Date established: November 8, 1954
Paid-up capital: 90 million yen (Shareholder’s equity 5.5 billion yen)
Representative: Shiro Nakai, President & COO
Business description: Manufacturing, sales, export and import of spray nozzles, humidifiers, related products and system equipment
Number of employees: 600 (including subsidiaries)

Corporate information
Headquarters
ISO9001: 2015 certified (H. IKEUCHI & CO., LTD., Japan only)
Daiichi Kyogyo Bldg., 1-15-15, Awaza, Nishi-ku, Osaka 550-0011, Japan
Tel: +81-6-6538-4015   Fax: +81-6-6538-4022
Email: overseas@kirinoikeuchi.co.jp
URL: https://www.kirinoikeuchi.co.jp/eng/
From the Fog Engineers who support Japan’s manufacturing industry

As one of Japan’s top manufacturers of industrial spray nozzles, IKEUCHI, “The Fog Engineers,” has supplied innovative, high-precision products to the world for over 60 years.

The fog produced by our spray nozzles is widely used in many industries for a broad range of manufacturing processes.

We believe that true social contribution entails bringing new products and services into the world, and this belief has been widely accepted by people everywhere. Thanks to support from a wide range of people, our company has seen success in a diverse array of industries.

We are grateful for this, and as highly specialized Fog Engineers we will continue with efforts focused firmly on fog while creating unique products no other company can provide, thus facilitating greater prosperity throughout society.

Our Management Philosophy:

Contribute to Society through Fog
### Automotive Manufacturing

Our spray nozzles are used in a wide variety of manufacturing processes relating to engine powertrains, car bodies, painting, bumpers, outfitting, and automotive electronics, among others.

<table>
<thead>
<tr>
<th>Cooling</th>
<th>Humidification</th>
<th>Drying</th>
</tr>
</thead>
</table>

### Food Products

We automate processes originally carried out by hand to achieve greater precision and uniformity, which saves labor and reduces costs. Our spray nozzles help to create a wide variety of attractive and trustworthy food products.

<table>
<thead>
<tr>
<th>Cleaning</th>
<th>Flavouring</th>
<th>Odour reduction</th>
<th>Drying</th>
<th>Moisture control</th>
</tr>
</thead>
</table>

### Agriculture and Livestock

We make major contributions to the agriculture and livestock industries through groundbreaking developments such as an innovative cultivation method that supplies atomized liquid fertilizer directly to the roots of crops, our new all-in-one system for cooling, humidification and pest control in greenhouses, and our two-in-one unit for cooling and disinfection in livestock barns for cows, pigs, and poultry.

<table>
<thead>
<tr>
<th>Cleaning</th>
<th>Outdoor cooling</th>
<th>Disinfection</th>
</tr>
</thead>
</table>

### Pollution Control

Our spray nozzles are used for flue gas cooling as a dioxin countermeasure, and also in desulfurization and denitrification systems to reduce NOx and SOx in flue gases.

<table>
<thead>
<tr>
<th>Gas cooling</th>
<th>Cooling</th>
<th>Dust suppression</th>
<th>Heat reduction</th>
<th>Odour reduction</th>
</tr>
</thead>
</table>

### Environment and Entertainment

Spray nozzle applications in the environmental field include urban heat island countermeasures, treatment of industrial wastewater before it enters rivers, and other such efforts. We also utilize “special effect” sprays in fog and light displays for theme parks and similar venues, which have proven popular among users.

<table>
<thead>
<tr>
<th>Outdoor cooling</th>
<th>Fog and light displays</th>
<th>Waste water filtration</th>
</tr>
</thead>
</table>

### Healthcare

Solutions from IKEUCHI include humidification in hospitals and care facilities, indoor disinfection, pharmaceutical product filling, tablet (pill) production device cleaning, and other applications. Our nozzles are also used in mist saunas and toilet cleaning.

<table>
<thead>
<tr>
<th>Cleaning</th>
<th>Disinfection</th>
<th>Indoor cooling</th>
<th>Humidification</th>
</tr>
</thead>
</table>

### Energy

IKEUCHI nozzles are widely used for fire prevention. Furthermore, we developed an inlet air cooling system for gas turbines and an assist cooling system for air-film coolers both of which restore generation efficiency in hot weather.

<table>
<thead>
<tr>
<th>Cooling</th>
<th>Odour reduction</th>
<th>Outdoor cooling</th>
<th>Drying</th>
<th>Moisture control</th>
</tr>
</thead>
</table>

### Steelmaking

We first developed pneumatic spray nozzles for steelmaking applications in 1983 and began supplying them for cooling in continuous casting operations. Our spray nozzles are also used in processes including descaling, cleaning, surface treatments and dust suppression.

<table>
<thead>
<tr>
<th>Cooling</th>
<th>Descaling</th>
<th>Cleaning</th>
<th>Odour reduction</th>
<th>Gas cooling</th>
</tr>
</thead>
</table>

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**Our Management Philosophy:**

Contribute to the advancement of society through our specialization in fog.
Applications of IKEUCHI Technologies

Fog engineers at IKEUCHI are ready to serve the industrial world with high-precision spray nozzles and extensive experience.

- **Coating**
  - Steel plates, Dies, Pancakes
- **Spraying**
  - Insecticides, Fire prevention, Etching
  - Paddy fields, Tea-plantations, Orchards, Chemical plants, Electric & Electronics manufacturing
- **Cleaning**
  - Automation, HACCP, Preventing ozone layer destruction
  - Machine parts, Automobiles, Roads, Exhaust gases, Food containers, Bottles
- **Cooling**
  - Countermeasures of dioxin pollution, Rapid or slow cooling solid and gases
  - Exhaust gases, Steel ingots, Steel plates, Glass, Refractories
- **Scaling**
  - Descaling of steel, Peeling off wood bark, Removing shells from ship hulls
  - Steel, Wood, Ships

**Countermeasures**
- Insecticides,
- Fire prevention,
- Etching,
- Paddy fields,
- Tea-plantations,
- Orchards,
- Chemical plants,
- Electric & Electronics manufacturing,
- Automation, HACCP,
- Preventing ozone layer destruction,
- Machine parts,
- Automobiles,
- Roads,
- Exhaust gases,
- Food containers,
- Bottles,
- Descaling of steel,
- Peeling off wood bark,
- Removing shells from ship hulls,
- Steel, Wood,
- Ships,
- Countermeasures of dioxin pollution,
- Rapid or slow cooling solid and gases,
- Exhaust gases,
- Steel ingots,
- Steel plates,
- Glass,
- Refractories,
- City environment,
- Countermeasures of heat-island phenomenon,
- Countermeasures of dust in factories,
- Improving working environment,
- Humidification,
- Dust Suppression,
- Insecticides,
- Fire prevention,
- Etching,
- Paddy fields,
- Tea-plantations,
- Orchards,
- Chemical plants,
- Electric & Electronics manufacturing,
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- Countermeasures of heat-island phenomenon,
- Countermeasures of dust in factories,
- Improving working environment,
- Humidification,
- Dust Suppression,
Fog engineers at IKEUCHI are ready to serve the industrial world with high-precision spray nozzles and extensive experience.

- Cardboard
- Newspapers
- Printing
- Exhaust gases for dust collectors
- Raw resin
- Hospitals
- Care facilities
- Dining halls
- Vehicles
- Livestock barns
- Train stations
- Athletic fields
- Parks
- Shopping malls
- School facilities
- Semi-conductors
- LCDs
- Plastics
- Printing
- Textiles
- Mushroom nurseries
- Wine making
- Iron mills
- Paper mills
- Foundries
- Recycling plants
- Steel plates
- Dies
- Pancakes
- Paddy fields
- Tea-plantations
- Orchards
- Chemical plants
- Electric & Electronics manufacturing
- Steel plates
- Moisture control of solid and gases
- Descaling of steel
- Peeling off wood bark
- Removing shells from ship hulls
- Outdoor Cooling
- Static electricity control, improving working environment
- Dust Suppression
- Countermeasures of dust in factories, improving working environment
- Humidification
- Semi-conductors, LCDs, Plastics, Printing, Textiles, Mushroom nurseries, Wine making
- Disinfection
- Countermeasures of infection and poisoning from eating
- Moisture Control
- Hospitals, Care facilities, Dining halls, Vehicles, Livestock barns
- Steel, Wood, Ships
- Exhaust gases, Steel ingots, Steel plates, Glass, Refractories
- Machine parts, Automobiles, Roads, Exhaust gases, Food containers, Bottles
- Paddy fields, Tea-plantations, Orchards, Chemical plants, Electric & Electronics manufacturing
- City environment, Countermeasures of heat-island phenomenon
- Outdoor Cooling
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- Paddy fields, Tea-plantations, Orchards, Chemical plants, Electric & Electronics manufacturing
- City environment, Countermeasures of heat-island phenomenon
Taking The Path Less Traveled

IKEUCHI was founded as a trading company in 1954, and in 1961 we developed a ceramic spray nozzle with a precision guarantee, thus starting out on our path to becoming a major manufacturer and seller of spray nozzles.

World’s First Ceramic Nozzle

After our establishment as a trading firm, our founder—a fiercely determined man—focused his efforts on exporting only products developed in Japan. These included products related to rayon production, a pivotal sector in the textile industry at the time.

One of those products was a ceramic spinneret that was highly resistant to wear and chemicals, but this spinneret gradually became obsolete as nylon grew more dominant than rayon in the post-World War II era.

Our founder wanted to preserve the impressive technology of the ceramic spinneret, so in 1961 he established a small factory in his hometown of Kure City, Hiroshima Prefecture, where he repurposed the spinneret technology to create the world’s first ceramic tip spray nozzle. His ceramic nozzles were quickly bought up by a leading agrochemical spraying equipment manufacturer, who had been looking for a solution to the problem of wear in standard nozzles, and the founder’s breakthrough opened up new business opportunities in a wide range of industries.

World’s First Precision Guarantee

IKEUCHI was the first company in the world to offer precision guarantees for spray nozzles. Only nozzles that complied with specific standards for spray capacity tolerance and spray angle tolerance were shipped out to customers—a singular practice in the spray nozzle industry, both then and today.

Ever since, this guarantee on standard nozzles has served as proof of IKEUCHI product quality, and the Company continues to earn widespread customer praise for these efforts.

Proprietary Fog Classifications

“Fog” can include a widely varying range of characteristics. From early on in our history, IKEUCHI has utilized a proprietary fog classification system based on droplet size, establishing it as a standard for fog as an industry-use material.

This makes it easier to determine which fog types will solve customer problems, and facilitates the selection and proposal of optimal spray nozzles and systems.

Challenges in Developing the World’s First Ceramic Nozzle

We faced many challenges during our development of the world’s first ceramic spray nozzle, the most difficult of these being ceramic material contraction within the material firing process.

Contraction during material firing makes it very difficult to guarantee product quality, even after carrying out intricate design of details such as fog spray pattern and spread, spray volume, and final post-firing dimensions. Furthermore, factors such as material conditions, moisture content, and the presence/absence of air bubbles can lead to differing final results even when firing conditions are constant, resulting in product quality inconsistencies.

By researching each factor carefully, from material compositions through to firing temperatures, and carrying out numerous trial-and-error type tests, we overcame the issues to create CERJET®, the world’s first precision-guarantee ceramic tip nozzle.
IKEUCHI’s Fog

Spray Nozzle Precision Guarantee

IKEUCHI sets strict acceptance criteria for spray nozzle precision performance, and only nozzles that pass inspections based on those criteria are shipped out. Even when the customer has ultra-precise spraying requirements, this precision guarantee ensures that IKEUCHI can provide a reliable, safe product that fulfills all customer needs.

Hydraulic Spray Nozzle Precision Guarantee

![Diagram of Spray Nozzle Precision Guarantee]

- **Spray Capacity Tolerance**: Guaranteed within ±5% of the rated spray capacity at the standard pressure (set by nozzle product series).
- **Spray Angle Tolerance**: Guaranteed within ±5° of the rated spray angle at the standard pressure (set by nozzle product series). Spray angle is the angle of spray measured near the nozzle, unless otherwise specified.
- **Spray Angle Tolerance for Solid Stream Jet**: Guaranteed within 3° from the nozzle body centerline at the standard pressure (set by nozzle product series).

Note: “Standard pressure,” or design pressure, is defined as the most commonly used liquid pressure for the hydraulic spray nozzle product series.

Fog Classification

By establishing fog droplet size definitions, for which standards were previously inconsistent, we are able to offer fog as an industrial-use material. We continue to develop new products while taking full consideration of the water and air resources used in day-to-day life.

![Diagram of Fog Classification System]

**Fog Classification System**

- **Ultra-fine atomization**
  - Under 10 µm
  - Dry Fog
  - Fog with mean droplet diameter of 10 µm or less, and max. droplet diameter of 50 µm
- **Fine atomization**
  - 10 µm
  - Fine Fog
  - Fog with mean droplet diameter of 10–100 µm
- **Semi-fine atomization**
  - 100 µm
  - Fine Drizzle
  - Fog with mean droplet diameter of 100–300 µm
- **Semi-coarse atomization**
  - 300 µm
  - Semi-Dry Fog®
  - Fog with mean droplet diameter of 10–30 µm
- **Coarse atomization**
  - 1,000 µm
  - Light Rain
  - Fog with mean droplet diameter of 0.3–1.0 mm
- **Rain–Storms**
  - Over 1.0 mm

Note: Although various fog classification systems exist, IKEUCHI, "The Fog Engineers," uses the system described here to provide fog suited to customer applications and operating environments.
While maintaining the trust we have earned through provision of the world’s first precision guarantee, IKEUCHI has attained certification for our quality management system (QMS) based on International Organization for Standardization (ISO) criteria, making it possible to provide even better products. In addition to our ISO-certified proprietary QMS, we carry out continual improvements to product reliability and safety as well as quality of operation, working as a unified team to boost customer satisfaction.

Refusing to content ourselves with nozzle manufacturing alone, we develop a wide range of fog applications in order to expand our business into new fields. We actively pursue these business endeavors in Japan as well as on the global stage, which helps us to improve our atomization technologies and lays the foundations for creating one-of-a-kind, fog-based solutions.

Our products lay the foundations for the manufacturing industry

At IKEUCHI, we use sophisticated equipment to carry out exhaustive inspections of spray capacity, spray angles, spray distributions and other factors that affect final fog quality.

We utilize barcodes and handheld reader devices to reduce human error, along with automated warehouse facilities, rotating racks and other technologies to achieve reliable lot management and traceability.

IKEUCHI’s Strengths

Making full use of various fogs on a continued mission to serve a wide range of industries

Product Quality

Product Management

Measurement of spray droplet diameter

Spray impact measurement

Barcode-based product management prevents shipping errors

Rotating racks

Knowledge obtained from a wide range of industries

Exploration of new fields

Various types of fog

Performance improvements and leading-edge technology research
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IKEUCHI's Strengths
- Exploration of new fields
- Performance improvements and leading-edge technology research
- Knowledge obtained from a wide range of industries
- Demand-based development
- Various types of fog
- Proposal-based development

Making full use of various fogs on a continued mission to serve a wide range of industries.
IKEUCHI developed the world’s first ceramic spray nozzle in 1961 and are the only company in the nozzle industry that provides a precision guarantee. Today, we make full use of a wide range of product materials including stainless steel, brass, tungsten carbide, standard and high-alumina ceramics, plastics and others in order to meet varied applications and satisfy all customer requirements. The spray nozzle business is the core of IKEUCHI’s operations, manufacturing and supplying suitable spray nozzles for use in a wide variety of applications, handling custom-made products and development of spray unit products to meet all kinds of requirements from customers.

Our Fog Engineers handle all aspects of the spray nozzle business and provide continuous support to solve customer problems.

Our nozzle products, born from advanced technologies, perform splendidly even in combustion facilities and other harsh environments, and in demanding worksites such as precision machinery plants, thus satisfying all customer needs.

IKEUCHI offers comprehensive solutions, utilizing and improving on the knowledge we have gained through past nozzle manufacturing operations, in order to solve even the most complex and challenging of problems.

We provide optimized spray nozzles from our catalog of more than 42,000 different products.

Solutions only available from a true nozzle specialist

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We also provides specialty systems that use non-wetting Semi-Dry Fog® for energy-efficient cooling of large-scale factories and urban buildings, and also for boosting humidity levels in schools and hospitals. In addition, we developed the LYOHM System® outdoor cooling system as a pioneering urban heat island countermeasure. This system reduces temperatures through evaporative fog cooling, and it is now used widely throughout urban areas.

In recent years we have developed and promoted systems that improve the operating efficiency of air-conditioner outdoor units and solar panels during the summer months. We have also worked on humidification systems to help prevent infectious diseases, such as influenza, caused by dryness during the winter months.

Providing wide-ranging, fog-based solutions that benefit both industry and people’s daily lives

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Mitigating industrial static electricity problems using one of the world’s most advanced humidification system

IKEUCHI’s Dry Fog humidification system, which uses internationally patented spray nozzles, helps to mitigate product defects and work-environment problems caused by insufficient humidity (dry air), static electricity and other such factors.

Dry Fog humidification is compatible with work environments where absolutely no wetting is permissible: it can be used to humidify wide areas, or dividedly controlled to provide close-proximity spot humidity for applicable processes only.

Moreover, our system reduces operating costs by approximately 40% compared with steam humidification systems. In recognition of this system’s outstanding performance and achievements, The Institute of Electrostatics Japan has presented IKEUCHI with the Progress Award.

AirAKI® Industrial Humidification System

This industrial, hydraulic humidification system does not require compressed air. It is recommended for use in large, open areas such as factories with a minimum ceiling height of 3.5 meters, and is driven by a high-pressure pump to provide fog-based humidification that does not wet equipment, manufactured products, etc. Our system reduces operating costs by approximately 70% compared with steam humidification systems.

IKEUCHI’s Dry Fog humidification system uses internationally patented spray nozzles, helping to mitigate product defects and work-environment problems caused by insufficient humidity (dry air), static electricity and other such factors. Dry Fog humidification is compatible with work environments where absolutely no wetting is permissible: it can be used to humidify wide areas, or dividedly controlled to provide close-proximity spot humidity for applicable processes only. Moreover, our system reduces operating costs by approximately 40% compared with steam humidification systems. In recognition of this system’s outstanding performance and achievements, The Institute of Electrostatics Japan has presented IKEUCHI with the Progress Award.

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Dry Fog humidification is compatible with work environments where absolutely no wetting is permissible: it can be used to humidify wide areas, or dividedly controlled to provide close-proximity spot humidity for applicable processes only. Moreover, our system reduces operating costs by approximately 40% compared with steam humidification systems. In recognition of this system’s outstanding performance and achievements, The Institute of Electrostatics Japan has presented IKEUCHI with the Progress Award.
Our industrial cooling specialists offer fog cooling systems tailored to customer needs

We have developed innovative, fog-based cooling systems that overturn industrial cooling conventions. Serving as cooling-operation consultants for both gas and solid-matter cooling, we handle everything from selection of appropriate nozzles and layout design through to computational fluid dynamics (CFD), cooling apparatus design, and equipment installation as part of efforts to provide service that meets every customer requirement and preference. We have completed numerous product deliveries for steelworks, power plants, waste incineration plants and other such facilities.

AirAKI® Industrial Humidi/fication System

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GAS COOLING SYSTEM

This system cools exhaust gases with fog spraying to increase the efficiency of removal operations for dioxin and other toxic gases. We utilize computational fluid dynamics (CFD) to optimize cooling tower forms (gas flow) as well as nozzle designs. Furthermore, we use laser measurements to create optimized nozzles in ways only possible at a specialized nozzle manufacturer like IKEUCHI.

Unvaporized-water free

Gas Cooling System

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Gas cooling tower

(PHOTO COURTESY OF JX NIPPON TOMAKOMAI CHEMICAL CO., LTD.)

Utilizes fan-blowing together with the evaporative effects of fog cooling to prevent cooling performance declines when outdoor temperatures are high.

Air fin cooler assist cooling system

Provides control for everything from slow to rapid cooling, thus eliminating cooling insufficiencies and excessive cooling.

Kiln cooling system

Offers quick and uniform cooling without wetting products.

Die-cast and cast product cooling system

Reduces usage amounts for release agents, lubricants and similar while also extending the lifespans of dies and molds.

Release agent spraying and die/mold cooling

Reduces usage amounts for release agents, lubricants and similar while also extending the lifespans of dies and molds.

Nozzle installation locations in a cooling tower

Semi-Dry Fog inlet air cooling system

(PHOTO COURTESY OF SHIKOKU ELECTRIC POWER COMPANY, INC.)

Reducing gas turbine inlet air temperature using fog-based evaporative cooling improves power generation output.

Unvaporized-water free gas cooling system

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(PHOTO COURTESY OF SHIKOKU ELECTRIC POWER COMPANY, INC.)

Reducing gas turbine inlet air temperature using fog-based evaporative cooling improves power generation output.
Using Dry Fog for disinfection in customer spaces to achieve cleaner environments

In addition to anti-bacterial measures in production plants, medical facilities and similar, recent years have seen a rise in demand for cleaner environments in public facilities and other spaces where people gather. Disinfecting and cleaning these spaces prevents the spread of infectious diseases and makes for safer, more trustworthy environments.

Dry-Fog HIGHNOW®, a portable and rechargeable antibacterial and deodorizing device, was created to eliminate bacteria and odors in tight and hard-to-reach spaces, overlooked areas, spaces with high ceilings, and others where thoroughgoing measures were not formerly possible. IKEUCHI’s non-wetting Dry Fog eliminates bacteria in these spaces without leaving them damp afterward.

In recent years, hypochlorous acid water has been gaining popularity for its antibacterial and deodorizing effects as well as its application as a cleaning water. IKEUCHI developed Clezia®, an electrolytic refining device that generates a hypochlorous acid water and a strong alkaline water; use of this product together with Dry-Fog HIGHNOW® provides even greater bacteria elimination and deodorizing results.

Moving forward, products such as Dry-Fog HIGHNOW® and Clezia® will help achieve the environmental improvements that society demands.

Using Dry Fog for disinfection in customer spaces to achieve cleaner environments

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Moving forward, products such as Dry-Fog HIGHNOW® and Clezia® will help achieve the environmental improvements that society demands.

In Agro Business, we place top priority on profitability in its agricultural technology research and development activities. In order to earn the trust and patronage of agricultural-field customers, we sell tomatoes, lettuce, strawberries and other crops grown and harvested in our own greenhouse facilities as part of agricultural-business proof-of-concept demonstrations.

Disinfection Business

Using Dry Fog for disinfection in customer spaces to achieve cleaner environments

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Moving forward, products such as Dry-Fog HIGHNOW® and Clezia® will help achieve the environmental improvements that society demands.
Leveraging fog atomization technology to pioneer new, revolutionary agriculture for the first time worldwide

We developed IKEUCHIponics®, a new cultivation method for greenhouse agriculture in which liquid fertilizer is turned into Semi-Dry Fog® and applied to the roots of plants. This novel approach requires only 30% of the fertilizer costs and 2% of the water used for standard outdoor cultivation and results in greater yields, improved crop quality, reduced labor and cleaner growing operations overall, among other benefits. It also enables agricultural operations in desert regions. In addition, our CoolPescon® system, which surpasses conventional evaporative cooling in terms of cooling efficiency, combines cooling, humidification and pest control into one and has contributed to advancements in agriculture worldwide as a revolutionary automated growing support system. Here at IKEUCHI, we expect great things from the Agro Business moving forward.

We grow various types of crops year-round in our company-owned experimental farms.

Harvesting summer strawberries in August

CoolPescon® greenhouse cooling and humidification system

Delicious Vegetables Grown Using Fog
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Moving forward, products such as Dry-Fog HIGHNOW® and Clezia® will help achieve the environmental improvements that society demands.
Global Network

To meet our contribution to society by means of fog, we have advanced and specialized our fog engineering in response to current issues and requests from partnering industries. Today the field of fog utilization is not limited to Japan, but is spreading across borders into other countries and markets. In order to effectively respond to global needs we are establishing subsidiary offices and accelerating the movement towards our own global network.

Main overseas business activities

**In Europe:**
We offer customized solutions for a wide variety of production processes, ranging from automotive and agriculture to steelmaking, heavy industries, environmental conservation, and electronic devices supporting the Internet of Things (IoT).

**In the US:**
We provide engineering support for manufacturing processes, ranging from key industries such as power generation, steelmaking, and car manufacturing, to advanced technologies for the semiconductor manufacturing, data centers, and aerospace manufacturing.

**In the Middle East:**
We are engaged in the installation of cooling systems that use non-wetting fog to improve heat-extreme working environments, as well as fog cultivation systems that enable crops to grow with less water than with conventional systems.

**In Asia:**
We are engaged in current, cutting-edge technological innovations required to sustain a continuously growing industrial production, various production processes, and quality, as well as to maintain and improve the working environment, atmosphere, and water quality.
We have customer service representatives at each office who can communicate with customers in Japanese. We also have distributors and agents in Korea, South-East Asia, and other specific countries. Please feel free to contact them or us.

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IKEUCHI VIETNAM CO., LTD.
Hanoi Factory
IKEUCHI VIETNAM CO., LTD.
K-1, Thang Long Industrial Park,
Dong Anh District, Hanoi, Vietnam

Domestic Network

With eight sales offices and three factories in Japan, we are ready to provide prompt support for customers around the country.

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FAX: +971-2634-4577
me@kirinoikeuchi.co.jp
https://www.kirinoikeuchi.co.jp/it/

HANOI FACTORY
IKEUCHI VIETNAM CO., LTD.
K-1, Thang Long Industrial Park,
Dong Anh District, Hanoi, Vietnam
Company Development Activities and Historical Background

**History of Major Product Developments**

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1954</td>
<td>Established as a leading firm</td>
</tr>
<tr>
<td>1961</td>
<td>Developed CERJET®, the world's first ceramic tip nozzle</td>
</tr>
<tr>
<td>1964</td>
<td>Developed the DSP series of high-pressure descaling nozzles</td>
</tr>
<tr>
<td>1973</td>
<td>Developed and began production of metal spray nozzles</td>
</tr>
<tr>
<td>1975</td>
<td>Developed full cone spray nozzles with uniform distribution and clog prevention</td>
</tr>
<tr>
<td>1979</td>
<td>Invented AKIJet® ultra-fine fog spray nozzle and acquired international patents</td>
</tr>
<tr>
<td>1980</td>
<td>Invented the AKIMiste humidifier using the world-leading performance technologies of AKIJet®</td>
</tr>
<tr>
<td>1983</td>
<td>Developed spray nozzles for the steelmaking industry, contributing to continuous casting operations through spray cooling</td>
</tr>
<tr>
<td>1985</td>
<td>Developed CERTIIM®, an injection molded version of CERJET® with a ceramic tip insert</td>
</tr>
<tr>
<td>1989</td>
<td>Developed and began production of metal spray nozzles</td>
</tr>
<tr>
<td>2000</td>
<td>Developed GSIM exhaust-gas cooling nozzle for use in dioxin countermeasures at waste incineration plants</td>
</tr>
</tbody>
</table>

**1960s**
- Industrial growth in petrochemicals and high-tech industry growth.

**1970s**
- The oil crisis prompts a shift from resource-intensive industry to energy-efficient industry. The steelmaking industry moves towards increased recovery of byproduct gases, utilization of continuous casting process, and similar changes.

**1980s**
- Development of CAD/CAM systems, information systems, and robotic technology.
- The risk of global warming begins to receive more widespread public recognition.
- Japan experiences rapid integrated circuit technology advances and high-tech industry growth. Organized, systematic education and implementation for electrostatic countermeasures are started in the semiconductor sector.

**1990s**
- Research on worldwide measures against global warming are held at the United Nations Conference on Environment and Development (UNCED / Earth Summit).
- The Ministry of Health and Welfare creates guidelines on preventive measures for dioxin emissions in waste treatment processes and notifies prefectural governments.
- Discussions on worldwide measures against global warming are held at The United Nations Conference on Environment and Development (UNCED / Earth Summit).

**1990s**
- Japan amends the Energy Conservation Act. The new legislation includes a basic policy and additions such as the requirement for regular reporting from designated energy management factories.

**2000s**
- Heat Island Effects is created. Support is provided for measures against global warming, etc.
- The paints and coatings industry calls for measures to cut emissions and fuel economy.
- The Kyoto Protocol is adopted. The Act on Special Measures Against Dioxins is created, establishing environmental standards, environmental measures, etc.
- And the new legislation for energy management and energy conservation include a basic policy and additions such as the requirement for regular reporting from designated energy management factories.
Historical Background

Company Development Activities and Developed CERJET® petrochemicals grow, contributing to Japan's era of 1960s.

Established

1960

1990

2000

Opened original descaling nozzles high-pressure DSP.

Developed full cone spray cooling contributing to continuous casting process, and similar changes.

The risk of global warming begins to receive more widespread attention.

Japan creates and establishes the Energy Conservation Act in 1970s. The steelmaking industry moves towards energy-efficient industry. The steelmaking industry moves towards energy-efficient industry. The steelmaking industry moves towards energy-efficient industry.

The Kyoto Protocol is adopted. Heat Island Effects is revised. The new version includes measures to mitigate harmful effects on human health caused by the urban heat island phenomenon.

Japan amends the Energy Conservation Act. The new legislation includes a basic policy and additions such as the requirement for energy-saving investments.

The plants and coatings industry calls for measures to prevent workplace accidents caused by electrostatic discharges.

2000s

2000s

2000s

Note: Views and opinions on historical matters and developments may vary. IKEUCHI picked up some from standard, widespread explanations and examples.

2000s

2000s

2000s

2000s

2000s

2000s

2000s

2000s

2000s

2000s

2000s

2000s

2000s

The Kyoto Protocol is adopted.

Japan amends the Energy Conservation Act. The new legislation subjects large office buildings and similar facilities to standards similar to those applied at large factories.

Developed water-conserving, long-life span TDSS descaling nozzle for the steelmaking industry.

Established IKEUCHI VIETNAM CO., LTD. in Ho Chi Minh, Vietnam.

Established a representative office in Shanghai, China.

Established COOLJetter® fan + fog cooling unit for use in emergency measures and work-environment improvements.

Developed AKIMists® “E” energy-efficient humidifier equipped with new Dry Fog nozzle AKI03.

Launched Cooling Business to provide integrated service for everything from onsite inspections to after-sales services.

Developed Semi-Dry Fog® inlet air cooling system for increasing power output and fuel economy.

Established IKEUCHI (SHANGHAI) CO., LTD. in Shanghai, China.

Established the Sisbou Branch and Tianjin Branch of IKEUCHI (SHANGHAI) CO., LTD. in China.

Established the Shekak Branch in China.

Established representative offices in Turkey, Thailand, and UAE.

Established SIAM IKEUCHI CO., LTD. in Bangkok, Thailand and Wuhan Branch in China.

Established Nishiwaki Kamishie Factory in Hyogo, Japan.

Developed ARS Filter, the world’s first spray-jet self-cleaning filter.

Established the Kure factories to create a new Kure Factory.

Received Osaka City Environment Award in recognition of our water- and electricity-conserving technologies and successes in solving and mitigating environmental problems.

Developed green house cooling and humidification system, which eliminates problems caused by wetting of crops and facilities.

Developed ULMM® Semi-Dry Fog® humidification unit for humidity control in various facilities and living spaces.

Developed AirULM® energy-efficient hydraulic humidification system.

Developed CoolPescon® automated greenhouse cooling, humidification and pest control system.

Developed Dry-Fog HIGHNOW® backpack-style disinfection and deodorization device.

Developed COOLSAVE-D® for cooling air-conditioner outdoor units.

Developed Clezia® hypochlorous acid water and strong alkaline water generator.

2010

2011

2012

2013

2014

2015

2016

2017

2018
Date established: November 8, 1954
Paid-up capital: 90 million yen (Shareholder’s equity 5.5 billion yen)
Representative: Shiro Nakai, President & COO
Business description: Manufacturing, sales, export and import of spray nozzles, humidifiers, related products and system equipment
Number of employees: 600 (including subsidiaries)