As a division directed to general consumers, our company conducts product development to provide Kawasaki enthusiasts with satisfying performance and design. At the same time, it is our important responsibility to comply with the stringent environmental controls such as noise and exhaust emissions in different countries, as well as assuring safety by sufficient braking capability and other devices. Mitigation of the environmental impact of production is also part of our responsibility to society, and we strive to use less energy in production that is ever cleaner.

The leisure motorcycle market is expected to grow in the emerging countries, and we want to provide "Fun to Ride" products there, as well. In order to increase the number of Kawasaki enthusiasts in this way, we aim to provide products with improved quality and functionality at reasonable prices. Our company was early to deploy plants overseas, and in Southeast Asia, we have production underway in Thailand, the Philippines, and Indonesia, but we also made full-scale efforts to penetrate the Brazilian and Indian markets.

For the future, we intend to take the improvement of environmental technology as our theme and develop new technologies, electric-powered motorcycles, and other products that satisfy both the needs of a low-carbon society and of people who desire the joy of riding. There is also the area of general-purpose engine products, where we intend to press ahead with product development and marketing activities to have Kawasaki engines used by as many people as possible. In this we are looking to the needs for support of bio fuel and LPG, as well as the expanding market for engines with agricultural applications in the emerging countries.

Outline of Business

The Motorcycle & Engine Company manufactures a broad range of products, including motorcycles, ATVs (all-terrain vehicles), recreation utility vehicles, utility vehicles, JET SKI® watercraft and general-purpose gasoline engines; and supplies them to markets around the world.

Kawasaki began production of motorcycle engines in 1953, and has introduced a number of historically renowned motorcycles, such as the Z1 and GPz900R. Currently popular models include the Ninja 250R and Z1000. The company has also been marketing various kinds of general-purpose gasoline engines, ranging from ultra-miniature 23cc engines to 1000cc V-twin engines, as well as brush cutters, blowers, etc., equipped with those engines.

In addition to the Akashi Works, which is the "mother factory," production bases are deployed in the United States, South America, and Asian countries.

Vision

A leading world-level manufacturer of engines and personal vehicles, centered mainly on motorcycles, advancing through further penetration of "Fun to Ride" products against a background of advanced environmental technology.

Product Topics



1400GTR

The Sport Tourer model 1400GTR is newly equipped with rider support technology to enhance driving safety and systems to promote greater efficiency and fuel economy when driving.

Employee Voices

I am making the best use of my experience in the production engineering division to work on consolidating environmental management systems in the company. In the production engineering division, we were on the energy-using side, but now I am taking pains to set up arrangements for production that uses as little energy as possible, and for manufacturing of products that have less environmental impact. Society now is paying attention to global warming, recycling, and other environmental issues. With that impetus, we are hoping to broaden the range of environmental protection measures here in our company, as well. Just lately, I took a vacation to take a trip to Guam. I thoroughly enjoyed the nature there under the beautiful sky and came back with a solid new appreciation for the importance and the pleasures of the global environment. I'm thinking of putting that to use at work, too.



Motomu Nishikawa
Senior Staff Officer, Environmental Planning Section, Planning Department, Corporate Planning Division, Motorcycle & Engine Company

Motorcycle & Engine Company Website ▶ http://www.kawasaki-cp.khi.co.jp/index_e.html



Makoto Sonoda
President,
Precision Machinery Company

Precision Machinery Company

President Interview

Building bonds of trust with the customer and providing behind-the-scenes support for environmental protection and production efficiency improvement

The Precision Machinery Company, with Japan as its base, has established centers in the United Kingdom, Germany, the United States, South Korea, and China through which we are carrying on a global expansion of our production, marketing, and services. In hydraulic equipment, we are presently concentrating our production and marketing efforts in China, where the market for hydraulic excavators is expanding into the largest in the world. In industrial robots, too, the needs for automation are growing rapidly in China as well as in other developing countries, and we are gearing up our organization for the increased demand.

A key part of global expansion is the ability to provide products with performance and quality that are the same everywhere in the world. In order to achieve this, we consider it necessary to deploy our conceptual approach to manufacturing, which we could call the Kawasaki Way, at our bases throughout the world.

Amid growing concern over global environmental problems, there is demand for greater energy saving and heightened efficiency in construction machinery and industrial machinery itself. We have been increasing the efficiency of hydraulic equipment by increasing the rated pressure and reducing pressure losses, and this has contributed to energy saving of the machines which load our equipments on board. We intend to contribute to further energy saving and CO₂ reduction in the future by developing hybrid equipment that combines hydraulic and electric systems, and by developing hydrogen gas valves for use in fuel cells, and other such products.

In the field of industrial robots, customers have a need to build product lines capable of lower cost and higher quality production. This company will respond to these needs by proposing our unique solutions that combine thoroughgoing space saving and energy saving with reduced total cost as well as further advanced robot intelligence.

Outline of Business

The Precision Machinery Company originated in 1916, when we began manufacturing hydraulic steering gear. Ever since then, we have been manufacturing pumps, motors, valves, and other hydraulic equipment that are important functional components in many different kinds of construction machinery and land-based hydraulic machinery used in assembling those components as well as other maritime hydraulic equipment including steering gear and deck machinery. In 1969, we were the first to begin manufacturing industrial robots in Japan, and since that time we have manufactured large numbers of welding robots, handling robots, assembly robots.

Vision

Hydraulic Equipment Business

A top brand manufacturer on the world level in the motion control field as well as a provider of drive and control equipment, engineering, and services centered on fluid power technology.

Robot Business

A robot manufacturer that will establish its top position to provide quality and total solutions in automotive, semiconductor and general manufacturing fields. And also blaze a trail in the new field with automation needs.

Product Topics

Various Pumps, Valves, and Motors

Kawasaki hydraulic equipment and systems are used in construction machinery and industrial machinery where great power and certain control are required, including a wide variety of applications in various kinds of construction and other machinery.



Small and Medium-size R Series Robots

Kawasaki robots are active in various kinds of factories. They are key elements of hardware in saving energy and raising production efficiency.

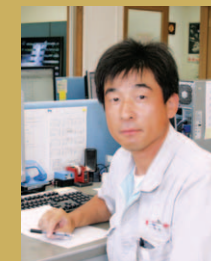


Employee Voices

I work in the Personnel and General Administration Department, coordinating general administration, facilities, property and assets, power, and security operations. The convenience and prosperous lives we enjoy in this era are realized by a variety of different things, including buildings and infrastructure. It is virtually a certainty that hydraulic equipment and technology play active parts at some point during the process by which those things are made. I don't think there are any other products from Kawasaki Heavy Industries that are as closely involved with our daily lives. To turn this around, I do my job with a sense of pride that our business is supporting people's lives.

At-Home Evaluation as a Kawasaki Heavy Industries Man

This may be a regional characteristic, but the people in the neighborhood of the company, the people around the neighborhood where I live, and the people involved in my children's school all refer to our company using the affectionate nickname "Kawaju san." I think this kind of intimate feeling comes from a relationship of trust that has been built up over a long history. On the one hand, this gives me a feeling of security, to be accepted by the local community. On the other hand, it also makes me want to do my work with a greater concern for CSR activities, partly because we are inheriting the trust built up by the company people who went before us.



Hidenobu Mineyoshi
Senior Staff Officer, Personnel and General Administration Department, Planning and Control Division, Precision Machinery Company

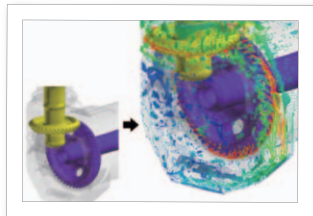
Precision Machinery Company Website ▶ <http://www.khi.co.jp/english/kpm/>
Robot Business Center Website ▶ <http://www.khi.co.jp/english/robot/>

The businesses and products of each company of the KHI Group introduced in the preceding pages exist on steady efforts to achieve technology development, product quality, and product safety. The following pages will illustrate some of the basic, R&D activities that support the Kawasaki Group's businesses.

Crossover Technologies at the Leading Edge

The businesses and products of our Group extend across a wide spectrum of fields, including transport systems, energy and environment facilities, industrial equipment, and so on. To support this broad business field, the Corporate Technology Division, which is the corporation's research and development center, provides cross-cutting support for basic technologies at the leading edge, and works to pursue development efficiency and synergy effects.

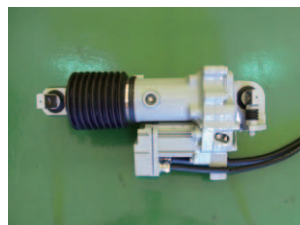
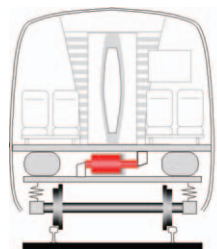
Transport System Products



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Contributing to Energy Saving in Aircraft Oil Simulation Technology for Engine Gearbox

In order to achieve energy savings, there is a strong demand for increased energy transfer efficiency on the gearboxes that transmit driving power from aircraft engines to power generators, pumps, and so on. This technology represents the first successful attempt in the world to predict the behavior of lubricant inside the gearbox, and it has received very positive evaluations, including the award for Best Paper of the Year by the Aircraft Engine Committee of the American Society of Mechanical Engineers.



Realizing a Comfortable Ride Quality Active Vibration Control Technology for High-speed Railway

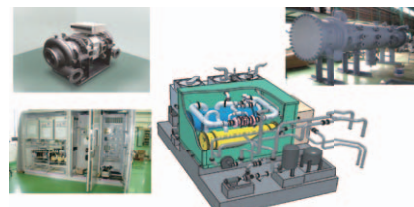
The faster railway cars travel, the more vibration increases. This technology enables to improve the ride quality of high-speed railways. The electronic actuators installed between the car body and the bogies to control lateral vibration.

Energy and Refuse Incineration Products



Waste Recycling: Thermal-hydraulic Analysis Technology for Combined Refuse Incineration Systems and Cement Plants

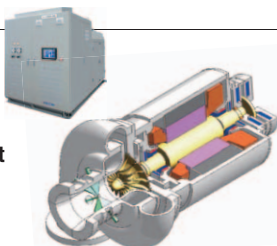
This is the world's first combined system that provides gasification fuel from the refuse to cement plants, thus enabling recycling of the refuse. The thermal-hydraulic analysis technology is used in optimizing the position for feeding fuel gas to cement plant pyrolysis furnaces and other such applications.



Effective Use of Unutilized Energy: Technology to Support Binary Power Generation Systems Using Low-temperature Waste Heat

The binary power generation system enables to recover low temperature thermal energy from 80°C to 120°C that is difficult to utilize with usual technologies. Developed with the aim of making a low-cost, maintenance-free system, the high-performance heat exchanger, integrated turbine generator, power converter, and so on employ the most up-to-date technologies.

Industrial Equipment Products



Energy Saving in Sewage Treatment Facilities: Aeration Blower Using High-speed Electric Motor with Magnetic Bearings

Blowers are used for aeration of the bioreactors that separates contaminants from wastewater. Approximately 40% of all the electricity in sewage treatment plant is used by the blowers. Unique basic technologies relating to power electronics, electromagnetic field analysis, electro-machinery design, control system design, and so on are contributing to reduction of the power consumption by aeration blowers.

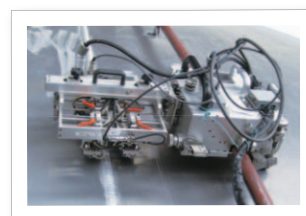


Assisting with Advances in Regenerative Medicine: Advanced Basic Technologies for Automatic Cell Processing Systems

This device implements automatic processing of various kinds of cells for use in the fields of regenerative medicine expected as a leading-edge medical technology and drug discovery. It was realized through the use of clean robot technology, image processing technology, production management technology, and so on. This system was the first in the world to succeed in automatic processing of human iPS cells, which has been difficult except when handled by experienced technicians.

Measures to Improve Product Quality

- We are taking various measures for quality improvement tailored to the characteristics of mass-produced items and individually ordered products.
- We implement preventive quality assurance and front-loaded development at the product development stage in order to reach higher product quality.
- We hold technical training, seminars, and other such activities to educate employees about quality problems and to share information. At the same time, we are working to prevent the recurrence of faults by registering quality assurance problems on a database.



Case Example of Quality Improvement Measure Automation of the Non-destructive Testing of Welds on Spherical LNG Tanks Loaded on Ships

Spherical LNG tanks for loading on ships are manufactured by assembling multiple members, and this technology enables automated inspection of the welds' soundness using ultrasonic. Inspection used to be manual, and required enormous amounts of time and labor, but this technology now enables inspections to be carried out rapidly and with stability.

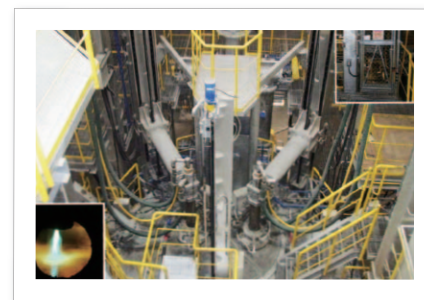


Education and Information Sharing on Quality Problems by Technical Training and Seminars

Training is based on quality problems experienced in the past, as well as case examples of faults. At the same time, all business divisions explicitly report on the causes, countermeasures, and other aspects of those faults. The purpose is to prevent recurrence of similar problems by sharing these information.

Measures to Manage Product Safety

- The Group Management Principles, which were formulated as the Kawasaki mission statement, contain this statement of our corporate safety policy: "...the Kawasaki Group is committed to providing high-performance products and services with safety and superior quality secured."
- In order to make the process of realizing product safety compliant with ISO12100, an international standard for safety of machinery, we are having the business divisions reassess their internal regulations regarding product safety. As a result of this process, the implementation of risk assessments in the design divisions and the implementation of risk reduction measures appropriate to the magnitude of the risks discerned are going to be incorporated into the design process.



Risk Assessment Implementation Example: Ash Fusion Furnace

The plasma torch that serves as the heat source for the ash fusion furnace attached to a waste incineration plant has electric power applied to it in the form of direct current at high amperage and voltage (maximum of 2400 A at 1000 V). The outer tube of the torch builds up an electric charge of approximately 400 V. Such facilities require careful safety measures against electrocution. A risk assessment was therefore carried out, and measures were taken accordingly, including establishment of a special zone in the vicinity of the torch and the installation of a door interlocked with equipment shutdown.



Risk Assessment Implementation Example: Wheel Loader

We are conducting a risk assessment at the design stage of wheel loader development that covers the driver, workers in the vicinity, service personnel, and third parties when the product is being transported, driven, operated, inspected, and maintained. We are devising protective measures appropriate to the risk level category to be taken in accordance with the risk reduction process of ISO12100.

The KHI Group is making use of its experience and technology as one of the preeminent manufacturers of large hydrogen storage tanks and hydrogen transport vehicles in Japan to propose its “CO₂-free hydrogen concept.” This is our new energy concept oriented to the future of society.

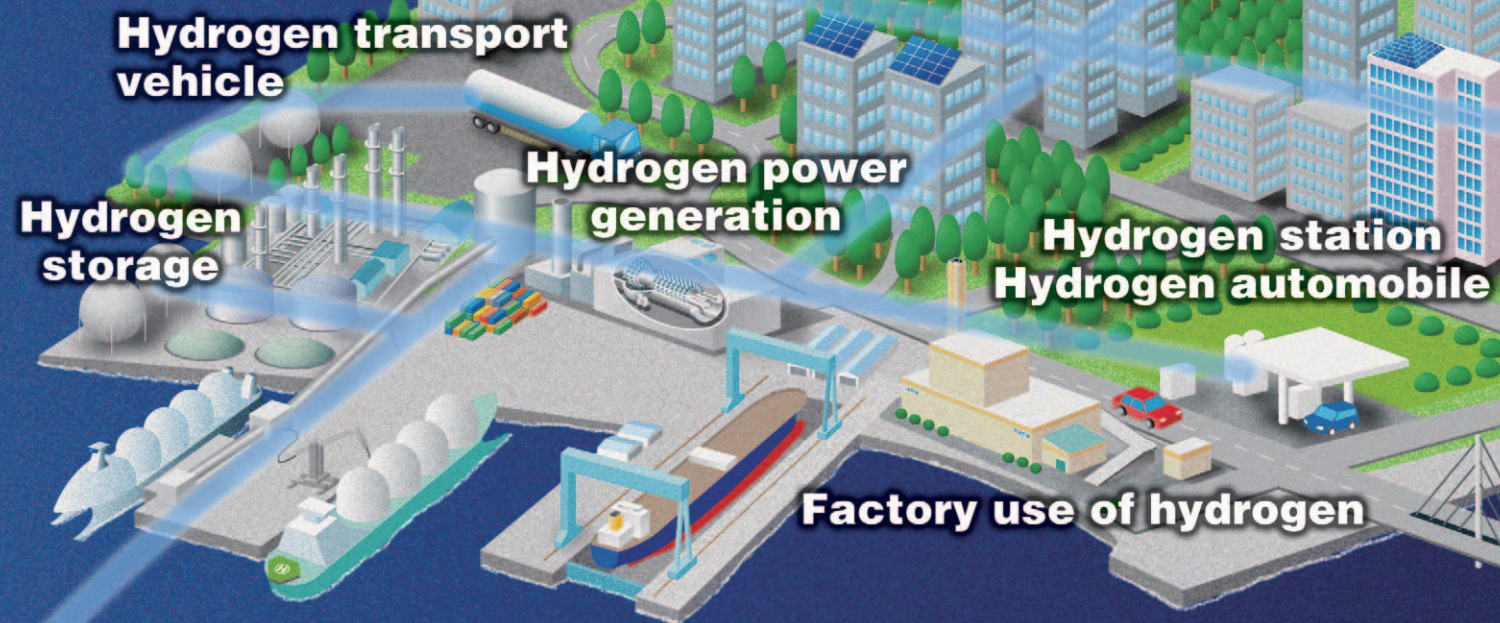
A Future for Society Created by the KHI Group

— Toward the Proposal of a “CO₂-Free Hydrogen Concept”

Looking ahead to the future of 2020 and 2030, it appears likely that worldwide energy demand will have continued increasing due to the rapid economic growth of the developing countries.

Under these circumstances, a country that is not rich in resources like Japan will have to pursue energy security while also realizing even greater CO₂ reductions in order to protect the global environment.

We are promoting one approach for resolving this situation, namely to develop CO₂-free hydrogen applications which do not emit CO₂ into the atmosphere during either produce or use.



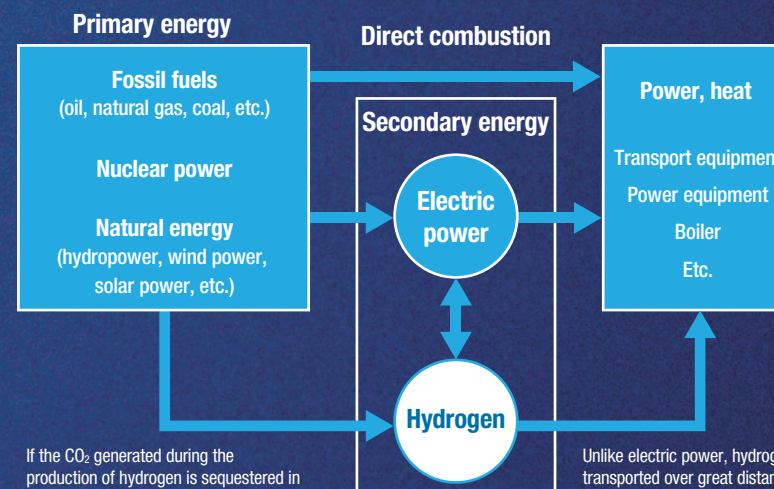
Toward the Formation of a Low-Carbon Society

On this concept, hydrogen will be made in resource-supplying countries from lignite, a low-grade coal that is hardly used. The CO₂ generated at the same time would undergo sequestration in stable geological formations of the resource-supplying countries.

It is also possible to produce CO₂-free hydrogen by electrolysis of water using electricity generated by wind and solar power. The CO₂-free hydrogen obtained in this way would be transported by hydrogen transport vessels to the resource-using countries such as Japan, where it would be used for power generation and automobile fuel.

Resource-using country

Hydrogen transport vessel

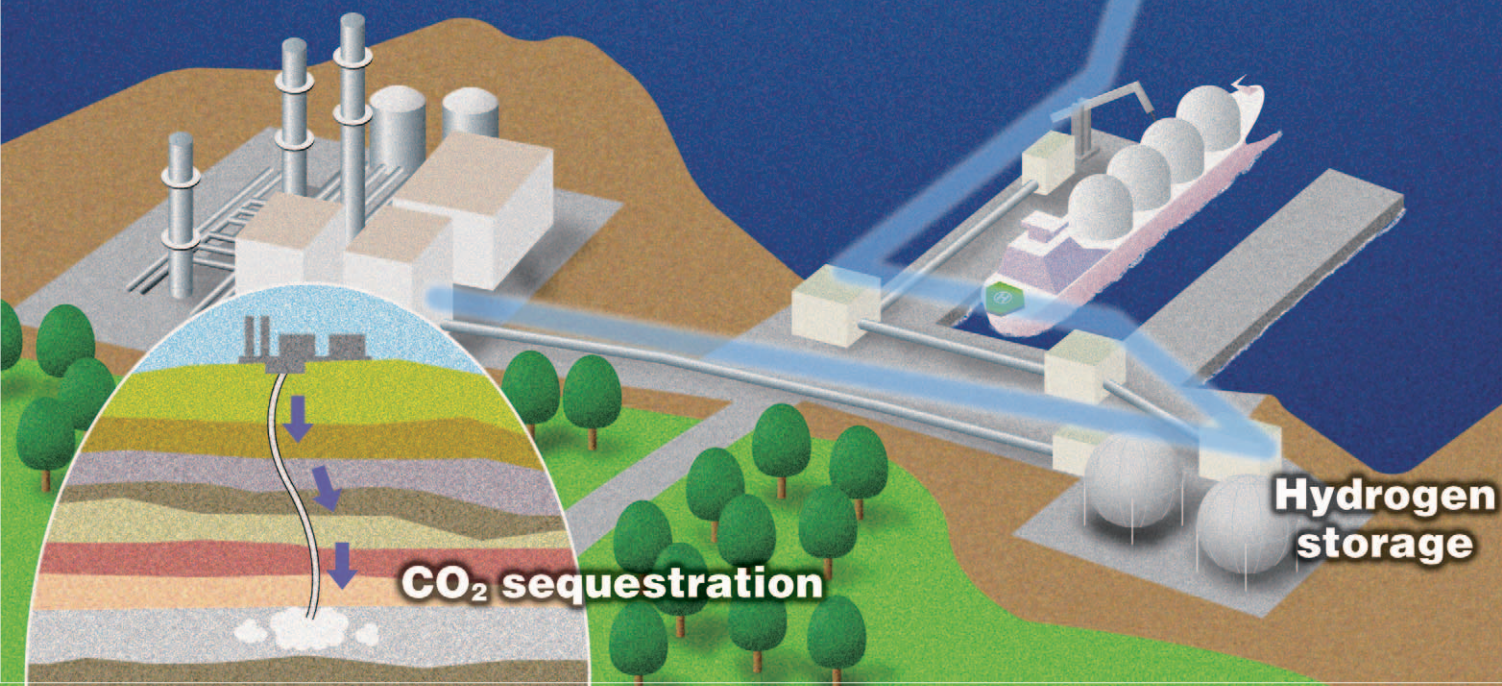


If the CO₂ generated during the production of hydrogen is sequestered in the resource-supplying country, the hydrogen can be used as a CO₂-free energy.

Unlike electric power, hydrogen can be transported over great distances with its low losses, and therefore can be used anywhere in the world.



Hydrogen production



Resource-supplying country