IHI Corporation

Corporate Profile

English version



Realize your dreams

At IHI Group, we design and build progressive engineering solutions for people and planet. Our heritage is built upon a shared culture of striving for the highest standards in every facet of our business. This approach commits all relationships to our management philosophy of contributing to the development of society through technology. We work alongside customers, stakeholders and fellow employees to deliver outcomes that positively affect the world and its inhabitants. This powers our relationships to greater outcomes, and also makes good commercial sense. At our core, we are people who apply forward thinking to find lasting solutions to the toughest problems. IHI Group. Realize your dreams.

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We will transform our business into one that delivers strong, sustainable growth by providing value across lifecycles of customers' businesses and building a robust value chain.



Group Management Policies 2023

During the period of former mid-term plan 'Project Change', IHI has made steady progress in preparing for its business transformation, notably through full-fledged efforts to expand Lifecycle businesses (LCB) and initiatives for the fuel ammonia value chain business. Alternatively, further enhancement of corporate strength is necessary to prosper in a society where instability becomes the norm. In our new management policies beginning from FY2023,

we will redouble efforts to transform our business to achieve strong, sustainable growth. Simultaneously, we will accelerate action to adapt to disruptive environmental change.

Transforming business and business portfolio to achieve strong, sustainable growth

Our target is to resolve the challenges of customers, industry, and society by leveraging our technologies and insights. For this purpose, we will transform our businesses through multi-pronged efforts to build entire value chains and provide value throughout customer business lifecycles. At the same time, we will restructure our business portfolio by decisively shifting management resources to Growth Business and Development-focus Business.

Aero Engines and Space are positioned as Growth Business. Rapid market expansion recoveries are forecasted in civilian aircraft as airlines emerge from the COVID-19 pandemic as well as large demand potential in the defense business. These businesses will drive growth by drastic production reforms, consequently shortening lead times and improving productivity. We will also expand LCB through steadily setting up businesses at new engine maintenance sites and through conducting raw material business. On top of that, we will strive to create new business domains from value chain perspectives, including next-generation aircraft and initiatives for space, land, and underwater data utilization.

Clean Energy business represented by fuel ammonia and others is defined as Development-focus Business, which would drive our future growth in parallel with Aero Engines and Space business. We will build and enhance the value of our entire Clean Energy value chain. Such efforts will start with gas turbines that utilize world-leading ammonia combustion technology and storage and receiving terminals boasting a top-class share. We are open to invest in fuel manufacturing projects. In the Core Businesses which includes Resources, Energy & Environment, Social Infrastructure, and Industrial Systems & General-Purpose Machinery, we will augment a growth strategy based on Exploit and Evolution of LCB. We will prioritize cash generation by meticulous reform of business structure and generating management resources that we invest in Growth Business and Development-focus Business.

Business Transformation to Achieve Strong Sustainable Growth

Group Corporate strategy

Aiming to solve the social agenda* faced by customers, industry, and society. Transforming our business through multi-pronged efforts To build up the entire value chain and To provide value throughout the Lifecycle of customer's business by utilizing our technology and insight

*(1) Helping to realize carbon neutrality for various industries (2) Helping to protect the planet from climate change (3) Helping to build and improve industry ecosystems (4) Helping to ensure economic, national, and energy security, etc.

Key points for the Group Management Policies

	Growt Aero er
Leaping forward to become a sustainable high-growth company through a bold shift of management resources to growth areas	
g	Resource Indu
Capability of realizing transformation	Developing human facilitate t

Quick response to environmental changes, transformation to capability of realizing transformation

Our management is centered on ESG-rooted values. For business transformation, we will pursue digital infrastructure advances as well as development and recruitment of innovative human resources.

Through the efforts above, we will endeavor to keep increasing our operating cash flow while allocating around half of our investments to Growth Business and Development-focus Business to realize strong, sustainable growth.



Development-focus business Clean energy

Allocating management resources (cash and human resources)

Core businesses

es, Energy & Environment; Social Infrastructure; strial Systems & General-Purpose Machinery

and recruiting resources to transformation

Advancement of digital infrastructure

Sustainability Initiatives

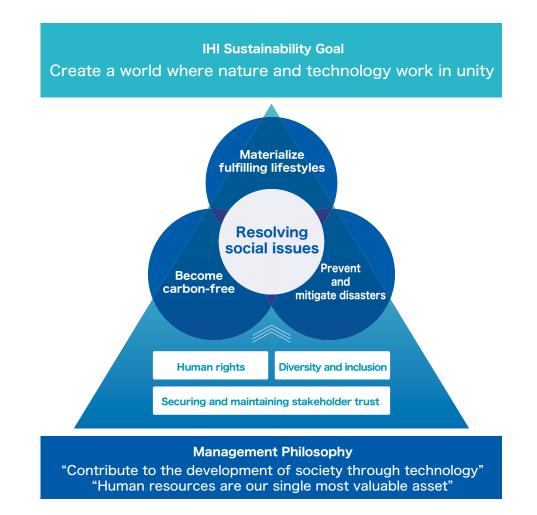
The IHI Group seeks to contribute to sustainability for the environment and people everywhere by creating a world where nature and technology work in unity-with safe, secure, and prosperous societies that shield people from natural disasters. We will address a range of social issues, generate social value, and enhance corporate value through business.

ESG Management and Material Issues

To realize a sustainable society, we must operate in keeping with environmental, social, and governance (ESG) requirements.

Our ESG management focuses on the following key efforts. These are to deploy measures to combat climate change, respect the human rights of those involved in our business, maintain a diverse and inclusive workforce to drive value creation, and earn stakeholder trust through ethical management.

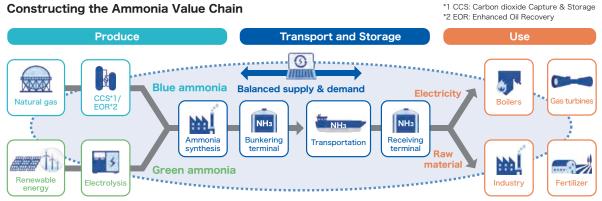
We established the ESG Management Promotion Committee, which the CEO chairs, to consider the basic policies and measures of ESG management and monitor implementation.



Climate Change

Mitigation

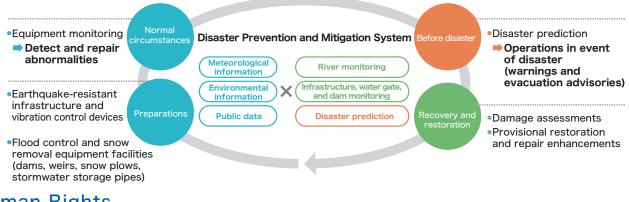
We pledged to make our value chain carbon-neutral by 2050 in terms of mitigation, as part of which we reduce and absorb greenhouse gas emissions. We are therefore developing technologies to use ammonia as a fuel that does not emit carbon dioxide when burned, and are building a complete ammonia value chain from production through consumption.



Adaptation

We are adapting in various ways to prepare for the impacts of climate change. We are helping make communities safe, secure, and comfortable by making infrastructure more economical and disaster resilient and by building systems that combine infrastructure with disaster and damage prediction to eliminate human suffering.

Creating a Resilient Social Infrastructure



Human Rights

We use our value chain to minimize operational impacts on stakeholders and rights-holders as part of efforts to enhance the lives of all people.

Diversity and Inclusion

Welcoming diversity and addressing changes in the social environment are essential to a sustainable economy. Our management strategy accordingly seeks to optimize relationships between individuals and organizations and pursue diversity and inclusion.

Go here for more information



Historical Highlights

IHI helped pioneer Japan's heavy industry. We started out by accumulating shipbuilding technology that we applied to industrial machinery, plant manufacturing and construction. Now we are a key provider of massive elements of industrial and social infrastructure.

Our products underscore our management philosophy of contributing to the development of society through technology.



1853 Ishikawajima Manufacturing Shipyard established to protect to invasion of western countries, after a fleet under U.S. Commodore Matthew Perry arrived The Mito clan set up this facility on instructions from Japan's feudal government.



1866 Completed the Chiyodamaru,

Japan's first steam-powered warship This vessel employed the first naval steam engine manufactured in Japan.

1876

Established Ishikawajima Hirano Shipyard Tomiji Hirano set up the nation's first private sector shipyard. Eiichi Shibusawa was heavily involved in funding the company when it was starting up,



Fiichi Shibusawa

helping to organize its operations.



Seitaro Karahata, the head of Aioi village (now Aioi City) in Hyogo Prefecture, established that firm.



Completed steel structures for Tokyo Central Station now Tokyo Station) he company broke away from the convention of erecting a scaffold, winning accolades among architects by using two movable cranes instead.



1945 Produced the Ne20, Japan's first jet engine The engine powered the successfully maiden flight of Japan's first jet.



1911

Established Ishikawajima do Brasil Estaleiros in Brazil This was the first Japanese-owned shipyard overseas and heralded the overseas expansion of Japanese companies.



Established Ishikawajima-Harima Heavy Industries Co., Ltd. This was the fruit of a merger between onshore machinery leader Ishikawaiima Heavy Industries Co., Ltd., and Harima Shipbuilding & Engineering Co., Ltd., a top player in its sector.



Built the world's first bargemounted pulp manufacturing plant specifically for Brazil IHI built this 230-meter facility, mounted it on a barge, and towed it to Brazil.



Constructed large shield tunneling machine for Tokyo Bay Aqualine With a diameter exceeding 14 meters, this machine dug a 2,853-meter tunnel under Tokyo Bay.

2002

Delivered Japan's first tower boiler Delivered Japan's first tower-type boiler to

The Isogo Thermal Power Station. Second unit, delivered in 2009, recorded world's highest steam condition. (Photo is provided by J-POWER (EPDC))



2007 Company name changed from Ishikawajima-Harima Heavy Industries Co., Ltd., to IHI Corporation Group seeks to become an advanced global brand.

1853 1907	1960 1964 1967	7 1968 1970	1980 1990		2000 200	2010	2015	2023
1853 Ishikawajima Harima Dock	1960 Ishikawajima-Harii	na Heavy Industries	•			IHI Corporation		
Shipyard Harima Shipbuilding & Engineering 1945 Company renamed Ishikawajima Heavy Industries Co., Ltd. 1939 Shibaura United Enginee 1941 Nagoya Shipbuilding 1954 Kure Shipbuilding Engineering	ering 9 & 1962 Ishikawajima Mass-Produc (now IHI Turbo Co., Ltd.) 1965 Ishikawajima Ai	1969 Daini Seikan Koji Co., Lt 1973 Ishikawajima (now IHI Trans 1974 Ishikawajir (now IHI Co 1977 IHI I	d. (now IHI Plant Services Corporation) Numazu Transport Machinery port Machinery Co., Ltd.) na Construction Materials Co., Ltd. NSTRUCTION MATERIALS Co., Ltd.) NC. 1980 Warner-Ishi Co., Ltd. (now IHI Turbo 1984 Ishikawajima Logistics Ser (now IHI Logistics & Machine 1992 IHI Europe 1995	rvice Corporation ery Corporation)	2004 IHI-Sullair Ci 200 Bus	Corporate name changed 2009 IHI Infrastructure System Japan Tunnel Systems (now JIM Technology Corr d. 2011 IHI (Shang SYSTEMS Co., Ltd. ems Co., Ltd.) Co., Ltd. HII A-IHI Turbo Co., Ltd.	Corporation poration) 2016 I&H Engineering Co., Ltd. IHI Investment for Aero Engi Power Generation Corporation I E&C International Corporation squisition of shares of MEISEI ELECTRIC CO.,LTD. 2017 IHI DALGAKIR SANAYI VE TIC	ine Leasing LL Corporation RAN MAKINA CARET A.Ş.



2011

Participating in a project for an advanced GEnx jet engine

We have a roughly 15% share in the international program for this jet engine, which offers significantly improved fuel economy.



2013

Epsilon Launch Vehicle

This solid, next generation propellant launch vehicle delivers high performance and low cost. (photo courtesy of JAXA)



2015

Reached total production of 50 million turbochargers for vehicles

The IHI Group's total production of turbochargers reached 50 million units. We will expand production and sales activities worldwide while meeting various needs based on our highly reliable development and production technologies.



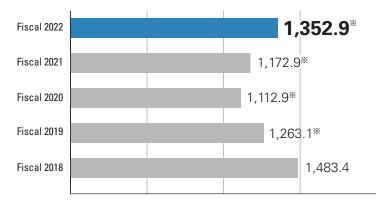
2016

Osman Gazi Bridge, Turkey's longest suspension bridge, opened to provide a crossing over Izmit Bay Crossing western Turkey's Izmit Bay from south to north, the 1,550-meter structure is the world's fourth-longest suspension bridge.

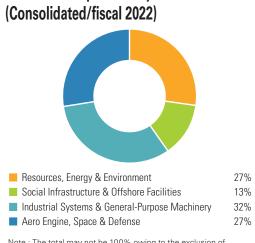


Net sales/Revenue

Consolidated net sales/sales revenue (Billion yen)

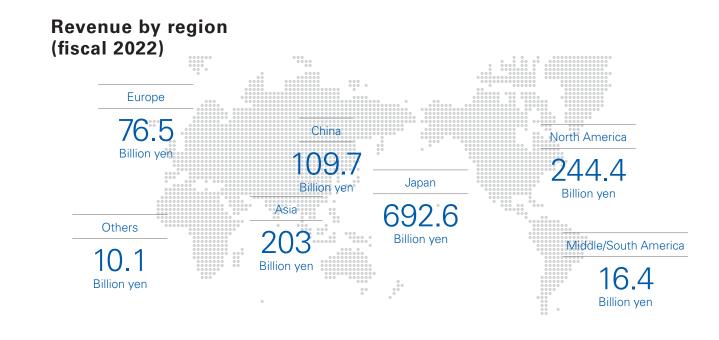


※ IHI adopted International Financial Reporting Standards (IFRS) from fiscal 2020, showing sales based on those sales from fiscal 2019.



Revenue Composition by business areas

Note : The total may not be 100% owing to the exclusion of "Other" and "Adjustments".



l Audit Div.	
tariat Div.	
cademy	
Security Div.	
mmunication Div.	
Planning Div.	Resources, Energy & Environment
Accounting Div.	Business Area
esources Div.	Social Infrastructure Business Area
gal Div.	Industrial Systems & General-Purpose Machinery Business Area
tration Div. Management Div.	Aero Engine, Space & Defense Business Area
	Asia Pacific Headquarters
tegy Headquarters	China Headquarters
pment Headquarters	Americas Headquarters
t Information nt Headquarters	Europe Headquarters
ales Headquarters	Representative Offices
& Intelligence gration	Technology Platform Center
kuri System Jy Planning	
Strategy Planning	

Four Business Areas

The IHI Group is a cadre of social infrastructure experts in four business areas, contributing to better living by resolving a range of social issues.



Shields

Concrete Construction Materials

Urban Development

- Carbon Solutions
- Nuclear Energy

Field 04

Aero Engine, Space & **Defense Business Area**

Leverage advanced technology to open new vistas for air transportation, defense systems, and space utilization, and help materialize social comfort and safety



GEnx turbofan engine "GEnx" is a registered trademark of General Electric Company

Principal Businesses

Rotating Machinery

Materials Handling System Logistics and Machinery

Heat Treatment and Surface Engineering

• Aircraft Engines Rocket Systems and Space Exploration Defense Equipment and Systems

Field

Resources, Energy & Environment Business Area

■ Carbon Solutions	15
LNG Receiving Terminals and Storage Tanks	16
 Processing Plants Equipment for Plants 	17
Gas Turbines, Gas Engines and Diesel Engines	18
 Nuclear Energy Propulsion Systems 	19

Carbon Solutions

As a leading global supplier of highly efficient and reliable utility boilers, IHI continues to help reduce carbon dioxide emissions and streamline existing power plant operations. It also provides boilers and flue gas equipment for fuels from biomass, waste, and other sources for domestic and international markets. We are working towards the social implementation of carbon capture and utilization and ammonia combustion technologies. Through them, we will provide a range of solutions toward a carbon-free, circular economy.







Main Products

- Ammonia combustion technology
- Biomass combustion technology Carbon capture and utilization technologies
- Energy management systems

- Compact reactors
 Highly efficient boilers
 Operation and maintenance services
- Flue gas treatment systems

Ammonia combustion technology Photo of Hekinan Thermal Power Station courtesy of JERA Co., Inc.

Biomass combustion technology Photo courtesy of Nanatsujima Biomass Power Limited Liability Company

Methanation technology as carbon recycling technologies

LNG Receiving Terminals and Storage Tanks

The IHI Group has the top share of the Japanese market for LNG receiving terminals and storage tanks. It has expanded overseas, building a construction track record in India, Qatar, Mexico, Taiwan, the United States, and China. IHI is the global market leader in all types of LNG storage tank. These include double-shell metal, above-ground prestressed concrete, and underground membrane tanks.

Main Products

LNG receiving terminals Above ground LNG storage tank In-ground LNG storage tank Underground LNG storage tank

Processing Plants

IHI has amassed an excellent record in Japan and abroad in diverse plant construction fields. These include natural gas liquefaction plants, petroleum refineries, petrochemicals, and LPG, encompassing engineering through equipment procurement, construction, and start-ups.



LNG receiving terminal (Sempra's Cameron LNG receiving terminal in Louisiana, USA) Photo courtesy of Sempra LNG «All rights received by Sempra LNG



Membrane of world's largest underground LNG tank Photo courtesy of Tokyo Gas Co., Ltd.



In-ground LNG storage tank



Natural gas liquefaction plants

Equipment for Plants

We supply an array of plant equipment, including heating furnaces and cooling towers.



Pressure vessels / Wastewater treatment facility

Main Products

- Oil and gas plants
- Chemical plants
 Natural gas liquefaction plants



LPG plants

Main Products

- Vertical pulverizing superhybrid mills
- Furnaces
- Air-cooled heat exchangers
 Chemical plant equipment
 Cooling towers
 HTS reactors

- EO reactors
- Wastewater treatment facilities



Roller mills



Cooling towers

Gas Turbines, Gas Engines and Diesel Engines

IHI provides a wide variety of power generating products, including gas turbines, diesel engines and gas engines with simple cycle, co-generation and combined cycle power systems. We supply eco-friendly marine diesel and dual-fuel engines. We are minimizing NOx and CO2 emissions by adopting high-efficiency, low emission technologies.

We also provide remote monitoring, maintenance and other services throughout product lifecycles.



LM6000 gas turbine power plant



18V28AGS gas engine



6L28AHX diesel engine

Main Products

Simple/combined cycle power generation systems Co-generation power systems Co-generation systems Diesel engines (marine, land) Gas engines
 Dual-fuel engines ■ Gas turbines

Nuclear Energy

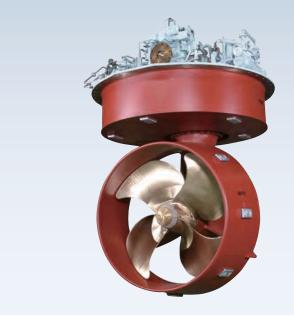
In nuclear power, we supply such key equipment as reactor pressure and containment vessels and piping systems. We participate in development and construction, primarily for the back-end of the nuclear fuel cycle. Since the Great East Japan Earthquake of March 11, 2011, we have focused on improving safety at existing facilities, notably to safeguard against earthquakes, tsunamis, and terrorism at existing facilities. We have also decommissioned nuclear power plants.



Reactor containment vessel and heavy structures

Propulsion Systems

We are one of the top players in the global tugboat market. Our Z-PELLER* propulsion unit has earned an outstanding reputation among customers for its quality and durability. Beyond tugboats, applications are diversifying for a variety of marine utility vessels. They include oil recovery and other emergency response boats, floating cranes for port and offshore construction, dredgers, oil rigs, and wind farm support vessels.



Azimuth thruster (Z-PELLER*)

Main Products

- Components for nuclear power plants
- Facilities for nuclear fuel cycle related equipment
- Pressure vessels



Reactor pressure vessel



Vitrification facility for high-level radioactive waste

Main Products

■ Z-PELLER[®] azimuth thruster

Field

Social Infrastructure Business Area

Bridges, Water Gates and Steel Structures

In Japan, we helped build such major structures as the Akashi Strait Bridge. Among our numerous overseas achievements was our construction of Turkey's Osman Gazi Bridge, the world's fourth-longest suspension bridge, across Izmit Bay. As Japan's leading manufacturer of watergates, we help with construction for water and flood control projects domestically and abroad. Another focus is on developing and offering products and services for safe, secure, and comfortable lifestyles, including through our seismic isolation and vibration damping businesses.







Bridges, Water Gates and Steel Structures	
 Shield Tunneling Machines and Concrete Construction Transportation Systems 	on Materials
 Urban Development Security 	

Main Products

Bridges

- Water gate equipment for rivers
- Water gate equipment for dams Composite slabs
- Sound-absorbing panels
 Temporary assembling bridges
 Mass damper systems
- Seismic isolation floor systems

Osman Gazi Bridge across Izmit Bay

River gate (Kesengawa Gate)

Active mass dampers

Shield Tunneling Machines and Concrete Construction Materials

We have greatly streamlined construction efficiency by developing and commercializing one of the world's biggest large-diameter shield tunneling machines and a combination circular shield tunneling machine. We have an impressive record in automatic segment assembling systems. In keeping with contemporary needs, we supply diverse segments that mainly employ concrete materials. We constantly innovate advanced civil engineering and construction techniques and products.



Large-diameter shield tunneling machines

Main Products

Shield tunneling machines
 Segments
 Automatic segment assembling systems



Special section (double-o tube) shield tunneling machines



IKK composite segment

Transportation Systems

IHI's comprehensive technologies serve in a range of situations to help maintain the safety and reliability of traffic that is essential for daily life. We supply various railway systems, including ultra-low-floor streetcars. Such people- and eco-friendly offerings are essential for building new towns. We also provide light diesel locomotives for local transportation and maintenance vehicles that keep railway systems running.

Main Products

Transportation systems
 Rolling stock
 Maintenance vehicles
 Snowplows



Light rail vehicle



Railway rolling stock



Maintenance vehicle

Urban Development

The IHI Group develops businesses that leverage its real estate. In 2022, it completed construction of a joint venture property called Mitsui Fudosan Logistics Park Toumei Ayase. It built a medical evacuation heliport there to contribute to the community. We aim to contribute to society and enhance corporate value by developing office and incubation facilities as the final phase of our Toyosu area redevelopment project while undertaking waterfront and industrial redevelopment projects in Shinsuna area in Tokyo's Koto Ward.



Toyosu redevelopment area viewed from Tokyo Bay

Security

IHI brings products to the world that employ mechatronics and sensing technology. We have delivered more than 3,000 3D Laser Radar systems in Japan and abroad, mainly to prevent and reduce accidents at railway level crossings. We are one of preeminent Japan's suppliers of X-ray inspection systems for customs imaging checks at ports and airports. We also sell thermographic screening systems that help prevent virus infections from spreading.



3D Laser Radar

Main Products

Real estate leasing and sales



Mitsui Fudosan Logistics Park Toumei Ayase, which incorporates a medical evacuation heliport

Main Products

- 3D laser radar systems
- Thermographic screening systems
- Noise reduction systems
- Weather observation system
 X-ray inspection systems
- Oil leak monitors
- Disaster prevention equipment



Earthquake early warning receiving unit QCAST™ S740-P

Field 03

Industrial Systems & General-Purpose Machinery Business Area

 Parking Systems Materials Handling System 	25
 Turbochargers Rotating Machinery 	26
 Logistics Solutions Factory Solutions 	27
 Heat Treatment and Surface Engineering Iron, Steel and Coke-Making Equipment 	28
 Pulp and Paper Machinery Agricultural Machinery, Life Associated Equipment, and Packaged Boilers 	29

Parking Systems

Since installing Japan first tower parking system in 1962, IHI has drawn on its experience, reliability, and proprietary technology to perfect these setups. We offer optimal solutions throughout product lifecycles by maintaining, inspecting, and proposing upgrades through 174 service sites around the nation.



Tower parking systems(pallet type) / Super square parking systems

Materials Handling Systems

IHI has remained a technology leader in materials handling systems in Japan for more than a century. Power plants and steel mills across the nation have employed many of our bulk handling systems, including continuous and pneumatic unloaders. We also have an impressive track record with jib climbing cranes, which most skyscrapers around the country have used. Our robust after-sales maintenance program caters to the increasingly advanced and diverse technological needs of materials handling systems.



Jib climbing cranes

Main Products

- Tower parking systems (pallet type)
- Super Square Parking Systems
- (for underground parking)
- Multi-storey parking systems Ramp parking systems



Ramp parking systems



Multi-storey parking systems

Main Products

- Unloaders
- Bulk handling systems
- Jib climbing cranes ■ Jib cranes



Continuous ship unloader



Pneumatic Unloader

Turbochargers

Turbochargers force compressed air into combustion chambers to enhance performance. IHI's broad turbocharger range extends from large models for large marine and land power generators to small ones for automobile engines. We have manufactured more than 100 million automotive turbochargers. We maintain development, production, and sales units in the United States, Europe, Thailand, China, and Korea, and do business worldwide.



Electric turbochargers for fuel cell vehicles

Turbochargers for vehicles

Main Products

Turbochargers



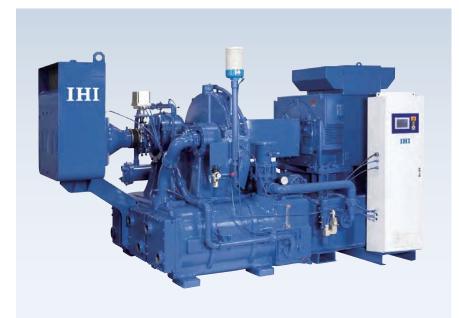
Turbochargers for marine vessels

Rotating Machinery

We support the plant operations of customers everywhere. We have a top share of the world market, for example, in boil off gas compressors. In Japan, we dominate the turbo compressor market. We also offer separators and filters that are essential for solid-liquid separation processes in chemicals and food manufacturing. We remain close to customers to tackle challenges, and offer a range of optimal solutions, including for engineering, after-sales service, and conserving energy.

Main Products

■ Compressors Separators ■ Filters ■ Gears



Centrifugal air compressors



Screw decanter centrifuges



Process gas reciprocating compressors

Logistics Solutions

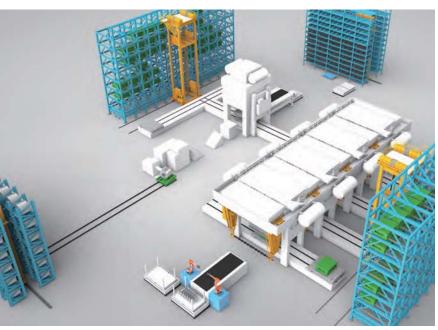
The rapid development of the e-commerce market has caused serious labor shortages in the logistic industry. It is thus imperative to automate operations and boost capacity. IHI offers an array of logistics systems, including automated freezer and refrigeration warehouses that can run at temperatures as low as -60°C, automated hazardous materials warehouses, storage and retrieval facilities for clean rooms, and AI depalletizing systems. We draw on our expertise in a range of industries to provide optimal logistic solutions for customers.



Freezer automated storage and retrieval systems

Factory Solutions

Manufacturers face a range of challenges, including recruiting, using complex high-mix, low-volume production, and achieving carbon neutrality. We accordingly help them by customizing optimal factory solutions through automation, improving productivity with digital technology, efficiently managing information, and conserving energy.



Factory automation system

Main Products

- Storage systems
- Transportation systems
- Sorting and picking systems
- Automated materials handling systems for clean rooms



Laser guided forklifts



Al-powered depalletizing systems

Main Products

- Factory automation system
- Transfer systems
- Automotive press lines
 Rubber and plastic film sheeting lines
- Industrial machinery



Retrofitting for conveyors between presses



High speed transfer feeder (X-Feeder)

27

Heat Treatment and Surface Engineering

IHI provides a diverse lineup of heat treatment equipment and processes across numerous industries. Our offerings include vacuum heat treatment furnaces, high-pressure sintering furnaces, hot presses, high purification furnaces, and heat treatment processing business. We also provide advanced coating solutions featuring a broad range of hard, low friction, wear and corrosion resistant coatings based on PVD, PACVD and CVD technologies for a wide range of industries such as aerospace, automotive and medical applications.



Vacuum furnace

Iron, Steel and Coke-Making Equipment

Paul Wurth IHI provides cutting-edge technologies from engineering through manufacturing and construction work of iron and steel plants. We focus on blast furnaces and coke ovens and electric arc furnaces, which are the principal facilities of integrated steel plants. IHI and Paul Wurth Group will contribute for steel industries to achieve carbon neutrality, an urgent priority for them, by leveraging the technologies of joint venture Paul Wurth IHI Co., Ltd.



Blast furnace (Photo courtesy of Nippon Steel Corporation)

Main Products

Advanced material manufacturing equipment Vacuum thermal treatment equipment Thin film and surface treatment equipment Heat treatment and coating services



Vacuum hot press for diffusion bonding



PVD/PACVD coating equipment

Main Products Industrial furnaces

Pulp and Paper Machinery

High-speed paper machine is often longer than 100 meters, and plays pivotal roles at paper mills. We have built impressive positions in Japan and abroad for our coaters, which enhance the printability and finish of paper. We are one of Japan's leading pulp and paper machinery manufacturers. Our stock preparation machines optimize raw materials for paper. They deliver world-class energy savings and help resolve environmental issues.



Paner mach

Agricultural Machinery, Life-Associated Equipment, and Packaged Boilers

Our agricultural machinery serves in a range of areas, including tasks in water paddies and other fields as well as in dairy farming and raising livestock. We also offer lawn maintenance machines, mowers, and campus greening equipment to support operations for sports facilities, schools, parks, and river embankments. Demand for ozone deodorizers and disinfectors is expanding at a range of facilities. We created a series of packaged boilers for various facilities that cater to maintenance and myriad other needs across lifecycles.





K-series once-through boiler

Ozone air purifier

Main Products

Pulp and paper machinery

Main Products

- Agricultural machinery
- Lawn maintenance machines
- Ozone deodorizers and disinfectors
- High-temperature heating systems
- Packaged boilers





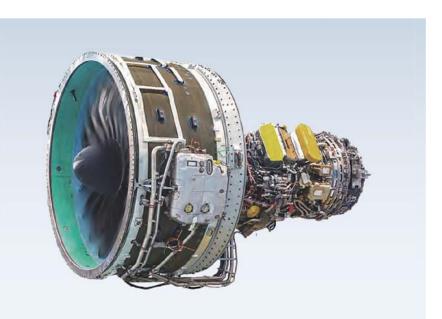
Remote-control hammer knife mower

Field

Aero Engine, Space & **Defense Business Area**

Aircraft Engines

IHI is Japan's leading maker of jet engines, with a market share of around 70%. We are the primary contractor and manufacturer for aircraft engines used by the Ministry of Defense, covering all fighter aircraft models. We collaborate in international projects to develop and supply engine modules and components for civilian aircraft, and are renowned as Asia's core engine maintenance provider. We conduct research and development into advanced, eco-friendly engines.



PW1100G-JM turbofan engine mounted on Airbus A320neo (photo courtesy of JAEC)

Rocket Systems and Space Exploration

IHI has participated in Japan's space development effort from the outset. We have developed and manufactured the turbopumps and gas-jet systems that are crucial to successful rocket launches. Our involvement in Japan's space program expanded significantly in 2000, when we absorbed the Aerospace Division of Nissan Motor, a leader in solid-fuel rocket technology. We play an important role in developing and constructing the Exposed Facilities of the KIBO Japanese Experiment Module, which is a part of the International Space Station program. We support experiments in space by supplying experimental systems needed for cooperative international projects.



Epsilon-4 Launch vehicle (© JAXA)

H-IIA Launch vehicle (© JAXA)

Aircraft Engines

Rocket Systems and Space Exploration

Main Products

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

F110 turbofan engine powering F-2 support fighter



Main Products

Rockets

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



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

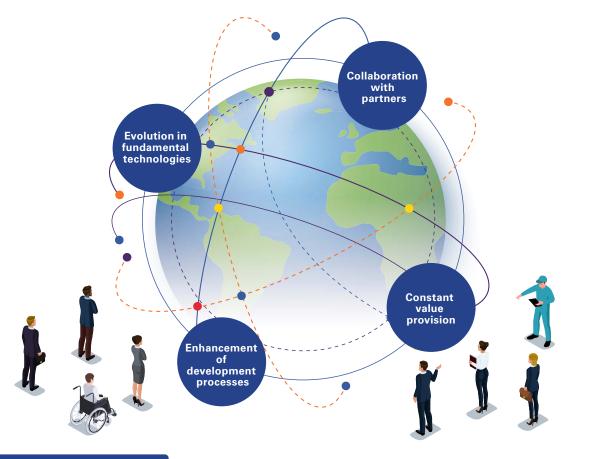


Liquid hydrogen turbopump for the H-IIA rocket LE-7A engine

Developing Technologies to Diversify Options for Society

Technology & Intelligence Integration

Since its establishment in 1853, IHI has expanded and improved its technology platform along with producing socially vital products. This traditional product-oriented development style alone does not work well enough in the current unstable society, where increasingly complex social issues require a diversity of solutions. In this situation, IHI is conducting technology development to continually create new value by envisioning various future possibilities and collaborating with various partners.



Constant Value Provision

Technology that generates new business

We flexibly conduct technology development based on the strategy planned in view of recent ever-changing social environment. We strive to put new solutions into practical use quickly and to leverage additional needs and data obtained only through actual usage. In this way, we are seeking technologies for new businesses

Noteworthy achievements of technology development for realizing carbon-neutral economy



Methanation plant for demonstration test



Ammonia gas turbine for test

We have developed technologies to capture carbon dioxide from the exhaust gases of power plants and factories and from the atmosphere. To utilize the captured carbon dioxide, we are creating technologies to synthesize e-methane. which is called methanation technology, or sustainable aviation fuel (SAF) by reacting carbon dioxide with hydrogen.

We are additionally developing power generation technology fueled by ammonia, which is free from carbon dioxide emissions when burned



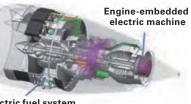


Evolution in Fundamental Technologies

Undertaking world-class technology development

We tackle increasingly complex social issues by upgrading existing technologies while securing and cultivating new techniques to develop innovative technologies.

Technologies related to electrification





Electric fuel system

•Rotating machinery technology (for high-power motors etc.) •Machine element technology (for gas bearings etc.) •Simulation technology (for evaluating cooling performance etc.) •Heat & wear resistant coating technology

Enhancement of Development Processes

Accelerating development by leveraging digital technology

We have adopted model-based development, through which we conduct an array of simulations in early development stages to assess design spaces. We identify development bottlenecks and theoretical limitations to optimize development plans. We seek to shorten development lead times by simulating repeated scale-up prototyping and verification to commercialize technologies as quickly as possible.

Collaboration with Partners

Deepening our ecosystem presence and co-creating

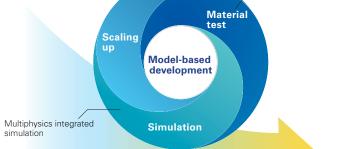
We collaborate with around-the-world companies, universities, and other organizations with advanced expertise and track records. We launched the IHI-ISCE² Sustainable Innovation Centre, the IHI x Tohoku University Co-Creation Research Center of Ammonia Value Chain for Carbon Neutrality, and other co-creation initiatives. Through these initiatives, we leverage our strengths and those of our partners to generalize higher added value throughout society speedily.



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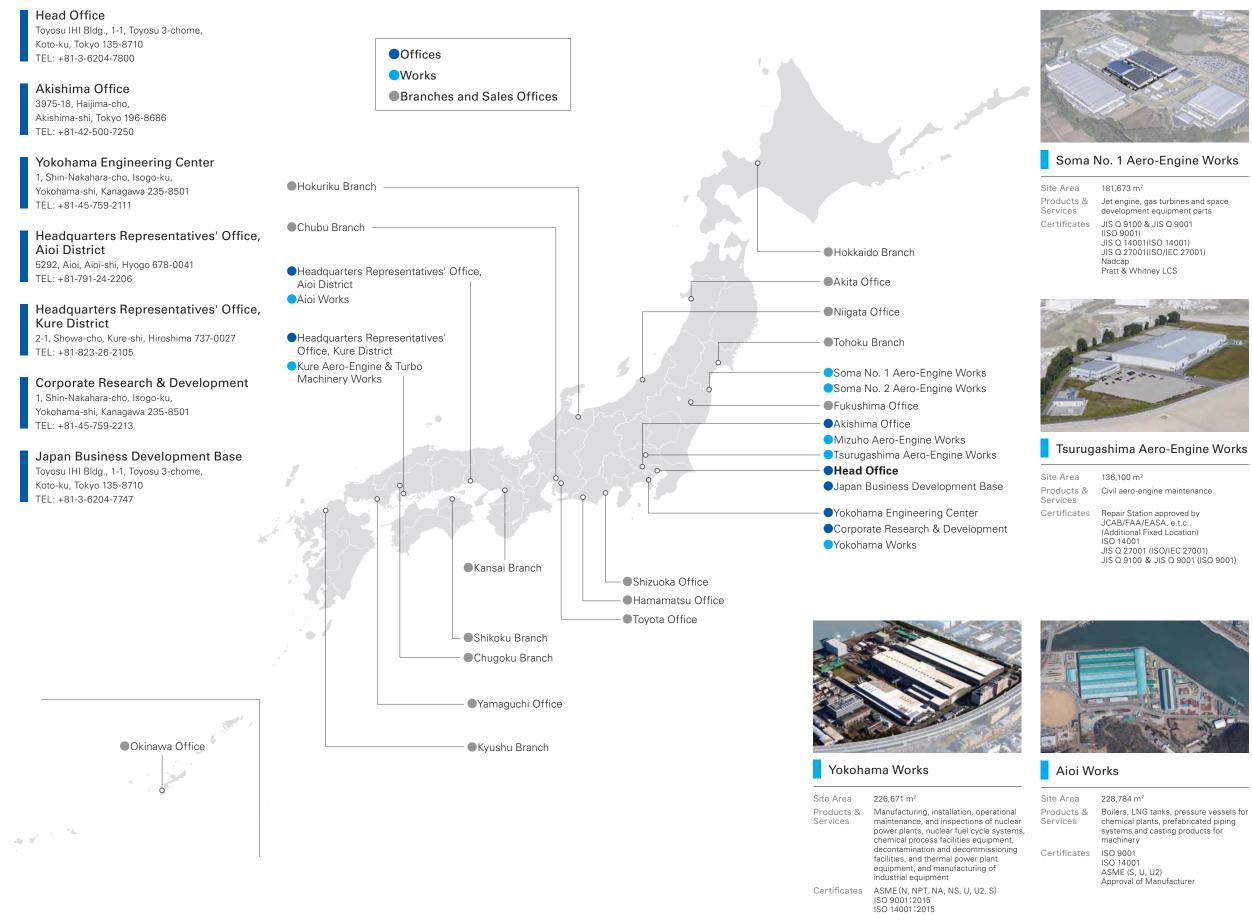
Speeding up of development process by cyber-physical integration





We have two co-creation bases at the Yokohama Works: IHI Tsunagu Lab and Ignition Base, commonly called i-Base. At these facilities, we promote collaborative projects with customers and partners to resolve social issues

Domestic Network and Main Works (As of April 1, 2023)





Soma No. 2 Aero-Engine Works

Site Area Services Certificates

Services

192,629 m² Products & Jet engine, gas turbines and space development equipment parts JIS Q 9100 & JIS Q 9001 (ISO 9001) JIS Q 14001(ISO 14001) JIS Q 27001(ISO/IEC 27001) Nadcap Pratt & Whitney LCS



Mizuho Aero-Engine Works

200,620 m² Site Area Products & Assembling and overhauling jet engines gas turbines, space development equipment and defense systems JIS Q 9100 & JIS Q 9001 (ISO 9001) Certificates FAA Repair Station JCAB Repair Station EASA Maintenance Organisation CAAC Maintenance Organization ISO 14001 JIS Q 27001 (ISO/IEC 27001) Nadcap



Kure Aero-Engine & Turbo Machinery Works

Site Area Certificates

47,797 m² Products & Manufacturing jet engine and gas Services turbine parts, and assembling and testing gas turbines JIS Q 9100 & JIS Q 9001 (ISO 9001) JIS Q 14001 (ISO 14001) JIS Q 27001 (ISO/IEC 27001) Nadcap

Main Group Companies and Works in Japan (As of April 1, 2023)

Resources, Energy & **Environment Business Area**

Aomori Plant Co., Ltd.

Remodeling and maintaining reprocessing and other facilities

IHI Plant Services Corporation

Services related to engineering, procuring, constructing, commissioning, and maintaining thermal power plants, renewable energy, storage facilities, oil & gas plants, chemical plants, nuclear power plants, industrial machinery, and other equipment and facilities

IHI Power Systems Co., Ltd.

Manufacturing, selling, and servicing diesel engines, gas engines, dual fuel engines, gas turbines, and Z-PELLER® marine propulsion units



Main Works Ohta Plant Site Area 151,562 m Products & Diesel engines, gas engines, dual fuel engines, and Z-PELLER $^{\tiny (B)}$ azimuth propeller Services ISO 9001, ISO 14001, NK, LR Certificates

Kotobuki Tekko Co., Ltd.



19 000 m Products & Manufacturing power and chemical plant components, turbine casings, and diesel engine parts Certificates ISO 9001 (JIS Q 9001) Shipbuilding and marine industry businesses

NICO Precision Co., Inc.

Designing, manufacturing, and selling fuel injection equipment for marine and power plant diesel engines

Social Infrastructure Business Area

IHI CONSTRUCTION MATERIALS Co., Ltd. Manufacturing and selling secondary concrete products and providing concrete engineering services

IHI Construction Service Co., Ltd. Engineering, designing, fabrication, construction maintenance and repairing of bridges, water gates, other steel structures, vibration control/seismic isolation equipment and water gate control and information system. Manufacturing, sales and construction service of prefabricated bridges for emergency and pre-stressed concrete products

IHI Infrastructure Systems CO., LTD. Designing, fabrication, construction, diagnosis, repairing, and conservation of bridges, and other steel structures



Sakai Works Main Works Site Area 170.145 m² Products & Designing, fabrication, construction, assessment, repairing and maintenance of bridges, and other steel structures Certificates ISO 9001 (JIS Q 9001), ISO 14001 (JIS Q 14001), ISO 45001 (JIS 0 45001)

JIM TECHNOLOGY CORPORATION Designing and selling tunnel boring machines and equipment

Niigata Transys CO., LTD.

Manufacturing and selling rolling stock, industrial vehicles, and snowplows, and designing, manufacturing, and constructing automated quideway transit systems



98.512 m² Rolling stock, automated people movers, light-rail vehicles, maintenance cars and snow ISO 9001 (JIS Q 9001) Certificates

San-Etsu Co., Ltd.

Maintenance and repairing of railway maintenance vehicle, snowplows and construction equipment, and engines, etc



CENTRAL CONVEYOR COMPANY, LTD. Engineering, manufacturing, selling, installing, providing electrical work, maintenance, and after-sales service for materials handling systems conveyors

IHI Agri-Tech Corporation Developing, manufacturing, and selling agricultural machinery



Matsumoto Works Site Area 102 216 m² Products & Grass management machines Certificate ISO 9001 (JIS Q 9001), ISO 14001 (JIS Q 14001)



Chitose Works 86.100 m² Site Area Implements, such as hay and grass harvesting Products & ISO 9001 (JIS Q 9001) Certificates

IHI Fuso Engineering Co., Ltd. Developing, selling, engineering, manufacturing, and installing multi-story parking systems

IHI Logistics & Machinery Corporation

Sales and Engineering, manufacturing, procuring, constructing, installing, repairing, maintaining service and suppling equipment parts of materials handling systems, factory automation systems and industrial machinery. Developing, manufacturing, and selling of sterilization deodorization equipment and infection control systems



Main Works Motomiya Works

Site Area 34 000 m² Products & General Logistics and FA Systems

ISO 9001:2015 / JIS 0 9001:2015 Certificates Crane manufacturing permission

IHI Machinery and Furnace Co., Ltd.

Engineering, manufacturing, selling, and providing after-service support for vacuum heat treatment furnaces and hot presses and other heat treatment equipment



Certificates

Kakamigahara Works Main Works Site Area 16,084 m² Products & Vacuum furnaces, vacuum carburizing furnaces, and hot presses

ISO 9001

IHI PACKAGED BOILER CO., LTD. Provides wide series of general purpose boilers, related equipment and maintenance services

Aero Engine, Space & **Defense Business Area**

blades, and vanes

Site Area

Products &

Certificates

Main Works

Site Area

Products &

Certificates

Main Works

Site Area

Products &

Certificates

Service.

Services

IHI Aero Manufacturing Co., Ltd.

12 727 m

Tomioka Plant

490,490 m²

ISO 45001

Manufacturing and maintaining compressors and other rotating

IHI Rotating Machinery Engineering Co., Ltd.



Services

Site Area

Certificates

Main Works

Services

Compressors, marine turbochargers, and Products & hydraulic motors Certificates

IS09001, IS014001, IS045001, JG, LR, BV, ABS, DNV, NK, CCS, KR, CR

IHI Transport Machinery Co., Ltd.

Planning, developing, designing, manufacturing, selling, leasing, Installing, maintaining, remodeling, management services of Parking Systems and Materials Handling System



Numazu Works 125.075 m Tower Parking Systems (Pallet Type/Palletless Type (Rotary Type), Super Square Parking Systems and Multi-story Parking Systems ISO 9001

IHI Turbo Co., Ltd.



Kiso Works

for space development equipment

IHI CASTINGS CO., LTD. Manufacturing and selling precision castings



Soma Plant

15.281 m²

IHI Jet Service Co., Ltd.

Site Area 65.318.82 m Products 8 Automotive turbochargers IATF 16949:2016, ISO 14001:2015, NK, JG Certificates

IHI Turbo Service Co., Ltd. Repairing, engineering, manufacturing, selling, and servicing after-market turbochargers

Nishi-Nihon Sekkei Engineering Co., Ltd. Planning, developing, and designing transport machinery

Paul Wurth IHI Co., Ltd.

Engineering, manufacturing, construction work, and after-sales servicing for iron, steel and coke-making plants, including blast furnaces, coke oven batteries, coke dry quenching systems, and electric arc furnaces

Voith IHI Paper Technology Co., Ltd. Designing, manufacturing, selling, installing, and maintaining and repairing paper manufacturing plants

Manufacturing and selling precision casting materials and special alloys and other products

12 557 r Products & Certificates

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Manufacturing aircraft jet engine fan blades, compressor

INC Engineering Co., Ltd.

Consulting and engineering and manufacturing sound and vibration control equipment, aero engine and aerospace test facilities

MEISEI ELECTRIC CO., LTD.

Designing, manufacturing, and selling equipment for meteorological, space, and earthquake observation, disaster prevention and mitigation, satellite observation and rocket deployment

Manufacturing aircraft jet engine fan blades, compressor blades, and vanes JIS Q 9100, Nadcap

IHI AEROSPACE CO., LTD.

Engineering, manufacturing, and selling space equipment and defense machinery, and manufacturing and selling aero engine parts

> Rockets and other space-related products, defense-related products and aero engine parts JIS Q 9100 and JIS Q 9001 (ISO 9001) ISO 14001 (JIS Q 14001) JIS Q 27001 (ISO/IEC27001)

IHI AEROSPACE ENGINEERING CO., LTD.

Engineering, researching, and experimenting under contracting

Precision castings, including for aero engines and industrial gas turbines JIS Q 9100 & JIS Q 9001(ISO 9001) JIS Q 14001(ISO 14001), Nadcap

Maintaining gas turbine power plants, providing engineering and production support for aero engines and space development, elling aero engine parts, and providing IHI Ocean Monitoring

IHI MASTER METAL Co., Ltd.

IHI Business Support Corporation Real estate management, insurance agent business and data processing services and more

IHI Inspection & Instrumentation Co., Ltd.

Inspections and measurements of plants and components. Chemical and environmental analysis Developing, engineering, designing, manufacturing, and installing of control and monitoring systems including various types of

testing equipment, security inspection, mechatronics and measurement equipment

IHI Scube Co., Ltd.

Others

Developing, maintaining, and supporting computers and network systems related to information and communication, engineering, manufacturing, and other areas and providing management services for computer systems operations maintenance

IHI TRADING, INC.

Selling equipment and machinery, turbochargers, parking equipment, concrete products, alcoholic beverages, and other products

Seiban Development Co., Ltd.

Managing golf courses

Takashima Giken Co., LTD.

Designing, manufacturing, selling, installing, repairing and maintaining of various types of high-speed automatic inspection equipment

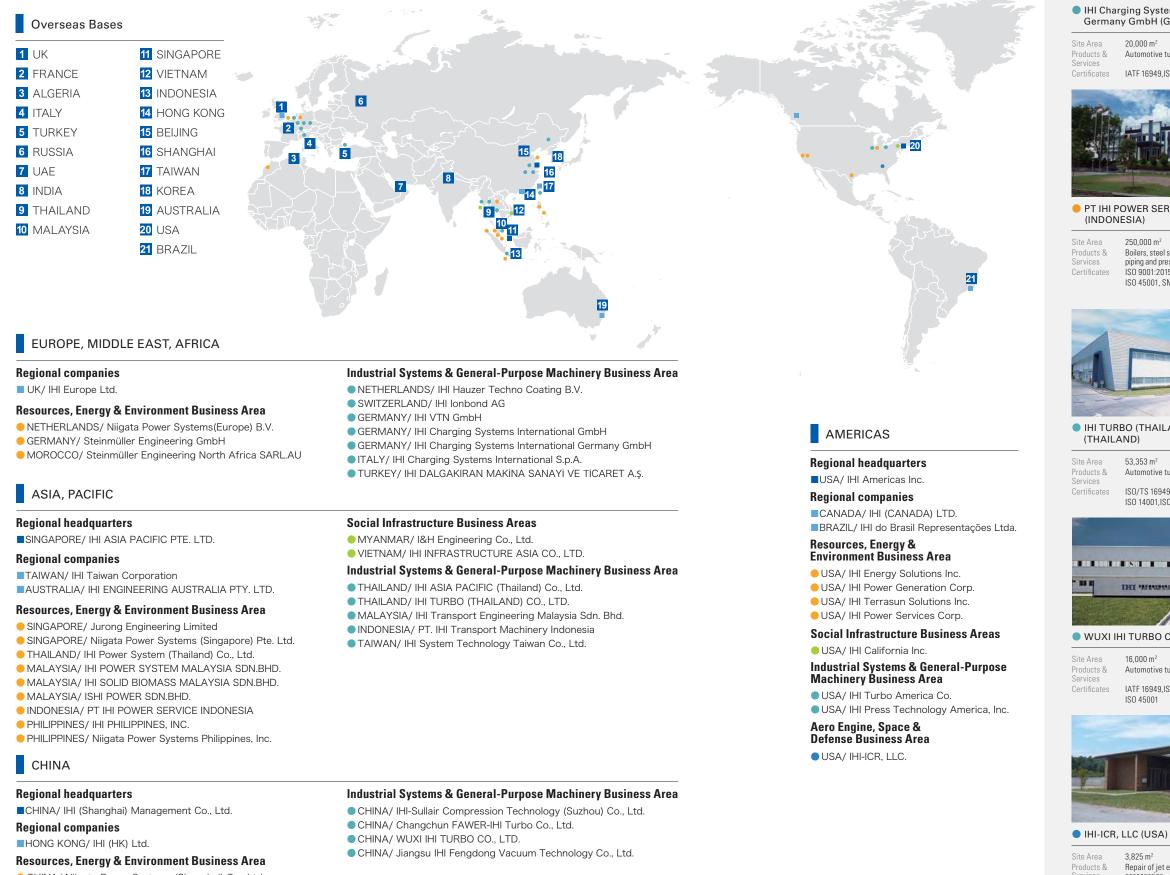
Toyosu Energy Service Co., Ltd.

Businesses related to supplying electric power, steam, hot water, and air conditioning

Ingots for precision castings of nickel and cobalt-based alloys JIS Q 9100 and JIS Q 9001 (ISO9001) JIS Q 14001 (ISO 14001) JIS Q 17025 (ISO/IEC17025), Nadcap

Global Network and Works of Overseas Group companies

(As of September 1, 2023



CHINA/ Niigata Power Systems (Shanghai) Co., Ltd.

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IHI Charging Systems International Germany GmbH (GERMANY)

20.000 m³ Automotive turbochargers Certificates IATF 16949, ISO 14001, ISO 50001



PT IHI POWER SERVICE INDONESIA

250.000 m² Boilers, steel structures, container cranes, piping and pressure vessels, HRSG ISO 9001:2015, ASME (S,U,U2, PP, NB, R),

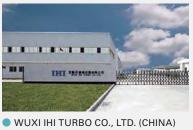
ISO 45001, SMK3



IHI TURBO (THAILAND) CO., LTD.

53,353 m² Automotive turbochargers

ISO/TS 16949, ISO 14001.ISO 4500



16 000 m² Automotive turbochargers IATF 16949, ISO 14001,

150 4500



Certificates

3.825 m² Repair of jet engine parts and FAA Repair Station



IHI Charging Systems International S.p.A. (ITALY)

Site Area Products & Services

18,900 m² Automotive turbochargers Certificates IATF 16949, ISO 14001, ISO 45001



IHI INFRASTRUCTURE ASIA CO., LTD. (VIETNAM)

Products & Services Certificates

140.000 m² Manufacturing, installation, repair and maintenance of steel structures, concrete products and industrial equipment ISO 9001



Changchun FAWER-IHI Turbo Co., Ltd. (CHINA)

43,000 m²

Site Area Products &

Automotive turbochargers ISO/TS 16949, IATF 16949, ISO 14001.0HSAS 18001



IHI Turbo America Co. (USA)

Products & Services Certificates IATF 16949

64.750 m² Automotive turbochargers

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IHI Corporation

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