

Explore the Engineering Edge

IHI

THIS IS IHI

**Products
&
Technology**

Ishikawajima-Harima Heavy Industries Co., Ltd.

Explore the Engineering Edge

In December 2003, Ishikawajima-Harima Heavy Industries Co., Ltd., (the "Company") celebrated the 150th anniversary of its establishment.

From its beginning as a shipbuilder, IHI has expanded its operations over the years to cover a widely diversified range of machinery and equipment for use on land, in the sky and in outer space. We have consistently leveraged the accumulated knowledge, know-how and ingenuity of our corporate Group to provide inspiration and direction for one new age after another.

Today, at a time of unprecedented demand for innovation and change, we continue to "Explore the Engineering Edge." This new corporate slogan expresses our commitment to searching the frontier of engineering, vigorously and unceasingly, for never before imagined possibilities and solutions appropriated to our era.

This commitment is founded on three principles:

- To bring dreams to reality—unlimited enthusiasm for making things of high quality
- To innovate in business and technology—insatiable curiosity and unconventional thinking
- To create new value—an exceptional ability to integrate expertise in various business to provide total solutions

At this significant juncture, IHI and our partners and associates around the world look forward to building on the tradition of innovative leadership that sustained our first 150 years of growth and development.

We will continue to explore the engineering edge, deploying all the resources and resourcefulness at our disposal to construct a better world.

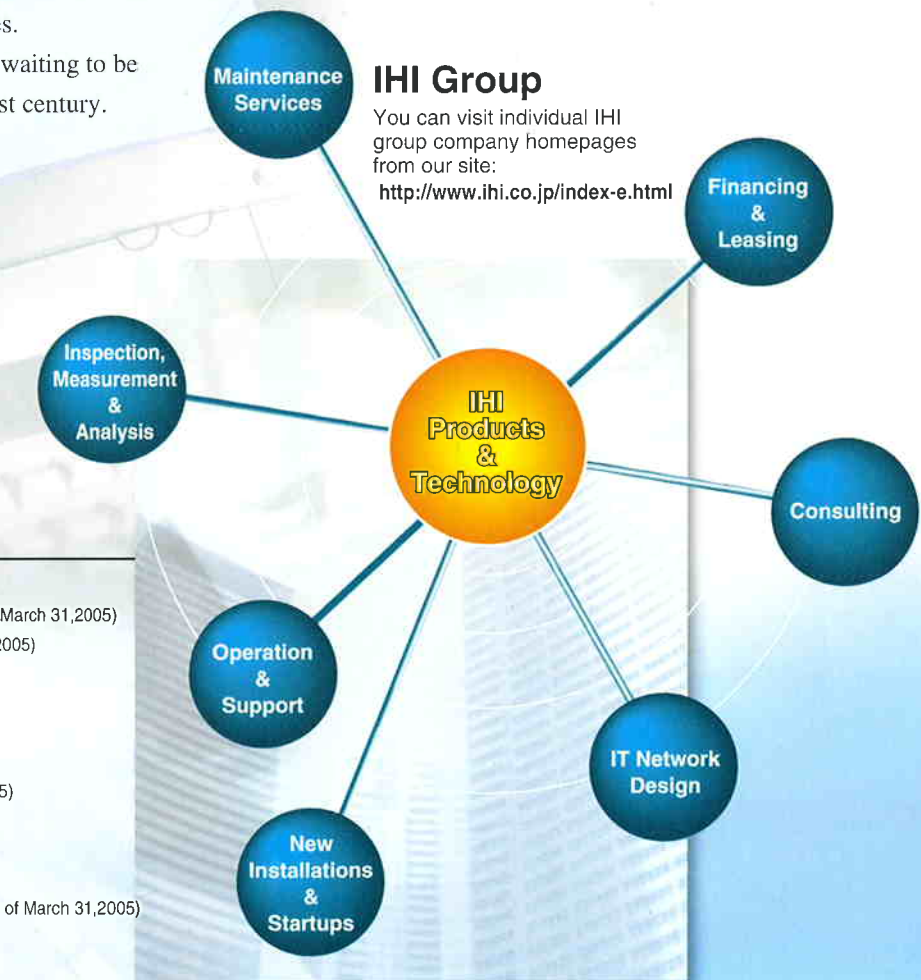
Explore the Engineering Edge



The power of the IHI group companies gathers to provide you with total solutions.

Based on our management philosophy "Using technology for the benefit of society," IHI has introduced a wide range of products to support society and industry for over 150 years. IHI's history is the history of realizing new dreams through the use of technologies. With the experience and technologies obtained through our long history at IHI, we put together all our capabilities, covering the fields of land, sea, sky, and outer space, to provide new products in demand in society and the world, and also new technologies in various shapes and sizes.

In search of new technological possibilities waiting to be discovered — IHI is the company for the 21st century.



IHI Group

You can visit individual IHI group company homepages from our site:
<http://www.ihi.co.jp/index-e.html>

Company Profile

● Founded	1853
● Capital	¥64,924 million (as of March 31, 2005)
● Employees	7,386 (as of March 31, 2005)
● Works	13
● Branches and sales offices in Japan	28
● Major affiliated companies in Japan	99 (as of August 1, 2005)
● Overseas offices	12
● Overseas subsidiaries and joint ventures	60
● Consolidated net sales	¥1,089,047 million (as of March 31, 2005)

Net Sales by Segment (for the year ended March 31, 2005)

Non consolidated net sales : ¥608,369 million

Logistics Systems and Structures Operations ¥101,725million (17%)	Industrial Machinery Operations ¥94,885million (16%)	Energy and Plant Operations ¥223,061million (36%)	Aero-Engine and Space Operations ¥182,708million (30%)	Other Operations ¥5,989million (1%)
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Consolidated net sales : ¥1,089,047 million

Logistics Systems and Structures Operations ¥176,247million (16%)	Industrial Machinery Operations ¥124,520million (11%)	Energy and Plant Operations ¥301,221million (28%)	Aero-Engine and Space Operations ¥233,190million (22%)	Shipbuilding and Offshore Operations ¥120,957million (11%)	Other Operations ¥132,912million (12%)
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IHI manufactures an enormous range of products. From a wide variety of plants, machinery and facilities that support industry and society, to simpler facilities closer to our daily lives, IHI is continuing to broaden this product lineup in all areas of human activity, from the earth to outer space.



Space Development

- Rocket
- Rocket propulsion systems
- Rocket control systems
- Satellite propulsion systems
- Satellite control systems
- Equipment for utilization of space environments
- Space station-related equipment
- Ground test facilities
- Ground support facilities



Storage Facilities & Process Plants

- Storage facilities
- Oil and gas processing plants
- Chemical plants
- Seawater desalination plants
- Pharmaceutical plants
- Cement plants
- Ultrafine grinding mills
- Chemical plant equipment
- Cooling towers



Jet Engines

- Turbofan engines
- Turbojet engines
- Turbojet engines
- Turbojet engines
- Turbojet engines
- Jet engine maintenance
- Jet engine test cells
- Jet engine parts



Environmental Preservation & Disaster Prevention

- Solid waste treatment systems
- Zero-emission facilities
- Air pollution prevention systems
- Wastewater treatment systems
- Noise reduction systems
- Seismic isolation floors
- Mass damper systems
- Pollution prevention ships
- Tunnel ventilation fans
- Environmental simulation facilities



Energy Systems

- Boilers for power plants
- Industrial boilers
- Fluidized-bed combustion boilers
- Waste-heat recovery boilers
- Coal gasification combined cycle power facilities
- Components for nuclear power plants
- Radioactive waste management systems
- Gas turbine power generation systems
- Diesel engines/gas engines
- Co-generation systems
- Wind power generation systems
- Fuel cells



Materials Handling Equipment

- Container cranes
- Unloaders
- Stackers
- Reclaimers
- Electric overhead traveling cranes
- Jib cranes
- Floating cranes
- Conveyors



Physical Distribution Systems

- Automated warehousing systems
- Storage systems
- Conveyor transfer systems
- Sorting systems



Bridges & Steel Structures

- Bridges
- Gate equipments for rivers
- Gate equipments for dams
- Hangar dock systems
- Boarding bridges
- Floating breakwaters
- Floating bridges
- Immersed tunnels
- Hybrid caissons
- Steel structures for buildings



Construction Machinery

- Shield tunneling machines
- Automatic segment assembling systems
- Jib climbing cranes
- Excavators
- Materials handling machines
- Cranes
- Concrete machines
- Street sweepers
- Sludge recycle plants



Industrial Machinery

- Rolling mills
- Industrial furnaces
- Pulp & paper production plants
- Presses
- New materials manufacturing facilities
- Rubber & plastic forming machines
- Vacuum heat treatment facilities
- Pumps
- Compressors
- Blowers
- Semiconductor & LCD panel equipment
- R&D Facilities



Standard Machinery

- Turbochargers (for vehicles and ships)
- Superchargers
- Separators
- Filters
- Dewatering equipment
- Compressors
- Stepping cylinders
- Fueling equipment
- Packaged boilers
- Hoists



Facilities & Products for Civil Use

- Pedestrian bridges
- Moving walkways
- Ozone-based deodorizing and disinfecting equipment
- Dish and utensil washers
- Agricultural machinery
- Disaster prevention equipments
- Water-purifying equipments
- Refuse compactor
- High-temperature heating system
- Marina business



Traffic Systems & Parking Systems

- Automated people mover systems
- Parking systems
- Rolling stocks
- Snowplows



Control & Sensor Related Technology

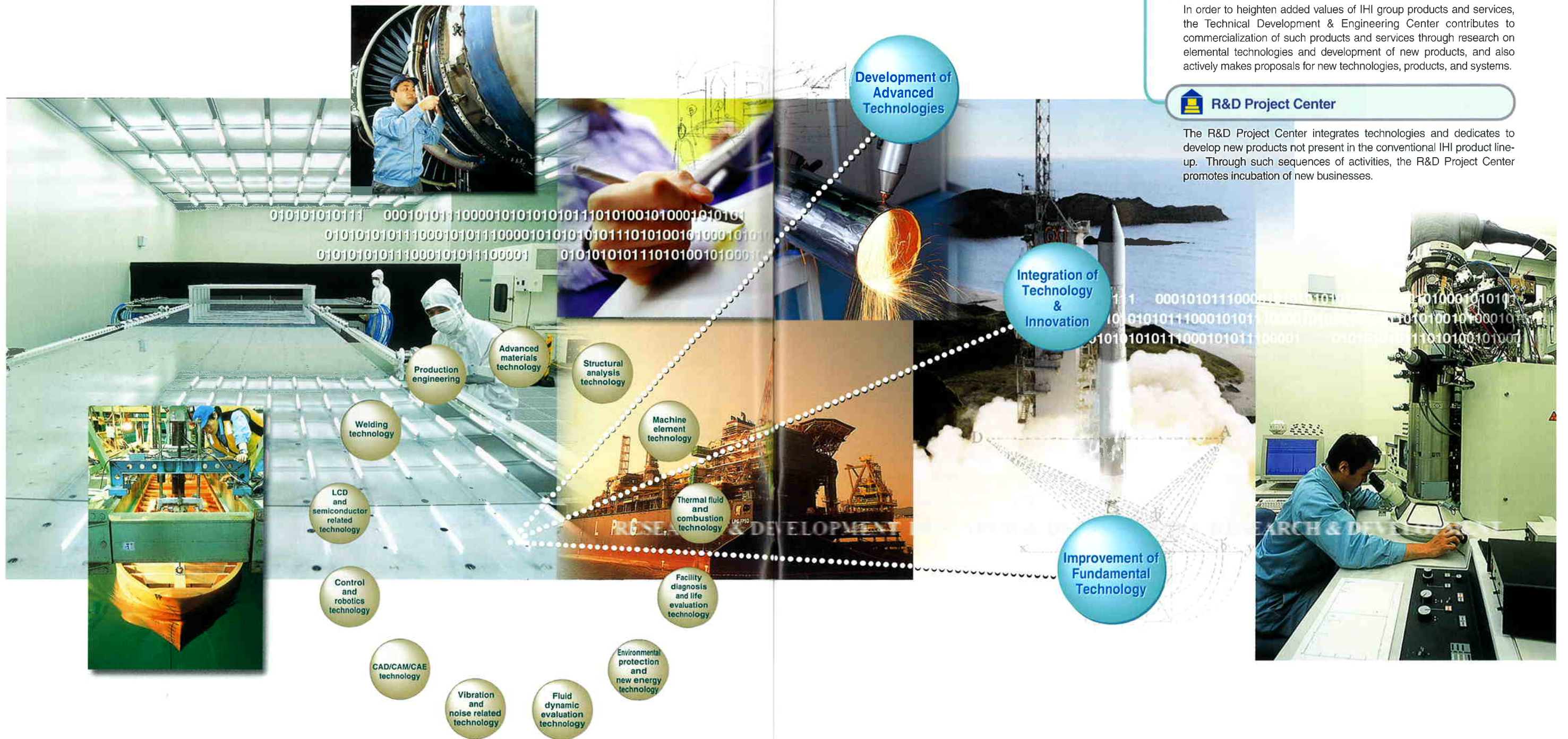
- Laser radar
- Monitoring equipment
- Visualization equipment
- X-ray inspection equipment



Ships & Offshore Facilities

- Oil tankers
- LNG/LPG carriers
- Container ships
- Bulk carriers
- Passenger ships & ferries
- Naval vessels & coast guard ships
- Work vessels
- Offshore development equipment
- Marine engines
- Deck cranes
- Deck machinery
- Propulsion units

IHI conducts research and development with three basic goals: "to pioneer new fields of leading-edge technologies," "to advance common fundamental technologies," and "to integrate technologies to develop new types of products." By making constant efforts to increase efficiency, reliability and durability, while reducing the burden on the environment, we have achieved steady results that are leading to greater contributions to society through new technologies. Research and development: the foundation of IHI.



Research Laboratory

The laboratory is eager to upgrade shared basic technology associated with products and services of the IHI group. It also aims at the development of new striking technologies for future models. The goal of the daily R&D activities always is to become the leader in each technological field.

Production Engineering Center

In order to enhance the competitiveness of IHI's various products, ranging from large scale structures to precision products for aerospace, the Production Engineering Center develops technology that creates differentiation and cost savings, focused on production engineering. It also develops production systems that link design, procurement, manufacturing, installation, and maintenance each other.

Technical Development & Engineering Center

In order to heighten added values of IHI group products and services, the Technical Development & Engineering Center contributes to commercialization of such products and services through research on elemental technologies and development of new products, and also actively makes proposals for new technologies, products, and systems.

R&D Project Center

The R&D Project Center integrates technologies and dedicates to develop new products not present in the conventional IHI product line-up. Through such sequences of activities, the R&D Project Center promotes incubation of new businesses.

Advanced Materials Technology

- Super alloys
- Intermetallic compounds
- Polymers
- Fine ceramics
- Composite materials



Ceramic composite-material rocket combustion chamber

Materials technology forms the foundation of many industries. IHI has been developing various advanced materials, including super alloys with controlled crystalline structures, intermetallic compounds, polymers, fine ceramics, and composite materials of polymer, ceramic and metal matrixes. In the area of applications for advanced materials, research and development is being conducted on manufacturing and processing technology, microstructural and chemical analyses, and materials testing and inspection.

Structural Analysis Technology

- Fluid-structure interaction problems
- Estimation of residual stress / thermal deformation
- Life estimation of structures
- Advanced computational mechanics
- Impact and explosion phenomenon



Structural analysis of a turbocharger subjected to high exhaust gas

Structural analysis is the fundamental technology necessary to ensure integrity and life cycle of products. IHI is conducting research to establish design of products, including concrete structures, by means of analytical technology, such as crack propagation, optimization techniques, particle methods, and the other advanced analysis techniques. In the field of computational mechanics, we are expanding our activity to the analysis of coupling problems between heat, fluid, and structure, and of impact and explosion phenomenon, and so on. Moreover, using results of simulation for welding deformation, manufacturing procedure is continually improved for high accuracy fabrication.

Machine Element Technologies

- Bearings
- Seals
- Gears
- Rotordynamics
- Blade vibration analysis
- Tribology

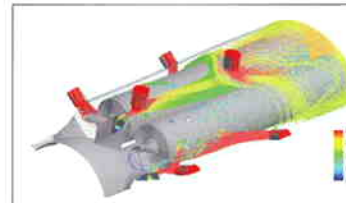


Dry gas seal for turbo gas compressor

Machine element technology is a fundamental technology for all machines. In particular, it is one of the most essential technologies necessary for turbo machines. Machine elements include shafts, bearings, seals, gears, blades, and all kinds of rotation parts. Based on machine element technology, IHI conducts research and development with the above elements as well as with rotordynamics in order to improve machine performance and reliability.

Thermal Fluid and Combustion Technologies

- Fluidized bed combustion
- Numerical analysis of combustion
- Combustion vibration analysis
- Evaluation technology for complex systems including heat transfer, phase change and reaction
- Energy-saving heat system



Numerical analysis of flow and combustion in gas turbine combustors

In order to design energy systems and to improve their performance, it is necessary to understand and evaluate complex heat, heat flow and combustion problems occurring in boilers, gas turbines, reciprocating engines (i.e. diesel engines and gas engines), industrial furnaces and incinerators. To meet these requirements, IHI develops techniques involving evaluation and instrument design using new numerical analysis and test measurement technologies.

Moreover, with the goals of environmental protection and effective energy use, IHI develops advanced technologies such as high temperature and high pressure combustion as well as new thermal storage systems.

Facility Diagnosis & Life Evaluation Technology

- Creep damage
- Fatigue damage
- Non-destructive inspection
- Life-cycle management



High-temperature damage diagnosis device equipped with a laser microscope, and an example of automatic degradation recognition processing

To extend the safe utilizable life-span of boilers and nuclear power equipment, periodic measurement of material degradation is essential. IHI's total resources are utilized for the study of structural degradation and the development of mechatronics diagnostic devices.

Damage and degradation diagnoses through non-destructive inspection are crucial in the maintenance business, and IHI is committed to promoting development of new technologies.

Environmental Protection and New Energy Technologies

- Hazardous material removal
- Waste/water treatment
- Air pollution water control
- Recycling
- Zero-emission technology
- Microbial treatment/Evaluation
- Ozone applications
- Biomass energy (pyrolysis, gasification, reforming, methane fermentation)

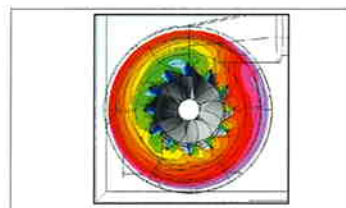


Pilot plant for waste plastics chemical recycling

In order to achieve removal of hazardous material of gases, wastewater, and residue discharged from power plants or waste treatment plants, IHI has been conducting research on improved combustion methods, development of hazardous material removal methods, and development of new processes.

Fluid Dynamic Evaluation Technologies

- Dynamic experiment technology (water tanks, wind tunnels, fluid machines)
- Dynamic analysis technology (numerical analysis, CFD)



Transient coupled analysis results of the supercharger impeller and scroll equipped in a centrifugal compressor (Mach number distribution)

IHI group companies handle a number of machines that relate to fluids, including turbochargers for automobiles, bridges, ships, marine structures, and pumps for space rockets. IHI's top of the range experimental technologies used for water tanks and wind tunnels produce highly accurate performance evolutions with these machines. Also, utilization of three-dimensional flow analysis using CFD technology is contributing to instrument development and fluid performance improvement.

Vibration and Noise Related Technologies

- Quakeproof/base-isolated evaluation and countermeasure technology
- Vibration control (damping) technology
- Noise evaluation/suppression technology
- Noise analysis technology and vibration test technology



Active vibration control bridge applied to the three high-rise buildings located in Harumi Island Triton Square

Reduction of vibration of structures caused by winds or earthquake is required in a number of fields. To fulfill this requirement, IHI, on the basis of its long-established damping, earthquake-proof and base isolation technologies, conducts research and development with vibration tests and analysis, using large shaking tables. Additionally, IHI has been engaging in noise evaluation/suppression technology in recent years to solve serious environment issue. These technologies have been applied to earthquake-proof standards for storage plants, atomic power plants, and container cranes. These technologies have also been used as damping devices for high rise buildings and main towers of cable bridges.

CAD/CAM/CAE technologies

- CAD/CAM/CAE
- Mechanism analysis
- Control simulation
- Knowledge management



Three dimensional design model of a shield machine and detailed instructions for manufacturing operations

By using computers to simulate product manufacture and operation, IHI improves design quality by predicting performance, conducting mechanism analysis, control simulations, and process simulations in advance, streamlining production and shortening the product development period. In addition, IHI also incorporates its engineering know-how into three dimensional design model.

Control and Robotics Technology

- Advanced control technology
- Real time control software technology
- Multimedia/information communication technology
- Sensing technology
- Electronics technology
- Robotics technology
- Factory automation technology



Next generation robot "IMR-TYPE I"

IHI engages in research and development with advanced control technologies that control a variety of instruments and systems (ranging from a small robot that works in a nuclear reactor or a boiler piping to large system such as an electric power plant), information communication technologies using broadband and wireless communication, sensing and environment recognition technologies such as visual information processing, and electronics applied technologies. Furthermore, IHI actively engages in research and development with mechatronics such as next generation robots and factory automation systems.

LCD & Semiconductor-Related Technology

- Laser anneal system
- High pressure anneal system
- Thin film evaluation technology
- Clean logistics system technology
- Large and thin glass substrate conveyance technology
- Material handling technology



Laser annealing system

This is a system that crystallizes amorphous silicon films in a manufacturing process whereby a thin film transistor is formed on a liquid crystal display or organic EL display. By using its own YAG laser technology as well as laser beam forming optical technology, IHI develops the system that can form highly consistent crystal films. Furthermore, IHI has developed low particle generation logistics equipment that is suitable for use in a clean environment as well as element technology that can quickly convey large thin glass substrates stably. It also promotes material handling systems that utilize these technologies.

Welding Technologies

- High-efficiency arc-welding
- Laser processing technology
- Specialized welding for aerospace products
- Monitoring systems



IHI high-efficiency TIG welding

IHI's welding technology has been changing along with the advancement and diversification of its products. Consequently, IHI has been pursuing research and development to meet the need for higher reliability and advanced welding automations.

IHI engages in a variety of development projects, ranging from the development of arc welding technologies such as IHI High-efficiency TIG welding method and High-current AC-MAG welding method, to advanced welding technologies such as specialized welding for aerospace products, YAG laser-based underwater welding, and welding monitoring systems.

Production Engineering

- Casting, plastic forming, machining
- Coating, corrosion proofing, surface modification
- Measurement technology
- Quality evaluations
- Production systems



Manufactured acceleration cells using ultraprecision machining technology (external diameter: $\phi 61\text{mm}$)

In conventional production technologies such as casting, plastic forming, machining, and surface modification, IHI pursues technological innovations to meet more advanced needs. For quality-related technologies used for inspections and measurements, IHI develops technologies that adopt the latest IT technologies.

In addition to these, IHI actively promotes production system advancement such as digital engineering to optimize the entire product process.

IHI has participated in the Japanese space development effort from the beginning, developing and producing key components of rocket engines, including liquid-hydrogen / liquid-oxygen turbopumps and gas-jet systems, that are embodiments of IHI's long-fostered technologies such as cryogenic-pump and turbomachinery. These activities were greatly expanded in space when the company acquired Nissan Motor Co., Ltd's Aerospace Division, a pioneer in solid rocket development in Japan. Based on these technologies, IHI is now accelerating R&D of GX launch vehicle, that will provide Japan's first commercial launch service for small and medium class satellites.

Also IHI is playing an important role in development and construction of Japanese Experiment Module (KIBO), an Exposed Facilities to be used as part of the International Space Station program. Furthermore, in the field of space experiment, IHI is now a supplier of the major experimental systems required for various international cooperative experiments.



Launch Image of GX launch vehicle (original image) (©JAXA)
GX launch vehicle adopts the world's first LNG engine for the second stage, and U.S.A. proven technologies with high reliability as the first stage. GX launch vehicle provides ensured highly reliable launch service for small and medium class satellites with affordable price.



GX launch vehicle 2nd stage Battleship Firing Test

A Battleship Firing Test, simulating actual rocket propulsion system but the tank made more solidly, was carried out successfully including 353 seconds of firing duration required for actual flight operation, and good data were acquired on the propulsion system's control characteristics.

Product table

- Rocket
- Rocket propulsion systems
- Rocket control systems
- Satellite propulsion systems
- Satellite control systems
- Equipment for utilization of space environments
- Space station-related equipment
- Ground test facilities
- Ground support facilities



H-IIA rocket (©JAXA)

The conventional H-II rocket was improved in order to maintain international competitiveness, and the H-IIA rocket was developed as a result. For this rocket, the IHI group was in charge of development and manufacturing of turbopumps, solid-rocket boosters, second stage reaction control systems, and explosive devices.



Liquid oxygen turbopump for the H-IIA rocket LE-7A engine

This pump supplies the liquid oxygen needed to burn the hydrogen fuel in the rocket engines. Together with the liquid hydrogen turbopump, it forms the heart of the rocket.



Liquid hydrogen turbopump for the H-IIA rocket LE-7A engine

This pump supplies the liquid hydrogen fuel for the rocket engines. IHI provides the turbopumps for both the first-stage LE-7A engine and the second-stage LE-5B engine.



M-V rocket (©JAXA)

The M-V rocket is the world's largest 3-stage solid rocket with a diameter of 2.51 m, and it is capable of launching a satellite weighing approximately 1.8 t into a low-altitude orbit. The M-V rocket is used to launch a satellite developed for science exploration.



International Space Station (©JAXA/NASA)

Within the International Space Station, Japan is in charge of development of an experimental building "KIBO," which is Japan's first manned facility in space. The IHI group develops extravehicular experimental platforms as well as extravehicular pallets for KIBO, and also develops experiment racks and experimental devices installed in inboard labs.



Life Sciences Glove Box

The Life Sciences Glove Box to be supplied to NASA life sciences experimental facilities will be used in biological experiments carried out in the International Space Station.



Micro-Particles Capturer and Space Environment Exposure Device (MPAC & SEED)

MPAC & SEED were installed on the outside of the International Space Station (ISS) Russian Service Module (SM) on orbit. IHI challenges to clarify degradation mechanisms of exposed materials and changes in the number of captured space dust particles. The results obtained will contribute greatly to future development of space-craft.



Research and development of a reusable rocket propulsion system

IHI has been carrying out R&D of a reusable rocket propulsion system which vertically advances to the altitude of 150 km, releases payloads and conducts various experiments while maintaining its altitude, and then returns to the ground.

(©JAXA)



Development of HTV propulsion system (HTV:H-II Transfer Vehicle)

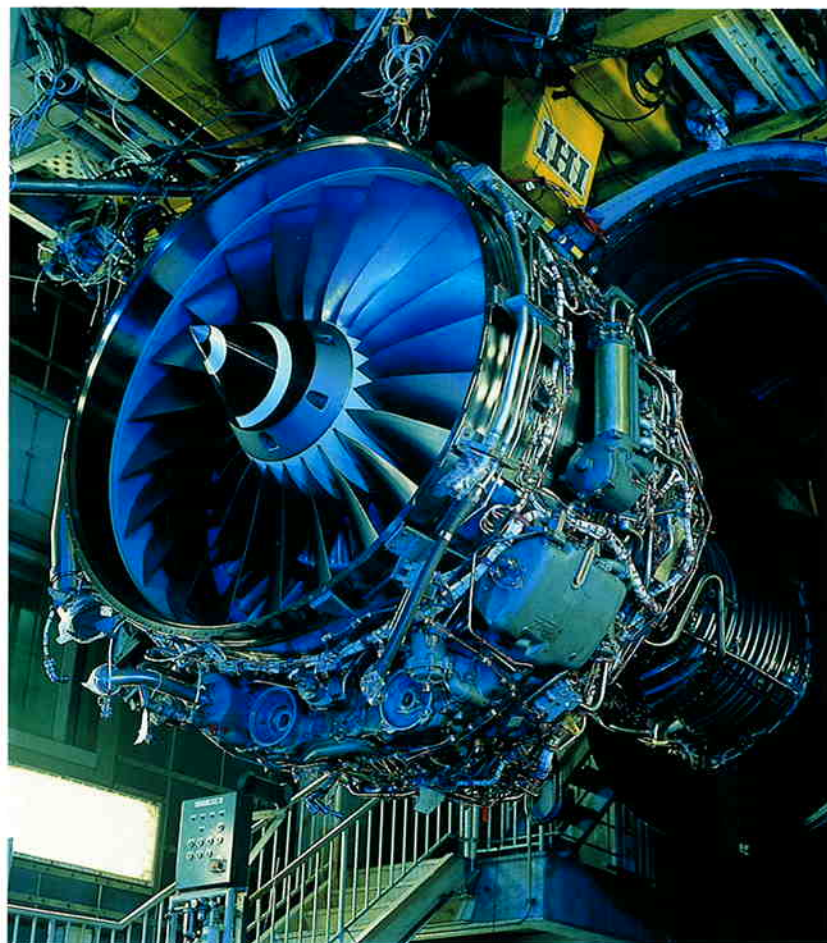
The HTV delivers and retrieves supplies to and from space stations. The IHI group develops various satellite propulsion systems including the HTV propulsion system.



Unmanned space experiment recovery system (USERS) (©USEF)

USEF launched an unmanned space experiment recovery system by using the third H-IIA rocket. The IHI group was in charge of design and development of its reentry module (REM) and the super conductor gradient heating furnace (SGHF) installed in the REM. The group was also in charge of return operations, search, and recovery of the REM, and successfully recovered it east of the Ogasawara Islands in the Pacific Ocean in May 2003.

IHI is the premier manufacturer of jet engines in Japan with a 60~70% share of the market. The Company is the primary contractor for aircraft engines used by the Japan Defense Agency, and participates in international cooperative projects that develop large-to-small engines for civilian aircraft. IHI also supplies the primary modules and parts for a variety of aircraft engines, and provides extensive engine maintenance and repair services based on its technological strength as an engine manufacturer. The reputation of IHI's engine maintenance center, for example, is steadily gaining in Asian markets. In response to the necessity for eco-friendly engines and heightened corporate responsibility, IHI is now carrying out R&D on various next generation engines based on the most advanced technologies.



V2500 turbofan engine

This medium-size engine was developed in an international joint project involving Japan, U.S.A., U.K., Germany, and Italy, and has been installed on aircrafts with 120 to 180 passenger seats such as the Airbus A319, A320, A321, and Boeing MD90. For this best-selling engine with over 5,000 orders to date, IHI supplies fan modules and low-pressure shafts, and also focuses its efforts on maintenance work.



(©:ANA)

Product table

- Turbofan engines
- Turboshaft engines
- Turbojet engines
- Turboprop engines
- Jet engine maintenance
- Jet engine test cells
- Jet engine parts



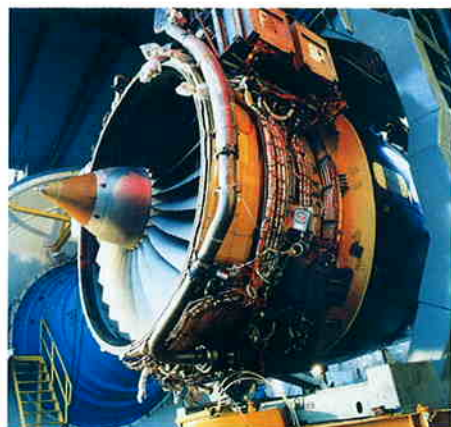
GE90 turbofan engine

This is an engine with the world's largest engine thrust installed in Boeing 777s. The largest model of this series has a diameter of over 3m. IHI, as part of a General Electric (GE) project, supplies various types of parts.



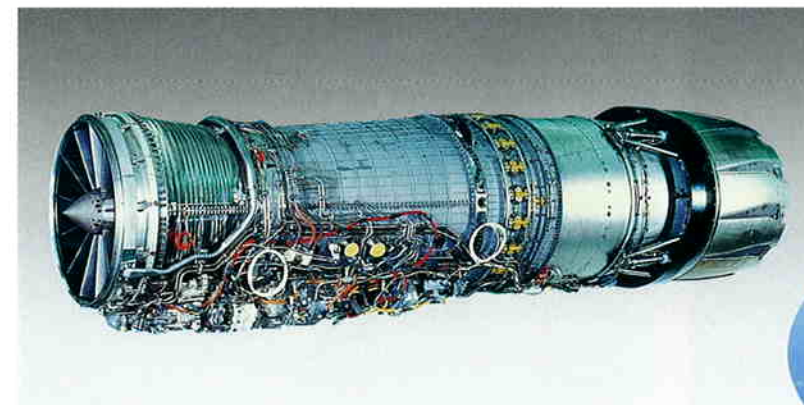
CF34 turbofan engine

This is a small-size engine for the world's regional jet planes with seating capacity of about 70 to 100. This engine was jointly developed by a manufacturer group of which leaders are General Electric (GE) of U.S.A. and IHI.



Trent turbofan engine

IHI supplies mainly the turbo shaft and low- and medium-pressure turbine parts for this large-scale engine, developed by the U.K. manufacturer Rolls-Royce plc.



F110 turbofan engine

This engine powers the F-2 support fighter, which was jointly developed by the United States and Japan. IHI has conducted mass production as the prime contractor through a license with General Electric (GE) of U.S.A.



(©:JDA)



F3 turbofan engine

This compact turbofan engine mounted on a T-4 training jet plane was developed using Japanese original technology. This engine is the second mass-produced engine following the J3.



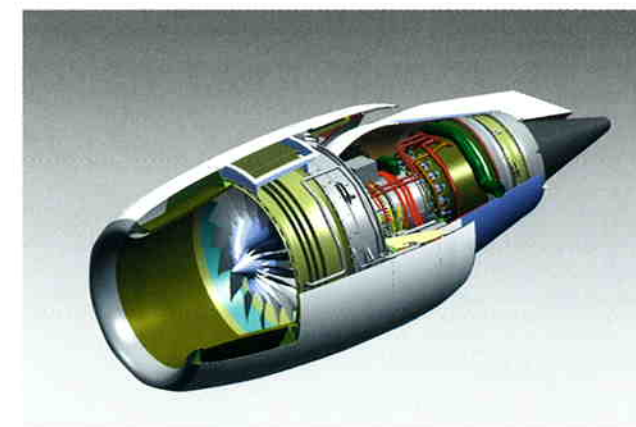
T700 turboshaft engine

This engine powers the Japan Defense Agency's anti-submarine and rescue multi-purpose helicopters. IHI also has conducted mass production through a license with General Electric (GE) of U.S.A.



Jet engine parts

IHI has an extensive record in manufacturing and servicing of shafts, blades and so on for jet engines and gas turbines.



Eco engine for small aircraft

IHI is researching and developing a variety of advanced technologies and integrating them in an attempt to build an engine for future small-size commercial aircraft with 50 passenger seats.

While supplying primary systems for thermal, nuclear, and hydroelectric power generation, IHI has successfully proceeded with developments of new technologies for utilization of new forms of energy including natural energy sources. As one of three leading boiler manufacturers in Japan, IHI can build and install extra-large thermal power station boilers in the over 1,000 MW per unit range, and, as part of its on-going effort to create more efficient systems, IHI is steadily accumulating know-how in combined cycle and integrated coal gasification power generation systems.

In nuclear power generation, IHI supplies such main components as reactor pressure vessels, primary containment vessels and piping systems, and is involved in the development and construction of systems related to nuclear fuel recycling.



Large-scale boiler at a domestic utility

This is a large scale coal-fired boiler for a thermal power plant operated by an electric company. As an electric company boiler supplier helping to stably supply electricity, IHI made an effort to meet the steam conditions required for improvement of plant efficiency, and as a result, achieved the world's highest steam standard. Also, in response to changes in electricity demand, IHI was the first to establish high operability sliding pressure operation boilers that are able to flexibly change their outputs. Furthermore, IHI has upgraded its technologies to match the needs of the age by, for example, developing advanced combustion technology in order to achieve high environmental performance. Due to such high technological capabilities, a larger number of IHI boilers have been exported and are now contributing to stable supply of electricity all over the world.



Large-scale boiler at a domestic utility

IHI supplied the boiler for the first 1,050 MW unit of this coal-fired thermal power facility. To meet the demand for greater power and improved efficiency, this boiler was designed with the largest capacity and the highest steam conditions in Japan.



Pressurized fluidized-bed combustion (PFBC) boilers

PFBC systems are a state-of-the-art technology for coal-fired combined cycle power plants. With a boiler installed inside a pressurized vessel, the plant will generate power using steam and gas to drive steam and gas turbines. IHI has supplied the largest capacity PFBC plants in the world.



Large-scale boiler at an overseas utility

IHI has developed and delivered a large number of boilers not only for the Japanese market but also for overseas markets. IHI boilers have a high operation rate which contributes to stable power supplies in many countries.



Large-scale tower-type boiler

The first large-scale tower-type boiler in Japan was built by IHI. It features a compact design that enabled it to be built next to an operating plant; another example of how IHI uses new technology to meet energy needs.



Heat recovery steam generator (HRSG) for combined cycle power plant

A waste-heat recovery boiler facility used for combined cycle power generation. Heat produced by a gas turbine power plant is converted into steam, which in turn is used to drive a steam turbine power facility.



Primary containment vessel for nuclear power plant

Steel vessels are used as primary containment for nuclear reactors and auxiliary equipment. Vessels made by reinforced concrete with steel liners have also been used recently.



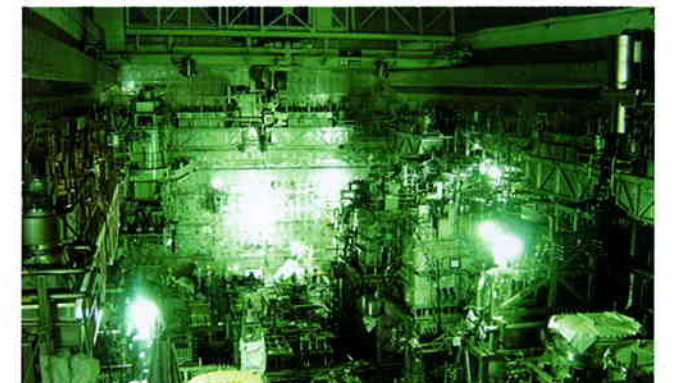
Reactor pressure vessel for nuclear power plant

This kind of pressure vessel for nuclear power plant constructed of extremely thick steel plate lined inside with stainless steel cladding.



Waste management facility

Vitrified wastes are received, inspected and stored.



Radioactive waste vitrification facility

In this facility highly radioactive liquid waste is melted down with glass, poured into a canister, cooled, and then solidified for safe handling and storage.

Product table

- Boilers
 - Boilers for power plants
 - Industrial boilers
 - Fluidized-bed boilers
 - Waste heat recovery boilers
- Integrated coal gasification combined cycle systems
- Components for nuclear power plants
 - Reactor pressure vessel for boiling water reactor
 - Reactor pressure vessel for advanced boiling water reactor
- Radioactive waste management systems
 - Waste vitrification facility
 - Waste management facility
 - Waste treatment facility
- Wind power generation systems
 - Large-sized power type : 600~2,500kW (Power regulation : Pitch, Stall)
 - Small-sized power type : 3, 5, 10kW
- Gas turbine power generation systems
- Fuel cells
 - Molten carbonate fuel cell
 - Solid-state polymer electrolyte fuel cell
- Diesel engines / Gas engines
- Co-generation systems

Taking advantage of technology accumulated in utility fields, IHI also provides boilers for industrial use and for independent power producers (IPPs). In addition, IHI has built up an impressive record in Japan and overseas as a supplier of co-generation facilities and gas turbine power generation facilities in which aircraft jet engines are converted into gas turbine systems.

In response to the growing need for power generation using natural energy sources, IHI is strengthening its production and sales structure for wind power and wave power generation facilities, and is devoting more resources to the development of fuel cells, which promise to be the next-generation of power generation systems.



IPP and PPS* facilities boiler

This has the largest capacity for a coal fired boiler used by independent power producers (IPP). IHI offers a wide range of boilers from small scale subcritical pressure boilers to large-size supercritical pressure boilers that handle various types of fuels such as coal, heavy crude oil, and gases, and such a line-up allows planning of boiler installation that matches with business scale as well as needs. IHI effectively uses its advanced technology and rich know-how accumulated through experience with power producer boilers to realize both high reliability and low cost. Also, IHI offers total engineering including environmentally friendly facilities such as flue gas denitration facilities and exhaust gas desulfurization facilities, thus allowing realization of eco-friendly plants.

* (PPS: Power Producer and Supplier)



Industrial boilers

IHI applies technologies used for the most advanced large-size commercial boilers in its medium and small scale boilers, commonly referred to as industrial boilers. These industrial boilers are used in various industries (for distributing factory steam) and for private power generation.



Circulating fluidized-bed combustion boiler (CFB)

This boiler can burn any of a variety of fuels, including low-grade coal and industrial waste, under faster fluidizing conditions.



Solid-state polymer electrolyte fuel cell (PEFC) co-generation (5 kW)

IHI's PEFC system is a power generation system available for use with city gas and with kerosene, and is capable of supplying hot water. This system can be used as a co-generation system.

Product table

- **Boilers**
 - Boilers for power plants
 - Industrial boilers
 - Fluidized-bed boilers
 - Waste heat recovery boilers
- **Integrated coal gasification combined cycle systems**
- **Components for nuclear power plants**
 - Reactor pressure vessel for boiling water reactor
 - Reactor pressure vessel for advanced boiling water reactor
- **Radioactive waste management systems**
 - Waste vitrification facility
 - Waste management facility
 - Waste treatment facility
- **Wind power generation systems**
 - Large-sized power type : 600-2,500kW (Power regulation : Pitch, Stall)
 - Small-sized power type : 3, 5, 10kW
- **Gas turbine power generation systems**
- **Fuel cells**
 - Molten carbonate fuel cell
 - Solid-state polymer electrolyte fuel cell
- **Diesel engines / Gas engines**
- **Co-generation systems**



Gas turbine power plant "LM6000"

This powerful yet clean power facility is extremely efficient and an effective way of achieving energy-saving policy goals. Noted also for its high reliability, this model is an increasingly popular choice both in Japan and other countries.



"IM270" Gas turbine co-generation system

This facility combines a gas turbine with a waste heat recovery boiler to produce both electricity and steam; a typical example of an energy-saving power system.



Gas turbine power plant "LM2500"

This facility uses a light and compact jet engine as the heart of its jet-powered gas turbine to generate electricity. Because of its modular design, it is also very easy to service and repair.



"IM400 IHI-FLECS" co-generation system

IHI-FLECS system can flexibly change its output in response to loads required by electricity and heat (steam) demands. When the volume of steam is more than sufficient, the excess steam can be converted into electricity to recover the energy.



Gas engine "12V22AG"

The 400 kW to 5,800 kW gas engine series can operate in high efficiency using natural gas and city gas, as well as low calorie gases from gasification melting furnaces, etc., therefore, it contributes greatly to CO₂ reduction.



Diesel engine "16VH41HX"

Diesel engines are often used in non-utility generation equipment that is run on a heavy fuel oil.

IHI is a world leader in the construction of cryogenic storage tanks, mainly for liquefied natural gas (LNG), and holds a commanding share of the market in Japan. IHI also provides complete engineering services for LNG receiving terminals, process control, and supervisory systems. IHI offers extensive expertise in a broad range of plant construction from oil refineries and petrochemical plants to liquefied petroleum gas (LPG) processing plants, pharmaceutical plants and seawater desalination plants—and can provide worldwide comprehensive services that include engineering, equipment procurement, construction, and startup support.

IHI leads the world in the development of SF and NSF processes to increase kiln productivity and substantially reduce fuel consumption in cement plants. The Company has constructed a number of plants around the world and provided the main equipment, including reactors, for these plants.



Above-ground LNG storage tanks (PC: Pre-stressed Concrete)

Since LNG generates little CO₂ and thus is eco-friendly, it has been increasingly introduced as an energy source in recent years. IHI holds the largest share of LNG receiving terminals and LNG tanks in Japan, which is a country that marks the world's largest LNG consumption, and effectively uses the technology accumulated through LNG business experience to actively take part in establishment of overseas LNG receiving terminals and LNG tanks. The picture shows the first LNG receiving terminal in India which started its operation at the beginning of 2004. IHI is now currently establishing receiving terminals in Mexico, Taiwan and U.S.A., and is also establishing LNG tanks in Qatar and Spain.

Product table

- **Storage plants**
 - Storage tanks and regasification facilities for cryogenic liquefied gas (LNG, LPG etc.)
 - Storage plant
- **Oil/gas plants**
 - Plants and equipment for oil refineries
 - Plants and equipment for petrochemical industries
 - Plants and equipment for gas process
- **Chemical plants**
 - Fine chemical plants and equipment
 - Fatty oil plants and equipment
 - Food industries plants and equipment
 - Other chemical plants and equipment
- **Seawater desalination and power plants**
 - Power generation plants and equipment
 - Seawater desalination plants and equipment
- **Pharmaceutical plants**
 - Medicament manufacturing plants
 - Cosmetic manufacturing plants
 - Food manufacturing plants
- **Cement plants**
 - Clinker burning process
 - Clinker pulverizer raw material and cement grinding plants
- **Vertical pulverizing super-hybrid mills**
 - Pulverizing super-hybrid mills
 - Pre-grinders
 - Sand mills
 - Calcium carbonate mills
 - Pulverizing mills for food and paper-manufacturing industries
- **Equipment for chemical industries**
 - Furnaces
 - Heat-exchangers
 - Pressure vessels
 - Other equipment for chemical industries
- **Cooling towers**
 - Large-sized cooling towers for industries
 - Cooling towers for geothermal power
 - Packaged cooling towers for building air-conditioner



Fully-buried underground LNG tank

This underground LNG tank is fully buried, including the roof. It also has a storage capacity of 200,000 kℓ, the largest in the world and enough to supply 300,000 families with gas for a full year.



In-ground LNG storage tank

IHI was the first in Japan to build an in-ground LNG tank in which part of the tank is hidden underground.



LPG plant

This LPG plant boasts an annual LPG production capacity of 4,000,000 t; the largest in the world.



Cement plant with NSF clinker burning system

IHI leads the world in the development of new cement production systems featuring low fuel consumption and high productivity.



Desalination & power plant

This plant provides power by using a gas turbine power generator, and at the same time, it uses exhaust heat from the generator to produce drinking water from sea water.



Lube oil plant

A plant for producing a variety of lube oils for automobiles and machinery from the petroleum residue left after the production of gasoline.



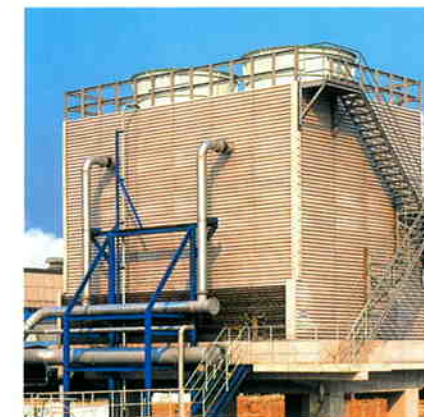
Methanol-to-hydrogen plant

This plant produces hydrogen for refining LPG, petroleum, and naphtha, as well as for use in a variety of other raw materials.



Xylene fractionation tower

IHI manufactures a wide range of reactors, towers and high-pressure vessels used in processing plants.



Cooling tower using FRP

This cooling tower is established with IHI's unique method in which FRP (fiberglass reinforced plastic) is used for its frame to extend tower life.



Vertical pulverizing super-hybrid mill

IHI offers milling systems for producing powder from a fine level to nano-level for various materials such as heavy calcium carbonate.



Pharmaceutical plant for eye drops

IHI provides the latest pharmaceutical plants by combining its own technology with that of Foster Wheeler Corporation of U.S.A.

Creation of environmental preservation systems is one of the activities that IHI puts special emphasis on, and through creation of such systems, IHI has been greatly contributing to environmental protection and cleanup. In the waste disposal field, IHI started to provide gasification fusion furnaces in addition to stoker type and fluidized-bed type incineration plants. In the field of recycling plants, IHI has also been building up its credentials with various types of automatic separation systems. IHI also has a good track record in manufacturing various sizes of flue gas desulfurization plant and flue gas denitrification plant for power plants and various industrial plants, and among these, there are super large systems for 1,000,000 kW level power plants. In the field of water treatment, IHI has been enhancing its reputation by offering a line-up of sewage treatment facilities and by adding new industrial wastewater treatment equipment to its line-up. Furthermore, IHI hybrid mass dampers and seismic isolation floor systems have been developed through integration of various technologies such as steel structure, machine, sensor, and control technologies, and these devices are now installed in high-rise buildings and computer centers, playing important roles in disaster prevention.



Flue gas desulfurization plant & flue gas denitrification plant

In flue gas desulfurization plant, sulfur oxide (SOx) from exhaust gases emitted from factories or thermal power plants is absorbed so that byproducts such as calcium sulfate can be recovered. Supported by rich experience with large size flue gas desulfurization plant and power generators such as boilers, IHI has been delivering high performance equipment that can meet the recent, strict exhaust gas regulations. Flue gas denitrification plant uses a catalyst to decompose nitrogen oxide (NOx) in exhaust gases.



Stoker type incineration plant

Stoker incinerators minimize damage to a furnace even when high-calorie refuse is incinerated, and their water-cooled design is advantageous in waste heat recovery.



Fluidized-bed type incineration plant

Waste is burned as it is mixed with sand heated to high temperatures. This technology produces smaller quantities of clean residue which is then easier to dispose.



Resource waste recycling plant

This facility, equipped with the latest machinery, can separate and process resource waste for recycling, including unburned waste and large-size discarded objects.

Product table

- Garbage treatment facilities
 - Incineration plant/Slagging furnace (Fluidized-bed type/rotating stoker type/Pyrolysis gasification melting system)
 - Resource waste recycling plant; automated sorting devices (Glass bottle/Plastic bottle)
- Zero-emission facilities
 - Anaerobic waste water treatment plant, "IC" reactor * Internal Circulation
 - Hydro-thermal reaction system
 - Wet type oxidation facility
- Environmental pollution preservation facility
 - Flue gas desulfurization plant
 - Flue gas denitrification plant
- Water and oil treatment facility
 - Sewage treatment facilities
 - Anaerobic wastewater treatment plant for food industries and paper mill
- Tunnel ventilation fans
- Noise reduction systems
- Seismic isolation floor systems
- Mass damper systems
- Environmental simulation facilities
- Pollution prevention ships



Anaerobic industrial wastewater treatment plant

The "IHI-IC Reactor" facility efficiently purifies industrial wastewater containing organic substances by using anaerobic microorganisms. Its many uses include beer and food plants, and paper mills.



Sewage treatment facility

Sewage treatment facilities such as this purify sewage so that it can be released into rivers.



Sewage aeration blowers

Polluted sewage is purified by aerobic microorganisms activated by air blown by special blowers.



Tunnel ventilation fans (jet fans)

Installed in tunnels, these ventilation fans operate automatically depending on the level of car exhaust inside the tunnel to ensure high visibility for drivers.



Tunnel ventilation fans (axial flow fans)

Installed in ventilating stations, these ventilation fans operate automatically depending on the level of car exhaust inside the tunnel to ensure high visibility for drivers.



Silencer (sound absorber)

Noise created by safety valves, ventilation fans and other equipment can be effectively reduced by sound absorbing silencers.



Seismic isolation floor system

This floor system protects equipment in computer and emergency centers from damage caused by vibrations during earthquakes.



Hybrid mass damper

Hybrid mass dampers effectively counteract wind and earthquake-induced oscillations in high-rise buildings and in the towers of bridges during construction.



Fire-fighting boat

The boat prevents expansion of fire breaking out from plants along the coast or from ships by quickly extending the hoses to create a water wall surrounding the fire.

One of IHI's specialties is materials handling systems. Various types of cranes, and bulk handling systems such as loaders, unloaders, stackers, reclaimers and belt conveyors. IHI is the leading supplier in the world of continuous ship unloaders for bulk materials, meeting demand for higher efficiency and labor-saving performance. IHI also offers comprehensive engineering services for ore and coal shipping and receiving terminals; services which include countermeasures for related environmental issues. In the field of container cranes IHI has delivered more than 170 units around the world. IHI also provides other types of materials handling equipment such as electric overhead traveling cranes and jib cranes, which are now made more economical through standardization.



Continuous ship unloader

This unloader realizes continuous unloading from ironstone bulk carriers or coal bulk carriers. IHI has delivered the world's largest continuous unloader with a capacity of 4,000 t/hour for ironstone carriers, and also has the world's top technologies and delivery record. IHI also offers belt-type unloaders and pneumatic unloaders for various food and feed such as soybeans, wheat grains, and corns. Designs of unloaders will be adjusted to regional characteristics of delivery destinations. For example, the latest seismic isolating device will be used in unloaders to be delivered to regions where anti-earthquake measures are required.



Reclaimer

A reclaimer recovers and transports bulk materials from yard stockpiles onto the conveyor.



Floating crane

This floating crane is used when installing offshore structures or bridges. IHI has also delivered floating cranes of a full rotating type.



Jib crane

This level luffing jib crane, featuring a lightweight construction and heavy lift capacity, can place cargoes with excellent precision.



Inverter controlled overhead traveling crane

IHI has delivered a large number of not only standardized cranes for general industrial fields but also cranes requiring special use conditions and environmental considerations.



Container cranes

These container cranes, among the largest in the world, serve 22 row on-deck super Post-Panamax container ships. They are equipped with twin lift spreaders and other high-tech devices for higher efficiency.



Coal handling system for coal-fired thermal power plant

IHI supplies not only equipment for coal and ore loading and unloading terminals, but also provides comprehensive engineering, including environmental assessment.

Product table

- Container cranes
- Unloaders
 - Continuous ship unloader
 - Bridge type ship unloader
 - Belt type continuous unloader for grain
 - Pneumatic unloader
- Stackers
- Reclaimers
- Overhead traveling cranes
- Jib cranes
- Floating cranes
- Conveyors
 - Air support rollerless conveyor
 - Large capacity-vertical-steep slope belt conveyor
 - Belt conveyor system
- Others
 - Double link type level luffing crane
 - Jib climbing crane for dam construction
 - Cable crane for dam construction
 - All-weather material handling system
 - Life residual assessment
 - Risk-based maintenance assessment service

IHI is the pioneer in the field of physical distribution systems such as automatic warehouse systems, sorting systems, and automated transportation systems. IHI delivers a wide variety of facilities/equipment such as automatic refrigerated warehouses, automatic dangerous object warehouses for storing dangerous objects, and storage/transportation equipment operated in clean rooms to industries such as the food, logistics, and chemical industries. Making the full use of its rich experience and know-how, IHI provides customers with "logistics solutions" that support the system as a whole.



Clean distribution system

Due to recent technological advancement, demand for distribution systems to be used in clean rooms is growing steadily. IHI has rich experience in delivering a wide variety of delivery systems such as FPD (flat panel display) glass substrate production lines, and thus can ensure effective distribution inside clean rooms and assure quality and reliability. Before product shipment, IHI conducts product inspections such as trial assembly, trial runs, and dust emission tests in their own clean rooms; therefore, IHI can realize high reliability and allow production lines to start their operation quickly by shortening the construction period.



Sorting system "Zip Sorter"

This sorting system quickly sorts items of various sizes to meet various market needs such as sorting small lots for a large number of item types, handling of frequently distributed items, and handling of peak item volumes.



Automated transportation system "Laser Factliner"

IHI offers a wide variety of automated transportation systems such as magnetic guided systems, laser guided systems, transportation systems with load transfer mechanisms, motor-driven systems, and charging-type systems. With such a rich line-up, IHI can suggest an automated transportation system most suitable for individual customer needs.

Product table

- Automatic warehouse
- Storage systems
 - Automatic warehouse
 - Mobile rack
- Conveyor transfer systems
 - Automated guided vehicle
 - High-speed, intelligent travel carts
 - Overhead monorail transfer system
- Sorting systems
 - Automated sorting systems
 - Picking systems
 - Auto picking systems



Storage system (automatic warehouse)

A wide ranging product line-up covering special environments such as freezer, clean, dust-proof, explosion-proof, and outdoor facilities, and special items such as dangerous objects, heavy items, long items, and roll type objects, will meet various customer needs.



Automatic paper roll warehouse

Automated facilities such as this are meeting the growing demand from paper manufacturers and newspaper companies.



Automatic warehouse for dangerous objects

This automatic warehouse can store products, half-finished products, and raw materials that are categorized as class 2 and 4 dangerous objects. Through centralized management, the safety, storage efficiency, warehousing and shipping efficiency can be improved.



Automatic warehouse for long items / heavy items

This automatic warehouse can handle long items of up to 5m and heavy items of up to 10t. With this automatic warehouse, reduced storage space, faster shipping operations, and stock management accuracy can be improved.

IHI has participated in numerous major bridge construction projects both at home and abroad, including the Seto Ohashi Bridge and the Akashi Strait Bridge projects in Japan, the Second Bosphorus Bridge and the Golden Horn Bridge projects in Turkey, and the Carquinez Bridge in U.S.A. IHI is also Japan's top supplier of gates for rivers and dams, and has an extensive list of achievements in Southeast Asia and Latin America.

Heavy steel frames for high-rise buildings, steel structures used in the construction of power plants and factories, and airframe maintenance equipment for aircraft that combine steel structure and mechanical systems technology are other areas in which IHI is traditionally active. Recently, we have also devoted special attention to hybrid structures, building many hybrid caissons and pontoons that combine the strengths of steel and concrete.



Carquinez Bridge

In March 2000, IHI received an order from an American joint venture company (JV) for over 10,000 t of orthotropic box girders for the New Carquinez Bridge (official name: Alfred Zampa Memorial Bridge, center span: 728 m, total length: 1,059 m, width: 29 m) in San Francisco Bay, California. This is the first long-span suspension bridge in U.S.A. in the past 40 years. IHI fabricated the girder at Aichi Works, and completed the delivery in March 2003. The bridge was opened to public in November 2003. IHI enjoyed high appreciation from the State of California and the JV for its contribution to the successful completion of the bridge by strictly meeting the severe quality requirements, and by greatly improving transportation efficiency with IHI's integrated total engineering abilities.



Akashi Strait Bridge

IHI fabricated and erected the main towers and girders for the Akashi Strait Bridge, the world's longest suspension bridge with total length of 3,911 m and center span of 1,991 m.



Irtysh River Bridge

As the sole prime contractor for the Irtysh River Bridge in the former Soviet Union (total length: 1,086 m; center span: 750 m), IHI completed the project 13 months ahead of schedule.



Hybrid caissons

IHI hybrid caissons are characterized by the hybrid structure using steel plates and concrete, and are high-strength and can be applied to complex shapes. They are used in breakwaters, quays, seawalls, etc.



Dam gate

A dam gate used to control the release of flood and reservoir water.



River gate

River gates regulate river flow and block back currents from the sea.



Floating pier

Regardless of the water depth, the distance between the water surface and the crown remains constant. Therefore, there will be no height gap between ships and the quay. Also, since the pier is moored with posts, it sways very little.



Floating breakwater

Using advanced marine technology, IHI floating breakwaters provide a stable means of reducing the impact of waves.



Aircraft hangar and maintenance platform

This wide-span hangar can accommodate large aircraft, and the maintenance platform, consisting of sliding floors, elevating floors and traveling units, is used during the inspection and repair of aircraft frame sections.

Product table

- Bridges
- Gate equipments for rivers
 - Girder type roller gates
 - Shell type roller gates
 - Flap gates
 - Rising sector gates
- Gate equipments for dams
 - Crest gates
 - Orifice gates
 - Conduit gates
 - Intake equipment
- Aircraft hangars and maintenance platforms
- Boarding bridges
- Floating breakwater
- Floating bridges
- Immersed tunnels
- Hybrid caissons
- Steel structures for buildings

IHI has been developing and releasing various shield tunneling machines, such as the world's largest large-diameter shield tunneling machines and rotating shield tunneling machines that will greatly improve tunnel construction efficiency. IHI is also leading supplier of automatic segment assembling systems and also provides various types of segments.

Above ground, IHI's mini excavators, crawler carriers, and crawler cranes are active throughout the wide scene of civil engineering and construction. IHI has provided these machines not only in Japan but also overseas, including in the U.S.A. IHI also supplies batcher plants and mixers for concrete production as well as machines for concrete casting.



Horizontal Multiple-micro shield tunneling machine

This shield machine, used in the construction of box-shaped large-section tunnels such as road tunnels, can be flexibly adapted to any section shape.



Rotating shield tunneling machine

New technology developed through joint research with users. It can excavate shaft from the ground, and continuously tunnel by right angles.



Automatic segment assembling system

IHI mechatronic technology has substantially improved tunneling efficiency and safety through the automated assembly of segments for tunnel walls.

Product table

- Shield tunneling machines
 - Earth pressure balanced shield machines
 - Slurry shield machines
- Automatic segment assembling systems
- Jib climbing cranes
- Excavators
 - Mini excavator
 - Hydraulic excavators
- Materials handling machines
 - Crawler carriers
- Cranes
 - Crawler cranes
 - All-terrain cranes
- Concrete machines
 - Concrete batching & mixing plants
 - Concrete pumps
- Street sweepers
 - Street sweepers
- Sludge recycle plants



Large-diameter shield tunneling machine

IHI has supplied many large-diameter shield machines, including the one used in the construction of the Tokyo Bay Aqualine tunnel.



Jib climbing cranes for building construction

IHI's large jib climbing cranes, featuring large payloads and working radius capabilities, are used in nearly all skyscraper construction in Japan.



Crawler crane

The versatility and adaptability of IHI's family of small to large self-propelled crawler cranes make them a popular choice for many civil engineering and construction projects.



Mini excavator

The zero tail swing mini hydraulic excavator is ideal for excavation in narrow areas.



Batcher plant

Batcher plants produce ready mixed concrete by mixing cement, sand, aggregate and water. Operations are completely automated.



Mobile concrete pump

The long boom enables fresh concrete to be placed at any desired location.

IHI is the leading supplier in the world of blast furnaces, the symbol of steel mills, and has successfully developed the latest systems in direct current (DC) electric arc furnaces. IHI provides hot and cold rolling mills for both ferrous and non-ferrous metals, including aluminum and copper, as well as auxiliary equipment and systems that precisely control a product's shape. In the field of transfer feed presses, used to form automobile bodies and chassis, IHI is known as one of the world's exclusive manufacturers of very large transfer feed presses.



Blast furnace plant

A blast furnace producing pig iron from ironstone and coke is the symbol of a steel plant. Its height goes over 100 m for a large blast furnace plant with daily output of 10,000 t. Since 1941, IHI has built and improved over 90 blast furnace plants, and they are now playing important roles not only in Japan but also in various overseas countries such as Australia, Korea, Brazil, and Taiwan. IHI has also built over 25 bell-less top charging systems for feeding raw materials into these blast furnaces.



Continuous hot strip mill

Continuous hot strip mills feature high-speed continuous production of hot rolled strips of steel measuring 1.2–5.5 mm in thickness. IHI compact hot strip mills are also one-half the length of normal lines.



Sizing press

Sizing presses streamline processing by adjusting the width of steel ingots to fit a variety of rolling mills. IHI is steadily increasing the number of such presses being used in Japan and overseas.



Tandem cold strip mill

This type of mill produces cold rolled strips of steel used in automobile bodies and electric household appliances. IHI constructed the world's first completely continuous mill and developed equipment to precisely control the shape of the steel strip.



DC electric arc furnace

DC electric arc furnaces produce steel, using scrap as raw material. New furnaces significantly increase productivity by simultaneously preheating and feeding raw material.

IHI is a premier manufacturer of pulp and paper-making machines in Japan, and delivered the largest and fastest newsprint machine in Japan. IHI also has an impressive global record of supplying coating machines to the paper industry. The Company has a long list of customers in Japan and Asia for calender lines, used to manufacture rubber sheets for tires and plastic sheets and film. IHI has manufactured custom-made compressors, blowers, fans and pumps for years, and our compressors for oxygen plants and LNG plants dominate the market in Japan. IHI can build processing facilities for new materials, including heat treatment furnaces and hot presses used in the production and processing of ferrous and non-ferrous superalloys, ceramics and compound materials. Furthermore, IHI uses its comprehensive capability to develop flat panel display manufacturing systems, semiconductor manufacturing systems, and various advanced technologies.



Duo-former paper-making machine

IHI's paper-making machines can produce a wide variety of papers at speeds of up to 2,000 m/minute.



Oxygen turbo compressor

Oxygen turbo compressors are used in liquid oxygen plants and gas liquefaction plants. IHI develops and delivers highly efficient geared turbo compressors for oxygen plants.



Hot press

Hot presses make products by applying high pressure and heat to a variety of metal or ceramic powders set within a mold.



Vacuum vapor solvent degreaser

This vacuum vapor solvent degreaser is an energy-saving washer with high safety and regeneration efficiency in which petroleum solvent is used and the boiling point is maintained at 150°C or lower under reduced pressure.



Paper coating machine

These coating machines apply various chemicals to the surface of paper to produce high quality coated paper, thermal paper and carbonless paper at high speeds. IHI has an extensive list of achievement in Southeast Asia, Europe, and U.S.A.



LNG reciprocating compressor

IHI is a top manufacturer of LNG reciprocating compressors, used to compress and re-liquefy boiled-off gas and send it through pressurized transfer lines.



Vacuum heat treatment furnace

These furnaces perform various heat treatment on metals, including hardening and tempering in a vacuum.



Ion implant system "IHI-ISDR"

This system is applied to fabricate thin film transistor (TFT) by uniformly ion implanting on large thin glass substrate. Its capability is long maintenance interval time and high productivity.



Calender line

Calender lines are used to continuously produce sheets and films of rubber and plastic. IHI precision calender lines are number one in Japan.



Farmland drainage pumps

Farmland drainage pumps are used to distribute irrigation water and drain excess water into rivers.



Vacuum carburizing furnace

This vacuum carburizing furnace is a new process furnace that can provide high quality processing with even carburizing, excellent reproducibility, and clean operating environments.



Electron beam sterilization system

Medical instruments which hold wrappings can be sterilized in the shortest time by the electron beam, without using heat treatment and a medicine.

Product table

- Rolling mills
 - Hot strip mill
 - Plate mill
 - Cold strip mill
 - Temper mill / In-line temper mill
 - Copper & brass rolling mill
 - Aluminum rolling mill
- Industrial furnaces
 - Blast furnace plant
 - Reheating furnace / Heat treatment furnace
 - Electric arc furnace
- Pulp & paper production plants
 - Stock preparations
 - Paper machines
 - Coaters
- Presses
 - Transfer feed press
 - Tandem press line
 - Blanking press line
- New material manufacturing facilities
- Rubber & plastic forming machines
 - Calenders
- Vacuum heat treatment facilities
 - Vacuum furnace
 - Vacuum carburizing furnace
 - Vacuum vapor solvent degreaser
- Pumps
- Compressors
 - Turbo compressor
 - Reciprocating compressor
- Blowers
- Semiconductor & LCD panel equipment
- R&D facilities



5,400 t transfer press

Transfer presses such as this, used to form body panels for automobiles, are noted for their high productivity and efficiency.

IHI produces an extensive lineup of turbochargers ranging from those for use in large vessels engines to those for compact automobile engines. So far we have already produced more than 10 million turbocharger/supercharger units for automobiles. IHI is also expanding worldwide business, with factories and sales offices located in the U.S.A., Europe, Thailand, China, and other countries. In addition, IHI provides a wide series of compact and packaged machinery and devices used in factories; air compressors, packaged boilers for heat and steam, separators, filters and dewatering equipment used to separate solids and liquids, and cranes and hoists used to transport heavy materials inside plants.



Turbocharger for automobiles

IHI manufactures all sizes of turbochargers for automobiles, from small, hand-sized models for compacts to large versions for buses and trucks. Our accumulated production exceeds far beyond 10 million units.



Multi-piled disc dehydrator

Using a unique, environmentally gentle design, this dehydrator produces very little noise, vibration and odor. Our product line-up includes a machine having a width of 2 m, the widest in the industry.



Screw decanter centrifuge

IHI supplies many sizes of high performance, long-lasting centrifuges for separating solids from liquids.



Guinard centrifuge

A Guinard centrifuge is an upright automated discharge centrifuge filtering machine used to separate crystals and resins.



Fundabac filter

Completely sealed and fully automated, these vertical candle-shaped filters have few moving parts for long-lasting operation.



Screw supercharger "Lysholm compressor" for automobiles

Superchargers simultaneously increase engine power and reduce fuel consumption.



Oil-free screw compressor (GP series)

New generation water-flooded (lubricated) system, providing oil free air, realizes better efficiency and environmentally friendly screw compressor.



Turbo compressor (TRE series)

Designed with a newly developed impeller, inlet guide vanes and dual-control configuration for greater efficiency and economy. The single unit casing is also a space saver.



Automatic greaser

Supplies grease automatically to the lubricating points (bearing) of various machinery. Helps reduce maintenance costs and increase machinery life.

Product table

- Turbochargers
 - For vehicles
 - For ships
- Superchargers
- Separators
- Filters
- Dewatering equipment
- Compressors
 - Screw compressor
 - Turbo compressor
 - Reciprocating compressor
- Stepping cylinders
- Fueling equipment
- Packaged boilers
 - Once-through boiler
 - Fire-tube boiler
 - Water-tube boiler
- Hoists



KM fire-tube packaged boiler

Best-sellers with more than 20,000 units sold to industry and buildings.



Once-through packaged boiler

Compact in size, but adaptable to many uses. Incineration can be finely controlled for economical and long-lasting operation.



Inverter hoist

Controlled by an inverter, this hoist features easy maintenance and smooth operation.

IHI products are widely used in facilities familiar to the public such as hospitals, clinics, hotels, and restaurants. IHI has built moving walkways and pedestrian bridges that contribute to smoothing pedestrian flows in cities and transport terminals. Also, IHI has manufactured ozone sterilizers and deodorizers whose demand is now growing in medical facilities, food processing factories, and service facilities such as hotels. A series of IHI commercial-sized dish washers from small to large sizes has become essential to restaurants and school lunch centers. IHI supplies mass-produced machines such as agricultural machines, fire pumps, and emergency water purifiers. Furthermore, IHI has started business operation in the real estate field, and is now managing super high-rise intelligent buildings, sports gyms, and marinas.



Hot air heater "Riviera"

These heaters are best suited for factories, gymnasiums, and swimming pools. In addition to achievement of a 30% energy saving, IHI offers high efficiency type and low NOx type heaters.

Pedestrian bridge
Our pedestrian bridges are local landmarks designed to blend in with urban landscapes.

"Autoway" rubber belt moving walkways

This rubber belt moving walkways can be designed not only as a straight line but also in a 3D layout with a combination of curves and slopes. This moving walkways will provide a user-friendly and comfortable moving space.



Ceiling-mounted deodorizing system "eZ-1S"

This system generates anion and low-concentration ozone to ensure a high degree of safety and provide an excellent deodorizing effect. There is a rapidly growing demand for this system because of its applicability to hospitals, clinics, senior citizens welfare facilities, public restrooms, etc.



Ozone deodorizer "eZ-10"

A dual mode option lets you clean and deodorize room air through either induction or by releasing ozone and negative ions directly into the air.



Ozone water machine "IOP-20A"

Combined use of ozone water and ozone gas makes this machine useful for ensuring sanitation in food-processing facilities, meal-providing centers, etc.



Dishwasher

IHI's line of commercial dishwashers range from small units that fit under the counters to large units for cafeterias.



Lawn management machine

Based on its experience with golf course lawn management machines, IHI offers such machines for a wide variety of locations ranging from parks to general houses.



Self-propelled round baler

Wheat straw and rice straw are picked-up, round baled and bound by twine automatically.



Refuse compactor "Compack'n"

Bulky waste materials are compacted to small size bale and volume is reduced to about 1/5-1/7.

Product table

- Moving walkways
- Ozone deodorizer
- Dishwashers
 - Box type, Rack type
 - Conveyor type
- Agricultural machines
 - Tractor
 - Tractor implements
 - Lawn maintenance machinery
- Disaster prevention equipment
 - Fire fighting pumps
 - Fire engines
 - Spray diesel pumps
- Water-purifying equipment
 - Water-purifying equipment for emergency
 - Water-purifying equipment for business use
- Refuse compactor
- High-temperature heating system
 - Riviera
 - Unit heater
- Marina business



Water purifiers

Portable and fixed model water purifiers, with a high-performance filtration film, supply purified water for drinking as well as daily use.



Portable fire fighting pump

A portable pump used for fighting fires in urban or rural areas.

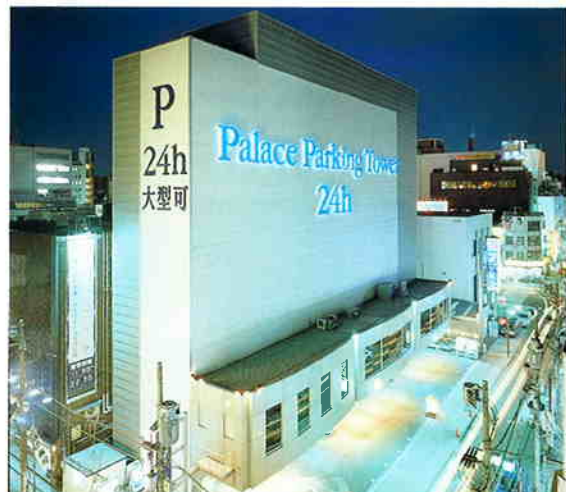
IHI's technologies are used in our daily "transport" scenes. IHI engineers, not only rolling stock, but also whole systems for the new transport system—Automated people mover system and low floor light rail transit system—expected to become the new transport tool in cities. As the pioneer of the mechanical parking systems that we use everyday, IHI has already delivered over 7,000 units of "elevator parking systems" and "tower parking systems" nationwide, and also is providing various types of parking systems to meet individual needs.



Low floor light rail transit vehicles (LRV)
The LRVs are eco-friendly, barrier-free trains. Their functionality and design together contribute to development of attractive communities.

Automated people mover system

IHI is Japan's top systems engineering manufacturer in fields such as vehicles, running track, electric power, signals, and communications.



Vertical circulation-type tower parking system

This type of facility, designed to fit narrow lots yet provide maximum parking space, has been a standard favorite ever since we built our first one in 1962.



Elevator-type parking system

An elevator parking facility creates less noise and vibrations. In a residential area or near an apartment building, that feature can be a big advantage.



Self-driving-type parking building

IHI's parking system line-up includes low-cost basic parking lots and free-plan parking lots constructed with the conventional method. Demand for these types of parking systems has been increasing for commercial establishments.



Multi-storied parking system

This two to five-story parking system is ideal for condominiums and small to medium-sized office buildings.

Product table

- Transportation systems
 - Light rail transit / light rail vehicle
 - Automated guideway transit
- Rolling stocks
 - Diesel car
 - Electric car
 - Passenger coach
 - Maintenance car
- Snowplows
 - Rotary snowplow
 - Truck mounted spreader
- Parking systems
 - Tower parking
 - Elevator parking
 - Self-driving parking
 - Shuttle parking system
 - Underground parking
 - Multi-storied parking
 - Cubic parking

IHI has been releasing various types of products using IT, control technology, and sensor technology. IHI developed a 3-D laser radar to be used in traffic signal control, for pedestrian-friendly crosswalk and obstacle detection in rail way crossing. Also, IHI developed "iL Viewer", a welding monitoring, to achieve "visualization" of welded areas and to apply such visualization to quality control. This system has been delivered to automobile manufacturers and industrial research institute. Large X-ray inspection systems for customs inspections conduct X-ray imaging tests of large container cargos, and IHI has the highest market share for these systems in Japan. IHI also has delivered a large number of X-ray inspection systems including small and medium-sized systems for customs inspections at ports as well as airports.



3D laser radar

A 3D laser radar measures the size, position and speed of objects instantaneously regardless of weather or time of a day. Currently, the radar has been used in various fields such as railroad crossing obstacle detection, detection of objects fallen from platforms, traffic signal control by pedestrian detection, traffic condition measurement, and invasion monitoring.



Welding monitoring system "iL Viewer"

This system allows real-time monitoring of welded areas and cut sections, contributing to improvement of welding technique and quality control.



Large X-ray inspection system

This inspection device conducts horizontal and vertical X-ray inspections on container cargos as part of imported/exported cargo customs examination. This device can conduct high-penetration, high-resolution imaging tests.



Medium and small X-ray inspection system

IHI provides various types of X-ray inspection devices such as devices that can vary X-ray output in accordance with examined objects or devices capable of identifying object materials.



Digital recorder "EverFine-8 mk II"

With IHI's unique movie compression technology, this recorder can record up to 8 channels of moving images with high image quality and density. A high-capacity hard disk is used as the recording media. It is also possible to create an automatic monitoring system by using networks.



Oil leak monitor

This is a high performance oil leakage detector using optical fibers in its sensor. By making it float in the water, in less than 20 seconds it can detect even the smallest amount of oil either floating on the water surface or mixed with water in running water or in static water.

Product table

- Laser radar
- Visualization equipment
- X-ray inspection systems
- Monitoring equipment
- Oil leak monitor

IHI has been the leader in the field of building large-size tankers and has been playing an important role in rationalizing ocean transport, and now IHI, as the world's leading builder of large-size double hull tankers and containerships of the new generation, continues to offer new ideas and concepts in ship designs. In the shipbuilding field, IHI's technological innovation includes a long list of achievements such as: LNG ships based on the uniquely developed SPB tank system; F-series ships that introduced a new construction method to the world through the application of the series production concept for the standardized design ships; energy-saving technology represented by development of contra-rotating propellers; and super high-speed ferries having a super slender hull form. IHI's technological innovation still continues today for achievement of more economical and efficient ocean transport. IHI also has a good track record in building cruise ships and meteorological survey ships.



Very large crude carrier (VLCC)

Since completing the construction of "Idemitsu-maru," the world's first VLCC (deadweight capacity: over 200,000 t) in 1966, IHI has always provided customers with the latest type of large tankers, especially VLCCs. With the background of supporting the Japanese economic growth over the years, the latest ship model incorporates the needs of the current era; while providing the speed of 15.5 knots to the transport efficiency is kept to a high standard by having a very efficient volume intake and has high space efficiency. As the world's leader in this field, IHI continues to strengthen its R&D activities with attention focused also on eco-friendly ships, undoubtedly the core subject of advanced designs.



Future-87 bulk carrier

IHI was the first in the world to introduce mass-produced standard bulk carrier concept with the Future-32, and since continued to develop new series. The Future-87 featuring post-Panamax breadth was developed to meet the changing needs of the market, which received great customer support with orders for more than 10 ships.



7,500TEU containership

IHI has always been the leading shipbuilder for large containerships. This distinction has led to further orders for larger ships of the 7,500 TEU series, followed by orders for even larger ships of 8,000 TEU capacity.



Ferry "Yukari"

IHI got a lot of attention by releasing the super fast ferry "Suzuran" in response to the demands of the times. By applying the technologies used for "Suzuran", IHI has been making achievements in building new-generation ferries.



Z-peller

The Z-peller is the most popular propulsion unit in the world's tugboat market. Customers highly evaluate this propulsion unit for its high quality and durability.

Product table

- Oil tankers
- LNG / LPG carriers
- Container ships
- Bulk carriers
- Passenger ships & ferries
- Naval vessels & coast guard ships
- Work vessels
- Offshore development equipment
- Marine engines
- Deck cranes
- Deck machinery
- Propulsion units

IHI's technologies accumulated through engineering and construction of a wide variety of ships covering patrol boats for coastguard fleet and naval vessels, as well as offshore structure units such as FPSOs and FSOs are always updated to cater to various market needs. IHI also supplies gas turbines for high speed ships and naval vessels, low and medium speed diesel engines, materials handling equipment for ships, and shipboard monitoring systems.



"Sanha LPG FPSO"

IHI developed the world's largest floating LPG production, storage, and offloading facility (LPG-FPSO). The SPB containment system on this unit, an own development of IHI and already successfully proven on LPG carriers, LNG carriers and LPG FSO units, was employed with expectations for outstanding performance, and the unit was completed and delivered two and a half years from contract signing. In addition to using excellent shipbuilding technology, IHI showed its comprehensive ability in the integration engineering for the plant. IHI's attitude to achieve those results through pursuit of customer satisfaction was highly praised by the parties concerned.



Destroyer "Makinami"

IHI was honored to build the 100th destroyer ship after the war for the Maritime Self-Defense Forces. This achievement highlights IHI's continuous efforts to hold the leading position in the technical expertise to build the highest quality naval ships.



A dredger and oil recovery vessel "Kaisho-maru"

Waterway maintenance is an important task in our island country, and this dredger contributes to the task. At the same time, as an oil recovery vessel, it plays an important role in Western Japan.



Contra-rotating propeller

The principle of this system had been known for a long time. This system has realized an outstanding fuel saving effect after overcoming various technical hurdles prior to practical application.



Deck cranes

These deck cranes can handle the loading/unloading tasks of bulk carriers and freighters that serve on many kinds of routes and carry many kinds of cargoes.



DU-SULZER 6RT-flex50 diesel engine

The DU-SULZER 6RT-flex50 is the newly-developed and user-friendly engine with electronically-controlled common rail system for the injection and exhaust valve actuation which can achieve optimum combustion performance at all ship speed, and its superiority in reduced exhaust gas emissions, especially smokeless operation is well known in the marine world.



DU-S.E.M.T. Pielstick diesel engine

The DU-S.E.M.T. Pielstick medium-speed diesel engine is used as the main engine for large ferries, passenger ships and diesel power plant.

The History of IHI Products

The history of IHI is closely intertwined with the history of Japan's heavy industries. Our technology began with the building of ships and advanced from making the machinery used on ships to manufacturing all kinds of industrial machinery, building entire plants, and then supplying general construction, so that today we provide the massive infrastructure required by industry and society.

1850

- 1877 Constructed the "Tsu-un Maru", the first steamship built by a private Japanese shipbuilder
- 1878 Supplied a boiler to Japan's first silk mill
- 1883 Constructed the "Miyako Bridge", the first iron bridge erected by a private company
- 1885 Provided Japan's first ore crusher to a domestic copper mine
- 1887 Built the "Azuma Bridge" in Tokyo, then the largest iron bridge in Japan
- 1888 Constructed the "Chokai", Japan's first steel gunboat
- 1892 Supplied Japan's first steam engine-driven electric generator
- Delivered Japan's first large-scale Pelton waterwheel
- 1896 Supplied Japan's first large-scale thermal power generation facility
- 1898 Produced Japan's first 10 electric trains for light railways



Tsu-un Maru

1900

- 1901 Manufactured Japan's first large-scale caisson
- 1903 Produced Japan's first bridge girders for railroad bridges
- 1909 Manufactured Japan's first 170 long-distance electricity transmission towers
- 1911 Completed construction of steel structures for Tokyo Central Station (now Tokyo Station)
- 1913 Delivered the first domestically manufactured large-scale overhead travelling crane to the navy arsenal
- 1918 Launched automobile production in cooperation with Woosley Motors of the United Kingdom
- 1922 Manufactured Japan's first steam turbine for naval vessels
- 1929 Manufactured Japan's largest steam turbine for power generation
- 1933 Manufactured Asia's largest steam turbine for power generation
- 1935 Delivered one of the world's largest hammerhead cranes to the navy arsenal
- 1937 Produced the world's largest steam turbine-driven blower
- 1945 Manufactured Japan's first turbojet engine, the "Ne-20"



Tokyo Central Station



Ne-20 turbojet engine

1950

- 1953 Constructed Japan's largest blooming mill
- 1956 Constructed the world's largest spherical city-gas storage tank
- 1957 Began full-scale production of jet engines
- Manufactured Japan's largest turbo compressor
- 1958 Constructed Japan's first off-shore jack-up type oil drilling rig
- 1959 Built Japan's largest blast furnace
- Manufactured the domestically designed "J3" turbojet engine

1960

- 1961 Developed and licensed "IN" steel, featuring superior welding properties and high durability at low temperatures, to domestic and foreign steel manufacturers
- Completed construction of the "Asia Maru", the first example of the "Keizai Senkei" (Economical Hull Form)
- 1962 Manufactured the "J79," the first domestically produced large turbojet engine
- Aioi Shipyard sets a new world record for annually launched tonnage
- 1964 Produced Japan's first mechanical excavation shield tunneling machine
- 1966 Constructed the "Idemitsu Maru", the world's first very large crude oil carrier (VLCC)
- 1967 Completed the first "Freedom" class mass-produced, multi-purpose freighter
- 1968 Constructed the world's largest seawater desalination facility for Kuwait
- Completed Japan's first online computer-automated warehouse
- 1969 Completed the primary containment vessel for the first domestically produced commercial nuclear reactor
- Completed construction of Japan's first LNG storage tanks



Idemitsu Maru

1970

- 1970 Completed Japan's largest hot strip mill (2,300 mm roll width)
- 1971 Completed the world's first full continuous tandem cold strip mill
- Completed the world's largest iron-ore unloader (2,500 t/hour)
- Completed Japan's first underground LNG storage tank
- 1972 Developed the new SF-type cement clinker burning process
- Produced the world's largest steam turbine (50,000 hp) for merchant ships
- 1973 Built the world's largest tanker, the "Globtik Tokyo", at 480,000 deadweight tons
- Completed the world's largest cement plant (7,200 t/day)

1970

- 1976 Completed the world's largest plate rolling mill (5,500 mm roll width)
- Built the world's largest blast furnace (capacity of 12,000 t/day)
- Aggregate production of large low-speed diesel engines for ships reaches 10 million hp
- 1977 Completed the world's first automated warehouse for new cars
- 1978 Completed the world's first barge-mounted pulp plant for Brazil
- 1979 Supplied the world's first full-scale NOx remover to a thermal power plant



Barge-mounted pulp plant

1980

- 1980 Completed Japan's first variable-pressure operation supercritical pressure boiler
- 1981 Built the world's first barge-mounted polyethylene plant
- 1982 Delivered the world's largest fluidized-bed waste incinerator plant
- Completed Japan's first continuous coal unloader
- 1983 Completed the world's first aluminum alloy ultrahigh vacuum duct for particle accelerators
- 1984 Constructed the world's largest LPG plant for Algeria (capacity of 4 million t/year)
- Completed the world's first caisson rig for Arctic Ocean oil exploration
- Developed Japan's first automated segment assembly robot for shield tunneling machines
- 1985 First flight of the STOL plane "Asuka" mounted with domestically designed and manufactured "FJR710" engines
- 1986 Completed the "Zane Barnes", the world's largest semi-submersible oil drilling rig
- Successful launch of the "H-I" rocket equipped with IHI manufactured turbopumps
- Delivered the first "F3" engine developed in Japan for the JDA's T-4 training jet
- Delivered our tenth large coal-fired boiler to Australia
- 1987 Completed construction of the "Second Bosphorus Bridge"
- Manufactured and installed the main bridge towers and girders for the "Seto Ohashi Bridge"
- Supplied 21 ultra-large transfer presses to General Motors Corp. (U.S.A.)
- Developed the world's first contra-rotating propellers for large ocean-going ships
- Commercial flights begin of the Airbus A320, equipped with internationally developed "V2500" engines



Boilers for Australia

1990

- 1992 Entered into large-scale real estate development with the construction of the "Toyosu Center Building"
- 1993 Successfully generated 129 kW using an MFCF, the world's largest output
- Completed the world's largest continuous ore unloader (3,000 t/hour)
- Completed two of the first IHI developed SPB-type LNG carriers
- 1994 Successful launch of the "H-II" rocket equipped with IHI manufactured turbopumps
- Completed the world's largest shield tunneling machine (14.14 m diameter)
- Completed construction of the world's largest above-ground LNG tank (140,000 kt)
- Completed the world's first reactor pressure vessel (RPV) for use in an ABWR
- 1995 Official certification received for the "GE 90" turbofan engine, developed with international cooperation
- 1996 Constructed the world's first steel floating storage and off-loading unit (FSO) for LPG
- Developed liquid crystal plate inspection equipment for mass-production facilities
- Opening of the 15.1 km bridge-and-tunnel Tokyo Bay Aqualine expressway
- 1997 Completed construction of the Aegis equipped JDA destroyer "Chokai"
- 1998 Completed construction of a 6,500 t transfer press, one of the world's largest
- Built and installed the main towers and girders of the "Akashi Kaikyo Bridge" the world's longest suspension bridge
- Established the Soma Aero-Engine Plant in Fukushima Prefecture
- 1999 Completed testing of a 1MW molten carbonate fuel cell generator
- Completed a 9.6 m in diameter developing parallel link excavating (DPLEX) shield tunnelling machine, one of the world's largest



Second Bosphorus Bridge



SPB-type LNG carrier

2000

- 2000 Completed construction of a 200,000 kt completely buried underground LNG tank, one of the world's largest
- Completed construction of the "Irtysh River Bridge" in the Republic of Kazakhstan
- 2001 IHI's aggregate output of automotive turbochargers exceeds 10 million units
- Successful launch of the "H-IIA" Rocket mounted with IHI turbo pumps
- 2002 Delivered the 2,000th Fan Module of the V2500 engine for Airbus A320 aircraft
- Started commercial operation of the Hekinan Thermal Power Plant, the largest coal-fired thermal power plant in Japan
- Started operation of Japan's first tower boiler
- 2003 Delivered four containerships, one after the other, each with a 4,500-container capacity
- Acquired the FAA type certificate of GE90-115B, the most powerful commercial jet aircraft engine
- Completed construction of the Carquinez Bridge for the state of California in U.S.A.
- 2004 Completed India's first LNG receiving terminal (5,000,000t/year)
- Delivered "HZ-801W," Japan's first large ozone sterilizing system for research facilities
- Completed the world's first curved-line rubber belt moving walkway
- Completed the first blast furnace (capacity of 5,370m³) for Kashima Steel Works, Sumitomo Metal Industries, Ltd.
- Participated in development of "GENx," the latest engine for the next-generation Boeing 7E7
- Constructed the world's first and largest floating LPG production, storage, and offloading facility (LPG FPSO)
- Delivered the world's largest containership with a 7,500-container capacity
- 2005 Delivered 2 large GTL(Gas To Liquid) reactors for Sasol Group to Qatar (34,000barrels/day)
- Completed the world's first liquid nitrogen-cooled full superconducting motor (output: 400kW)
- Acquired model approval from the FAA for the "CF34-10E", an engine for a regional aircraft with 90 to 110 seats.



H-IIA Rocket (©JAXA)