A Recycling-Oriented World

DOWA

DOWA THERMOTECH CO.,LTD.

COOL TECHNOLOGIES FOR THE HEAT BUSINESS

Introduction to Industrial Furnace Business

ONE STOP SOLUTIONS

Total Support

COMPREHENSIVE HEAT TREATMENT EQUIPMENT MANUFACTURER









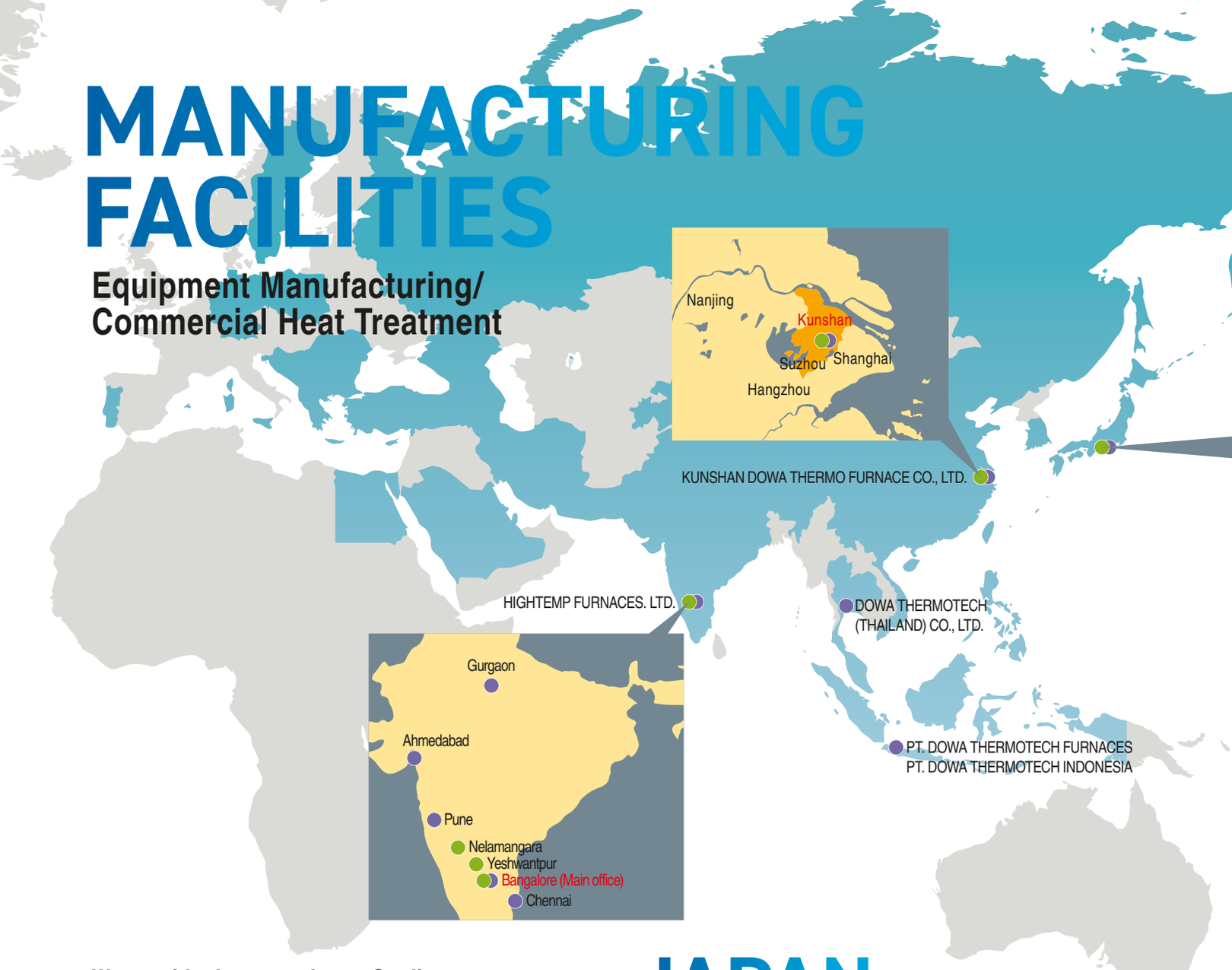


In order to support customers' business expansion and the evolution of manufacturing, we are determined to continue our efforts to establish and maintain a total support system for heat treatment technologies.

Heat treatment technologies provide metals with new characteristics and capabilities. Even now, these technologies, which have been driving the progress of civilization, are the foundation of manufacturing, and support our affluent and comfortable lifestyles.
We have been engaged in heat treatment technologies for more than half a century. As an industrial furnace manufacturer and expert in heat treatment processing, we have been meeting customers' needs that have become more diversified and sophisticated as each year passes. We have a top-class domestic track record and are proactively expanding overseas operations. We are now steadily expanding our business by taking advantage of our total support system that covers development/manufacture, sales, and maintenance. We are determined to continue our efforts to support customers' business expansion and the evolution of manufacturing by providing "ONE STOP SOLUTIONS" for heat treatment technologies.

MANUFACTURING FACILITIES

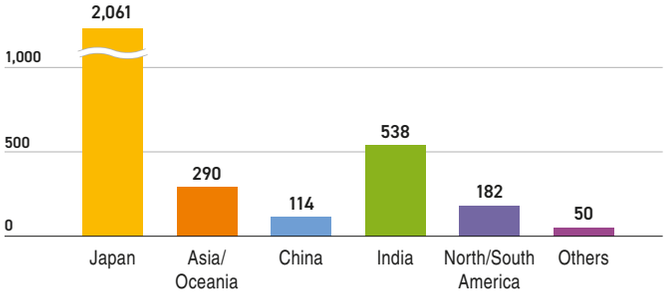
Equipment Manufacturing/ Commercial Heat Treatment



We provide the same Japan Quality to all customers anywhere in the world.

In the context of the need to expand overseas markets and reduce production costs, Japanese manufacturers have been steadily expanding operations into overseas markets. Since many of our products have been exported outside Japan with the trend, we have started overseas operation. In 1997, we established DOWA THT America, Inc. in North America. Starting from the establishment of this company, we have expanded our global network to Thailand, China, India, Indonesia, and Mexico. Utilizing this network, we have been developing a range of services such as support for engineering, manufacturing and installation of industrial furnaces, after services, and commercial heat treatment. We are determined to expand our overseas operation bases in order to provide our Japan-quality industrial furnaces and technical support to customers all over the world.

Delivery Record as of March 2025
Total 3,235 units (excluding auxiliary equipment)



JAPAN

Hamamatsu-Kita Plant

[Description of Business]

- Manufacturing and distribution of industrial furnaces: Compact type carburizing furnaces, continuous type carburizing furnaces, gas nitrocarburizing furnaces, brazing furnaces, normalizing furnaces, annealing furnaces
- Heat treatment services/carburizing, quenching, Ni-based brazing, Cu-based brazing, solidification, vacuum annealing, magnetic annealing, vacuum quenching

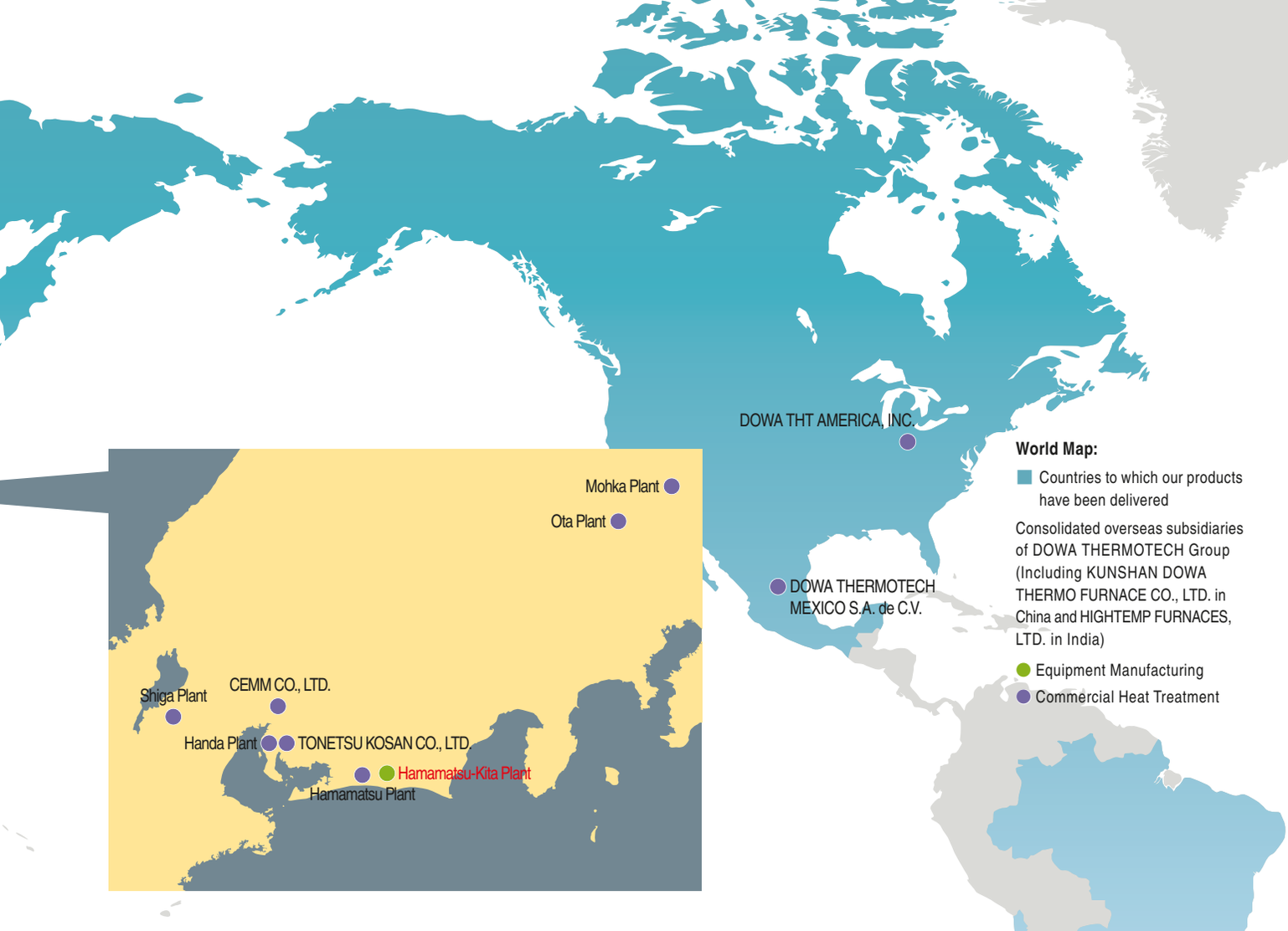
[Main Clients]

- Automobile manufacturers and parts suppliers, construction machinery manufacturers, aircraft-related manufacturers, etc.









INDIA

HIGHTEMP FURNACES, LTD.

[Description of Business]

- Design/Manufactue industrial furnaces: Compact type furnaces, continuous furnaces, Nitriding furnaces, Brazing furnaces, Mesh belt conveyor furnaces, Annealing furnaces, and “Flex” carburizing furnaces.
- Commercial heat treatment : Carburizing, Nitriding, Austempering, Vacuum processing, Quenching, surface processing, etc.
- Forging and cutting processing services.

[Main Clients]

- Automobile manufacturers and their suppliers, construction machinery manufacturers, aircraft-related manufacturers, etc.







CHINA

KUNSHAN DOWA THERMO FURNACE CO., LTD.

[Description of Business]

- Manufacture and distribution of industrial furnaces: Compact type carburizing furnaces, continuous type carburizing furnaces, aluminum furnaces, gas generator, various incidental equipment for heat treatment, etc.
- Heat treatment processes: Carburizing, carburizing and nitriding, quenching, surface processing, etc.
- Maintenance services for various heat treatment processing equipment.

[Main Clients]

- Automobile manufacturers and parts suppliers, construction machinery manufacturers, aircraft-related manufacturers, etc.







PLANT ENGINEERING



China:
KUNSHAN DOWA THERMO FURNACE CO., LTD.



India: HIGHTEMP FURNACES, LTD.



Thailand:
DOWA THERMOTECH (THAILAND) CO., LTD.



Indonesia: PT. DOWA THERMOTECH FURNACES

Setting up operation bases close to our worldwide customers to provide superior technologies and technical support

To ensure that heat treatment equipment acquired by customers always operates normally and performs at optimum levels, we place as much importance on after-sales service as we do on the development and manufacture of equipment. We offer you a wide range of technical support options such as periodic maintenance, emergency response to problems, equipment diagnosis and improvement, relocation and removal, consulting on heat treatment systems and heat treatment software and services for heat treatment equipment produced by other manufacturers, and more. To provide our customers in Japan and around the world with total support, we are committed to improving our service bases and increasing the number of specialized engineers.





Chuseibu PE
Toyota-shi, Aichi



Kanto PE
Yokohama, Kanagawa



U.S.A.: DOWA THT AMERICA, INC.



Japan: DOWA thermotech, Co., Ltd.
Kanto PE
Chuseibu PE



Mexico: DOWA THERMOTECH MEXICO S.A. de C.V.

World Map:

- Countries to which our products have been delivered

Consolidated overseas subsidiaries of DOWA THERMOTECH Group (Including KUNSHAN DOWA THERMO FURNACE CO., LTD. in China and HIGHTEMP FURNACES, LTD. in india)

- Plant Engineering

Equipment maintenance

Our experienced plant engineers will quickly respond to unexpected problems, breakdowns, and failures. We provide detailed support for recovery of important equipment based on our years of experience and data accumulated over many years. We also offer preventive maintenance for your equipment to prevent equipment failures and to maintain equipment in an optimum state. After diagnosing your existing equipment, we will provide you with advice on improvement measures (safety enhancement, energy efficiency improvements, productivity enhancement, etc.) and for updating equipment using leading-edge technology.

Heat treatment consultation

Being not only a heat treatment equipment manufacturer, but also a commercial heat treater, we develop and manufacture superior industrial furnaces as well as design plants and build FA systems in order to improve safety and production efficiency. Utilizing our know-how, we provide our customers with tailored support that meets all their needs, including consultation involving expansion or modification of equipment.

Approach to environmental issues and recycling

We not only engage in the manufacture and sales of heat treatment equipment but also leverage the strengths of DOWA Group's unique recycling-oriented business to focus on responding to environmental and recycling regulations that have become increasingly stringent in recent years. We support the growth of our customers and, contribute to the development of people and the environment, as well as respond to changes in society thorough the provision of consistent service, including removal of equipment, control of refractory ceramic fibers, removal of asbestos, and disposal of waste bricks.







GLOBAL OPERATIONS



Improving services for our regional customers through localization of procurement and sales functions

In order to further the localization of key functions of our equipment and maintenance business, we are strengthening our engineering organization in ASEAN countries and in India. Since we have seen an acceleration in recent years in clients expanding overseas, utilizing manufacturing processes in India and procuring parts locally will enable us to respond more quickly to the needs of our clients.

Mutually complementary functions among bases in ASEAN countries and India

- Expanding industrial furnace business based on HIGHTEMP's facility manufacturing functions
- Promoting local procurement of equipment and service parts
- Increasing mobility of resources to strengthen the network



DOWA THERMOTECH (THAILAND) CO.,LTD.



HIGHTEMP FURNACES, LTD.



S-TKM Series Heat Treatment Furnace
(Made by Hightemp Furnaces, Ltd.)

RESEARCH & DEVELOPMENT



R&D Center (Hamamatsu-kita)

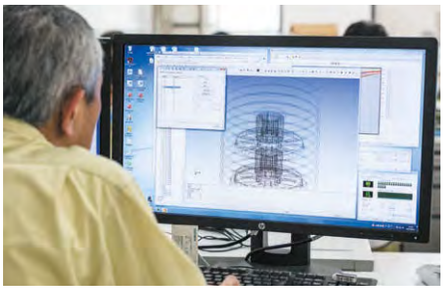


R&D Center (Nagoya)

Creating the future of heat treatment through collaborative development of elemental and applied technologies.

The quality and functionality of metal parts continue to be improved. Heat treatment technologies are always required to be continually improved. In addition to elemental and applied technologies, research and development of technologies that reduce heat treatment costs and environmental loads has been a continual focus within our company. We established a new R&D center in 1993 with the latest evaluation analysis equipment, analyzers, and measuring devices. Defined as an open laboratory, the center conducts collaborative development of next-generation industrial furnaces and heat treatment processing technologies together with customers.
In addition, the center provides prompt support to customers to enable them to solve problems that occur with little warning such as unexpected quality deterioration or fluctuations. To identify causes and solve problems, the center conducts componential analysis of the target metal material in addition to inspections and equipment validation.





Experiment/demonstration equipment



Cell-type Vacuum Heat Treatment Furnaces V-TKM series



Plasma nitriding experiment equipment



PVD spattering experiment equipment



Vacuum degreasing and sintering furnace

Evaluation analysis equipment



X-ray analysis measuring equipment



Residual stress measuring equipment



Laser Raman spectrophotometer



Scratch tester

CUSTOMER SERVICE

The Training Center







Our training on the operation and maintenance of equipment develops local engineers.

Our first priority is “Provide the same quality as is provided in Japan”. This does not simply mean the quality and performance of industrial furnaces themselves. The preciseness of the service and inspections carried out after installation, and the promptness and adequacy of the maintenance provided in case problems occur are part of the quality we place importance on. To enable this, we have established a training center that provides local staff with training in equipment maintenance and equipment operations, as well as education on heat treatment. Based on our experience and requests from customers, we have prepared a range of training programs and teach know-how related to industrial furnace maintenance and the basics of heat treatment. Besides the training center in Japan, we established training centers in four Asian countries to enhance and strengthen our human resources.

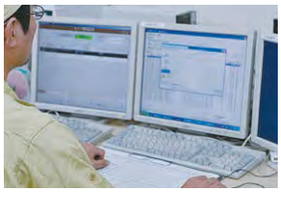
Course Name	Target Trainees	Training Objectives
Maintenance and Repair	Maintenance Personnel and Operators	To acquire skills required to execute periodic maintenance and replace consumables correctly and safely
Operation	Operators	To acquire skills required to assure safe operations while maintaining appropriate heat treatment quality levels
Introduction to Heat Treatment	Engineers	To acquire necessary inspection method abilities and skills required to solve heat treatment-related problems To master how to set heat treatment conditions

Maintenance Parts



Providing total support for heat treatment processes

Our support activities range from the development of the latest FA systems for heat treatment process control and quality control and their peripheral devices, to timely procurement of maintenance parts. Utilizing our broad experience in heat treatment processes, we are committed to providing total support in this area to customers. We have sufficient quantities of locally procured service parts in stock managed by our Global Operations Division at domestic and overseas plant engineering bases in order to quickly respond to unexpected equipment problems or failures.



FA system



Heat-resistant steel jig

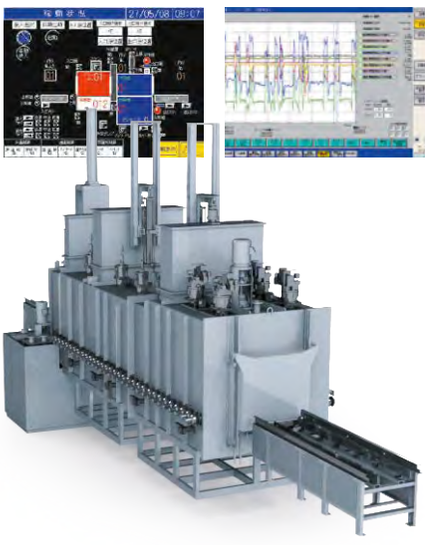


Maintenance parts



Logistics center

IoT Solutions

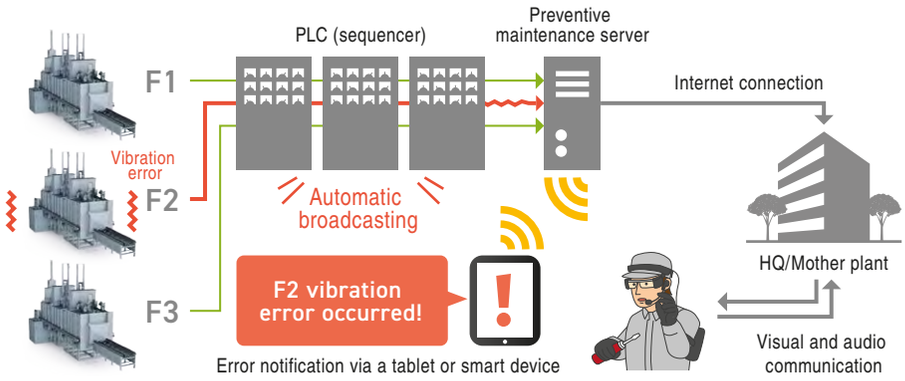


We flexibly and solidly support customers' heat treatment processing through visualization of the operating status of equipment.

We provide the latest IoT technology that reduces delay risks as well as optimizing equipment maintenance operations by using data on manufacturing control and facility operations.

Condition monitoring of each furnace

Overall operating conditions of equipment can be assessed by a mother plant through constant monitoring of equipment at each manufacturing base. Such constant monitoring system keeps defective products to a minimum by utilizing furnace condition data collected by an existing FA system to raise an alarm in the event of a fault (e.g. if a process value exceeds the upper or lower limit setting value). It also notifies operators of periodic parts replacement timing, minimizing production equipment downtime.





Site worker　　Supervisor

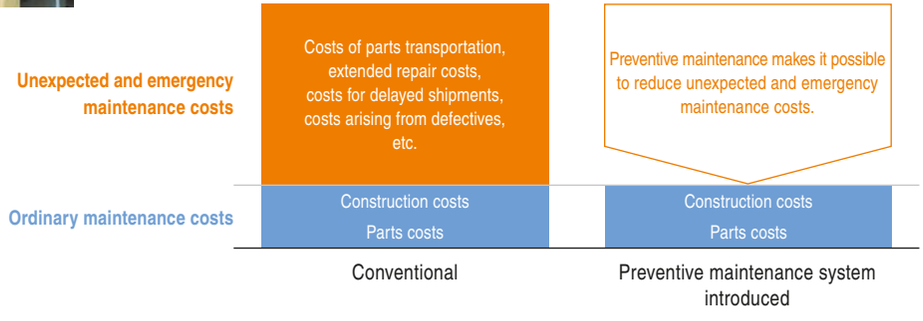
Remote support

In the event of an equipment failure at a production base, wearable devices or tablets can be used to share information about the situation among site workers and supervisors. We support site recovery via remote control.



Preventive maintenance system

The system utilizes the latest IoT technology to monitor equipment on a continuous basis. It is capable of determining the degradation of equipment and allows operators to replace parts at the appropriate time. It allows you to reduce expenses that are normally used to replace unnecessary parts as well as labor costs related to maintenance. It maintains productivity and improves safety by preventing failures caused by equipment degradation or problems thereof, and preventing loss of performance.



INDUSTRIAL FURNACES

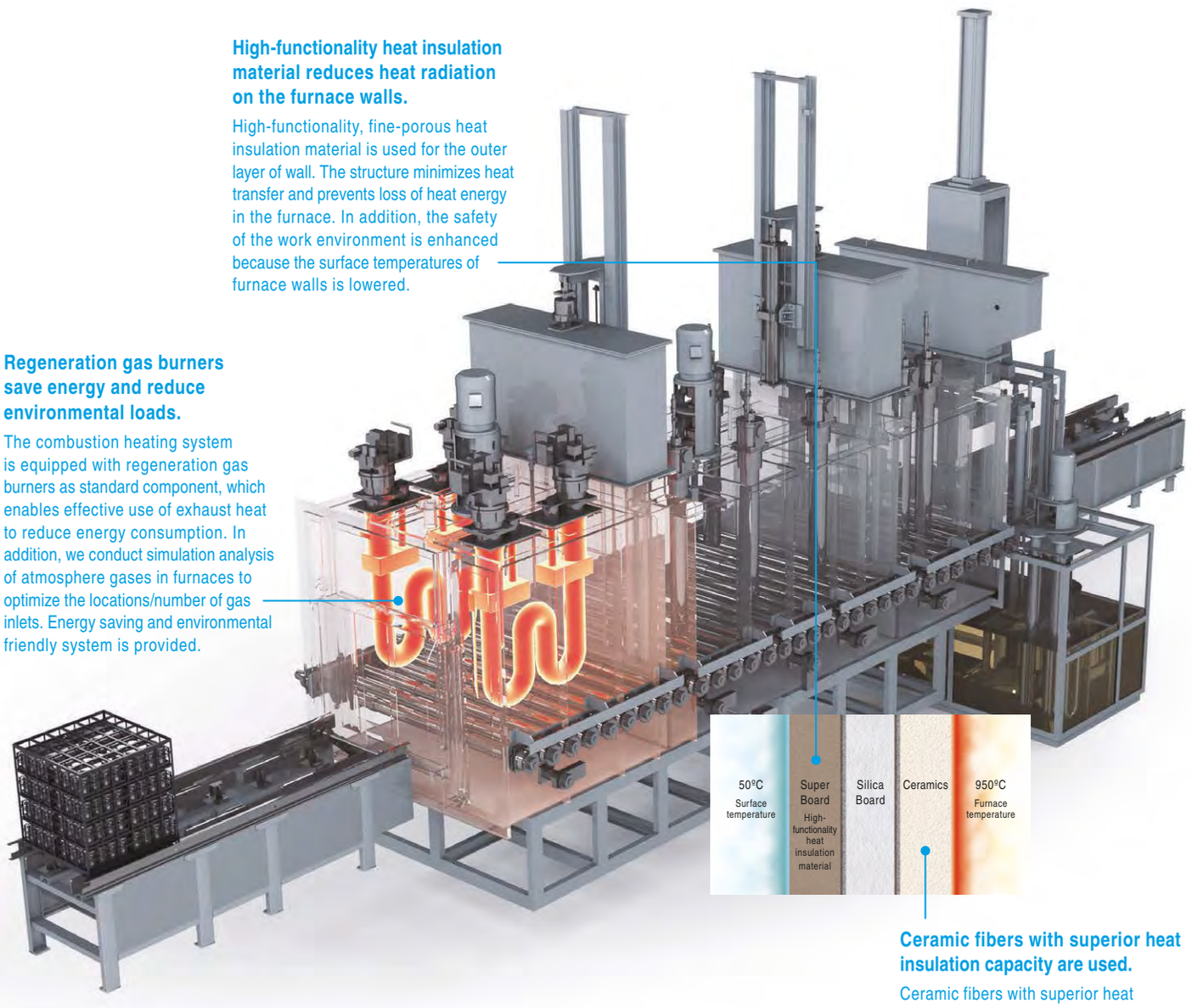
DOWA Thermotech's Ultra Energy-saving Industrial Furnace

High-functionality heat insulation material reduces heat radiation on the furnace walls.

High-functionality, fine-porous heat insulation material is used for the outer layer of wall. The structure minimizes heat transfer and prevents loss of heat energy in the furnace. In addition, the safety of the work environment is enhanced because the surface temperatures of furnace walls is lowered.

Regeneration gas burners save energy and reduce environmental loads.

The combustion heating system is equipped with regeneration gas burners as standard component, which enables effective use of exhaust heat to reduce energy consumption. In addition, we conduct simulation analysis of atmosphere gases in furnaces to optimize the locations/number of gas inlets. Energy saving and environmental friendly system is provided.



Ceramic fibers with superior heat insulation capacity are used.

Ceramic fibers with superior heat insulation capacity are used for the second layer of walls of furnaces. Covering the interior of the furnace body with superior heat insulation materials increases combustion efficiency and significantly reduces energy costs. Use of ceramic fibers also reduces the weight of industrial furnaces, which also helps reduce foundation and other installation costs.

S-TKM series

Meeting diversified market needs by incorporating our reliable technologies and unique ideas into products.

Performance criteria for industrial furnaces are becoming increasingly diversified year on year. In addition to improved heat treatment quality, criteria include reduced running costs, energy usage, environmental loads, processing time, dimensions, and more. To meet demands such as these, we are striving to develop a range of innovative technologies related to the entire heat treatment process including industrial furnace bodies, temperature-raising structures, automatic conveyor systems, and associated equipment. We satisfy customer requirements by providing a wide range of products and customize details.

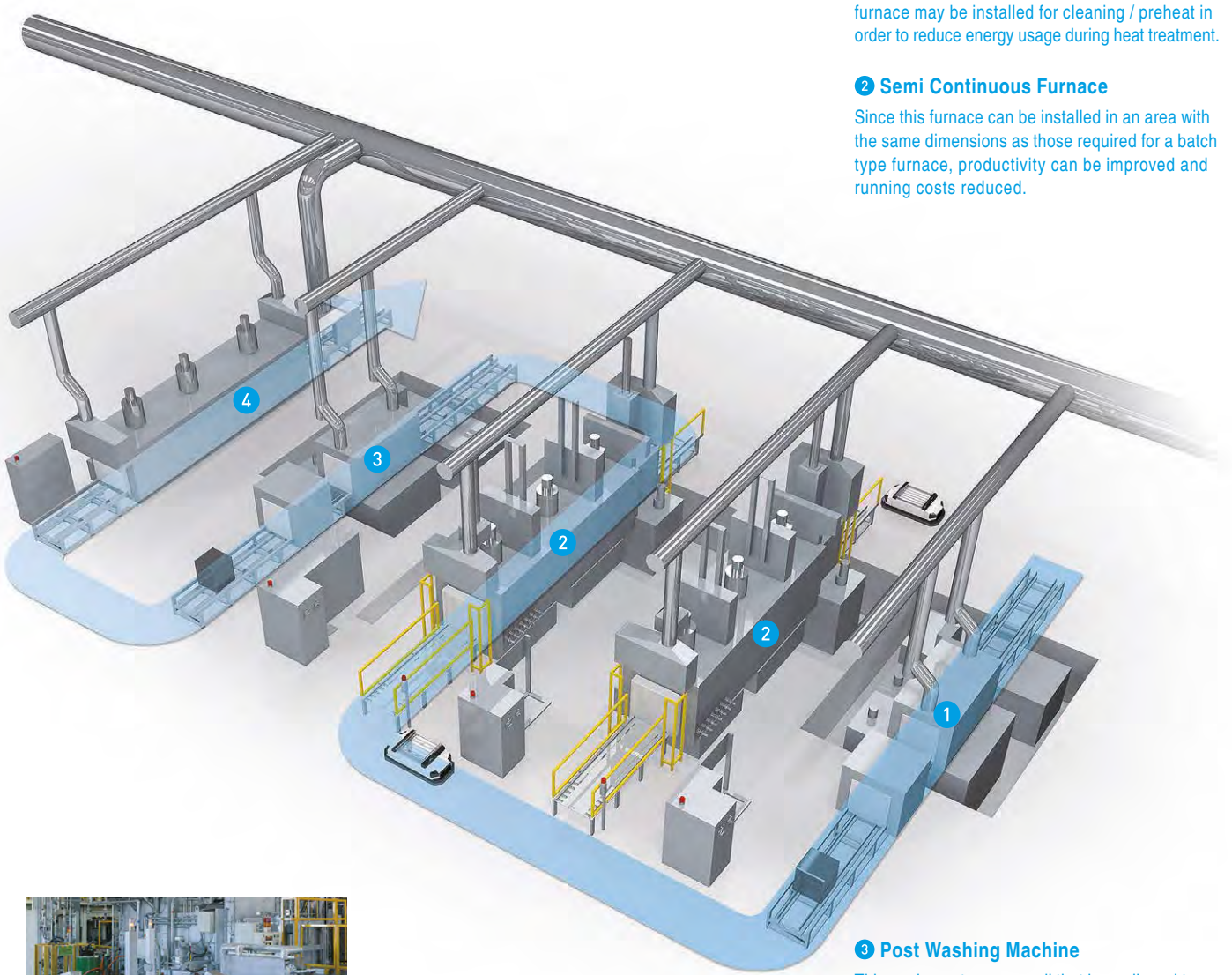
Full Automation

❶ Pre Washing Machine

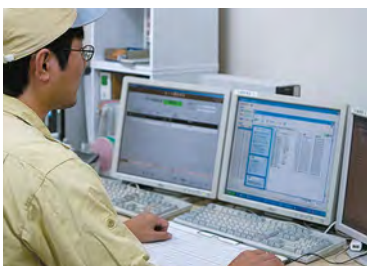
This equipment removes rust prevention/ cutting oil that have adhered to workpieces during the forging or machining process. This operation improves the quality of the carburizing process and other heat treatment processes. The degreasing furnace may be installed for cleaning / preheat in order to reduce energy usage during heat treatment.

❷ Semi Continuous Furnace

Since this furnace can be installed in an area with the same dimensions as those required for a batch type furnace, productivity can be improved and running costs reduced.









❸ Post Washing Machine

This equipment removes oil that has adhered to workpieces while they were being oil quenched after heat treatment.

❹ Tempering Furnace

This furnace reheats workpieces that have been hardened by quenching, in order to increase viscosity. A high- or low-temperature tempering furnace can be selected according to the specification.

Providing our unique equipment and know-how to support new plants from the planning stage to the start of mass production.

Since heat treatment equipment must be planned according to factors such as intended metal materials, processes, and production volumes, equipment specifications differ by customer. Therefore, our staff participate in construction projects of new production lines from the kickoff stage in order to gain an understanding of the types of parts to be processed, required heat treatment conditions, production plans, and other details. We offer heat treatment equipment plans that are suitable for customers' new production plants by selecting the optimum industrial furnaces and associated equipment based on customers' customization-related requests. We also recommend an equipment layout that improves efficiency and ensures the safety of production area. We attend and monitor mass production tests carried out after equipment has been installed and provide prompt support in case problems occur. We provide comprehensive support for floor plan on the building, customize furnace specification and also for mass production based on our extensive know-how and mutual trust we have built up with customers.

PRODUCT LINEUP

Product Lineup of Industrial Furnaces

Batch-type Vacuum Carburizing Furnaces Z-TKM series



- Our latest model: Contributes to realizing a low-carbon society.
- Reduces CO_2 emissions by more than 30%*.
- Hot-wall specifications increase energy savings.
- Same footprint as the TKM series for complete interchangeability.
- Eligible for SII subsidies: Registered as state-of-the-art equipment.

Cell-type Vacuum Heat Treatment Furnaces V-TKM series



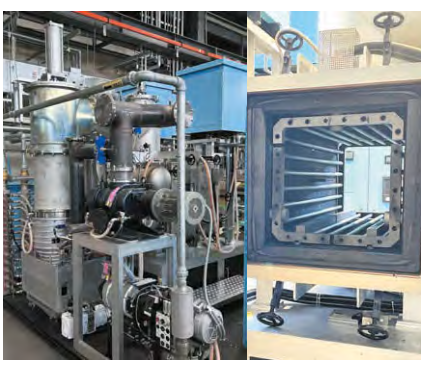
- Maximizes the advantages of cell-type small-lot production and vacuums.
- No flames or smoke for a safe, clean, and flexible work environment.
- Contributes to realizing a low-carbon society.
- Responds to variations in production demands and minimizes lost time.
- The hot zone can be pulled out from the end of the cell, allowing maintenance to be performed without stopping the whole line.
- Eligible for SII subsidies: Registered as state-of-the-art equipment.

Batch-type Heat Treatment Furnaces TKM/THN Series



- A long-selling model with a proven track record and reliability thanks to its stable quality and durability.
- Available in specifications compatible with a variety of processes, including carburizing and nitriding.
- Available with a wide range of specifications to meet your carbon neutral, including electric/gas heating, high-performance insulation, and electric pilots.

Graphite Hot Zone High-Temperature Vacuum Furanaces



- Maximum temperature: 2200°C
- Hot zone: Graphite
- Ultimate pressure: 10^{-3} Pa
- Applicable gases: Ar, N_2
- Rapid cooling using a heat exchanger and external circulation.
- Uses dedicated retort boxes to increase degreasing capacity.
- Trial products available.

METAL HOTZONE™ High-Temperature Vacuum Furnaces



- Maximum temperature: Vacuum 2200°C Under H_2 atmosphere 1800°C
- DOWA's unique Metal Hot Zone™ provides uniform heating and excellent durability.
- Ultimate pressure: 10^{-4} Pa
- Applicable gases: Ar, N_2, H_2
- Clean heating and rapid cooling.
- Can also support humidified atmospheres.
- Trial products available.

Vertical-type Plasma Nitriding Furnaces



- Uniform temperature distribution and uniform heating.
- Can now control temperature zones, thereby enabling large equipment to carry out uniform bulk treatment.
- Since soft plasma discharge is used, abnormal discharge (i.e. arching) issues are reduced.

Compact Continuous Heat Treatment Furnaces S-TKM/S-THN Series



- Compact and slim continuous heat treatment furnaces.
- Saves energy and reduces impact on the environment.
- Approximately 3-times the space productivity of conventional batch furnaces.
- Available in specifications compatible with a variety of processes, including carburizing and nitriding.

Continuous Heat Treatment Furnaces



- High productivity, stable quality, and economic efficiency.
- Increased independence of each zone to quickly raise temperatures, heat uniformly, lower temperatures, and control atmospheres with high precision.
- We can propose a variety of energy saving, carbon neutral items, such as high-efficiency regenerative burners and electric pilots.

Endothermic Gas Conversion Furnaces



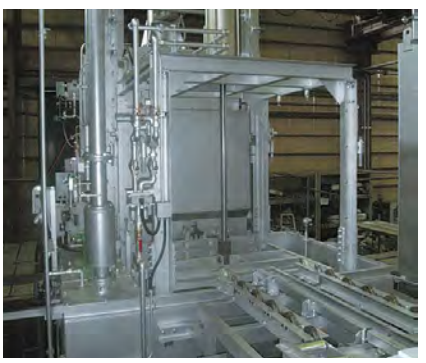
- A long-selling model with a proven track record and reliability thanks to its stable quality.
- Employs a double-path type retort and pulseless blower to deliver long-term, stable operation.
- Available with a wide range of specifications to meet your needs, including electric/gas heating and generation capacity.

Horizontal-type Plasma Nitriding Furnaces



- Temperature zone control allows for uniform temperature distribution and uniform heating.
- Since the height of the equipment is less than 2 m, there are fewer restrictions on the installation space.
- Conveyor system makes transportation easy.

Aluminum Alloy Heat Treatment Furnaces



- Automated solution heat treatment, quenching and aging treatments.
- Precipitation hardening of aluminum alloys.
- Improving mechanical characteristics of aluminum including corrosion resistance, workability, and thermal and electrical conductivity.

Carbon Potential Meter



- This meter can directly measure the carbon concentration in the atmosphere gas that is used for heat treatment (carburizing, thermal refining, etc.) of steel.
- Highly advanced measuring equipment that is reliable and easy to operate.

COMPANY PROFILE



Company Profile

Company Name:	DOWA THERMOTECH CO., LTD.
Established:	May 2007
Capital:	1 billion yen
Headquarters:	Nagoya-shi, Aichi
Affiliates:	DOWA THERMOENGINEERING CO., LTD., CEMM CO., LTD., TONETSU KOSAN CO., LTD., DOWA THT AMERICA, INC., DOWA THERMOTECH (THAILAND) CO., LTD., KUNSHAN DOWA THERMO FURNACE CO., LTD., HIGHTEMP FURNACES, LTD., PT. DOWA THERMOTECH INDONESIA, PT. DOWA THERMOTECH FURNACES, DOWA THERMOTECH MEXICO S.A. de C.V.
Description of Business:	Design, manufacture, sales, and maintenance of heat treatment equipment, heat treatment processing, surface treatment processing, and surface modification processing

Company History

1958	Tokyo Netsushori Kogyo Co., Ltd. established. Yokohama plant commenced operations. Yokohama factory commenced operations.
1968	Nagoya factory commenced operations.
1973	Mohka plant commenced operations.
1981	Shiga plant commenced operations.
1985	Technology licensed to HIGHTEMP (India).
1987	Toyota plant commenced operations. Hamamatsu plant (former Tenryu Netsushori Kogyo Co., Ltd.) commenced operations.
1990	Handa plant commenced operations.
1991	Merged with DOWA MINING CO., LTD. Thermotech business operational headquarters established.
1997	DOWA THT AMERICA, INC. established.
2006	Holding company system implemented. (DOWA MINING CO., LTD. changed its name to DOWA HOLDINGS CO., LTD.) CEMM CO., LTD. joined DOWA Group.
2008	DOWA THERMOTECH (THAILAND) CO., LTD. established. Ota plant commenced operations. Headquarters relocated to Nagoya-shi, Aichi.
2010	KUNSHAN DOWA THERMO FURNACE CO., LTD. established.
2011	R&D center established in Nagoya-shi, Aichi. Acquired a controlling interest of HIGHTEMP FURNACES, LTD. in India.
2012	PT. DOWA THERMOTECH INDONESIA established. PT. DOWA THERMOTECH FURNACES established.
2013	Hamamatu-kita plant Industrial Furnace Department commenced operations.
2015	Hamamatsu-kita plant commenced operations. DOWA THERMOTECH MEXICO S.A. de C.V. established.
2016	Hamamatu-kita Plant Heat Treatment Processing Department commenced operations.
2017	R&D center established in Hamamatsu-shi, Shizuoka.

Affiliates:

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A Recycling-Oriented World

DOWA

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