AIR-POLLUTION CONTROL

JAPANESE ATOMIZING TECHNOLOGY SOLUTIONS: FLUE-GAS DESULPHURIZATION AND DENITRATION

IKEUCHI SPRAY NOZZLES FOR AIR POLLUTION CONTROL SYSTEM

WE OFFER SOLLUTIONS FOR AIR QUALITY CONTROL SYSTEMS (AQCS), SUCH AS FGD PROCESS AND SCR/SNCR, BY REDUCING PARTICULATE MATTER IN AN EXHAUST GAS FROM COAL FIRED PLANTS, REFINERIES, CHEMICAL PLANTS, STEEL MILLS, PAPER MILLS ETC.

OVERVIEW OF APPLICATIONS OFIKEUCHI SPRAY NOZZLES FOR POLLUTION CONTROL

- COOLING
- DUST SUPPRESSION
- DENITRIFICATION
- ODOUR REDUCTION
- DESULPHURIZATION
- HEAT REDUCTION

BENEFITS

1. *Lower running costs*
2. *Minimal maintenance downtime with clog-resistant nozzles*
3. *Maximum cooling effect*

INNOVATIVE GAS COOLING NOZZLES

GSIMII SERIES - FINE FOG PNEUMATIC SPRAY NOZZLES FOR GAS COOLING

DOWNSIZE GAS COOLING TOWER

■ The number of required nozzles can be minimized with GSIMII, which combine large spray capacity and fine fog of 50 μm*.

LARGE SPRAY CAPACITY WITH EXCELLENT ATOMIZATION

■ GSIMII's average droplet size is 50μm (largest droplet size is 150 μm) with a spray capacity of 500 ℓ/hr at an air-water ratio of 130.

NOZZLE TIP AVAILABLE IN OPTIONAL MATERIALS

The nozzle tip is also available in corrosion resistant material such as Hastelloy®

SPB - SERIES - SPILLBACK NOZZLES FOR GAS COOLING

MINIMAL VARIATION IN DROPLET SIZES

- Spray capacity can be controlled by adjusting the return pressure while keeping the supply pressure constant. Turn-down ratio of spray capacity is 1: 10. The variation in sprayed droplet size is minimal despite the modulation of spray flow.

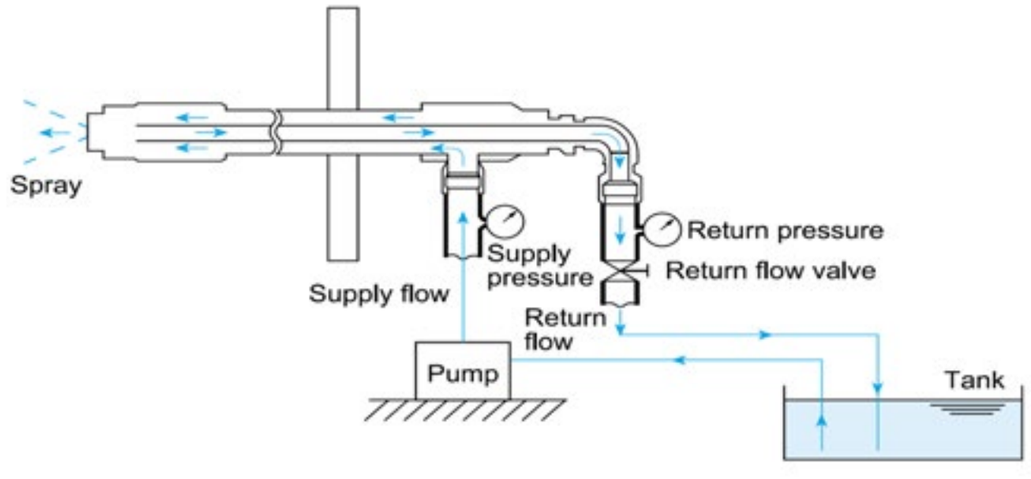
WIDE RANGE OF SPRAY CAPACITIES

- SBS series is available as a single-head or multiple-head nozzle. The single-head SPB nozzle is available in 60 ° and 85 ° spray angles, and with 15 different spray capacities according to nozzle arrangement and gas conditions in the cooling tower.

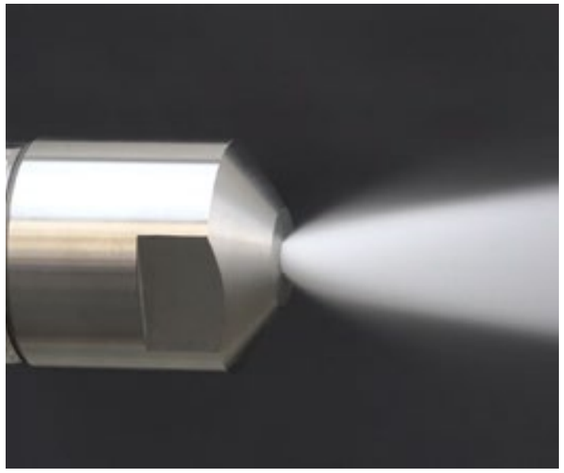
MULTIPLE-HEAD NOZZLES

Multiple-head SPB nozzles are suitable when a larger spray capacity is required, with a spray angle up to 140 ° or even wider, but with minimal increase in spray droplet size.

System Diagram (Example)



ASPB SERIES - AIR-ASSISTED SPILLBACK NOZZLES



PNEUMATIC TYPE OF SPILLBACK NOZZLES:

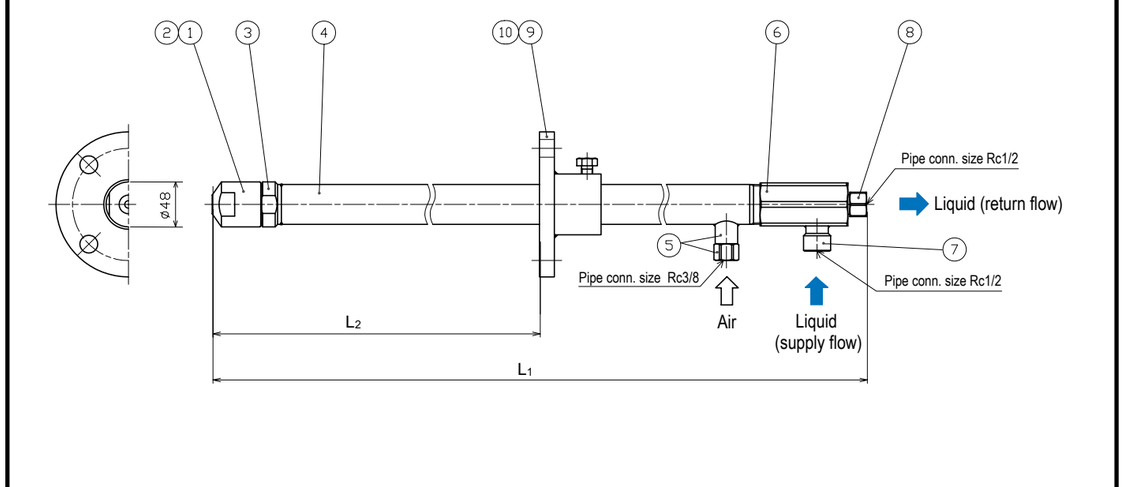
- Adding compressed air supply line to the existing facility can solve various problems
- High-velocity fog is not disturbed by flow of exhaust gas and reaches

ENERGY-SAVING DESIGN FOR LESS AIR CONSUMPTION

- Higher cooling capacity than conventional spillback nozzle
- Reduced air consumption

PROBLEM SOLVER

Reduces unvaporized-water drainage and problems caused by dust adhesion to interior walls or around outlet of gas cooling tower



JOKIJET® SERIES

STEAM NOZZLE

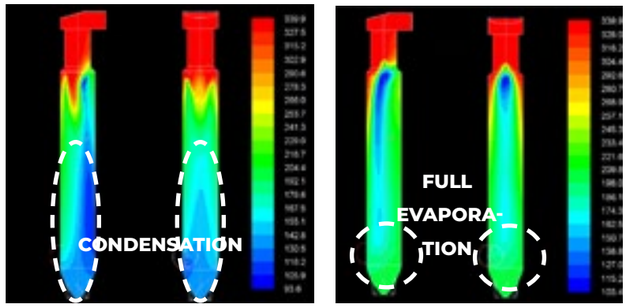
Innovative pneumatic spray nozzle using steam instead of compressed air to produce fine (semi-fine) atomization.

COST EFFICIENT

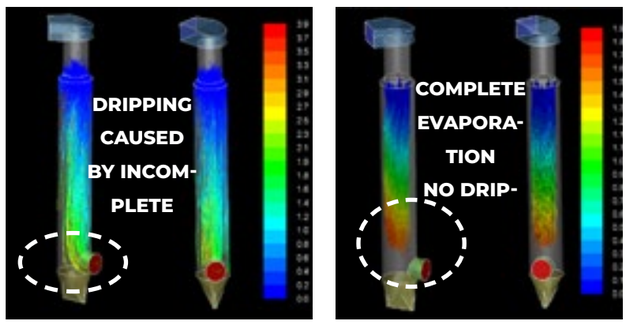
Great savings on running costs realized by utilizing steam from an existing boiler facility

TECHNICAL SUPPORT FOR GAS COOLING NOZZLES

(BEFORE) (AFTER)



EXHAUSTED GAS TEMPERATURE



SPRAYED WATER TEMPERATURE

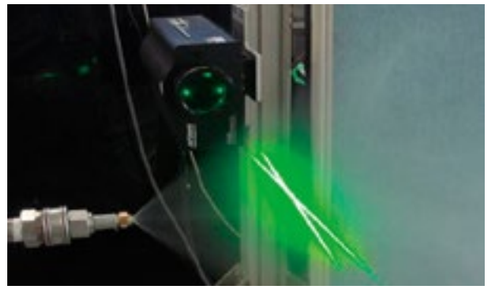
SPRAYED WATER TEMPERATURE

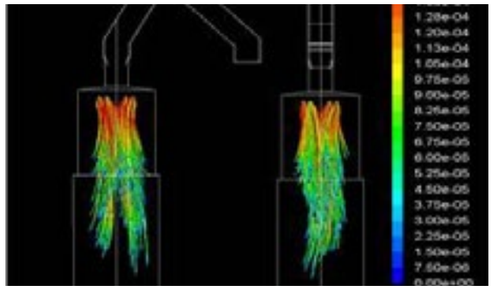
TEST REPORT

In order to support spray conditions, we can provide testing reports of actual measurement of the various parameters suchs as:

- Droplet size and distribution by laser Doppler particle analyzer
- Spray dimension and coverage

TECHNICAL SUPPORT FOR GAS COOLING NOZZLES





DROPLET SIZE MEASUREMENT

We provide droplet size measurement by the means of a laser Doppler particle analyzer

CFD ANALYSIS

We provide a thorough CFD analysis of the spray conditions. This is a more cost efficient and fast way to test spray nozzles on several parameters.

SELECTING THE CORRECT SPRAY NOZZLE

Suggestion on Gas cooling Nozzle (For Pneumatic Nozzle)

Customer:
Person in charge:
End User:
Application: Gas cooling
Type of Furnance:

Date: 18 April 2018
Name:

<INPUT>			<OUTPUT>		
Gas Volume	10000	Nm^3/hr	Required spray volume	1133	L/hr
Temp. of Inlet Gas	300	℃		18.9	L/min
Temp. of Outlet Gas	80	℃	Cooling time	9.6	sec
Temp. of spray water	20	℃	Required droplet size (Immersion sampling method)		
Specific gravity of Air	1.29	kg/Nm^3	Max dia. (d max)	231	μm
Pressure inside of tower	-4	kPaG	Surmised average dia.(SMI	61	μm
Inner Dia. of cooling tower	3	m	Required droplet size (Laser doppler method)		
Height of cooling tower (Distance for evaporation)	7	m	Max dia. (d max)	184	μm
			Surmised average dia.(SMI	56	μm
			Average gas velocity	0.7	m/sec

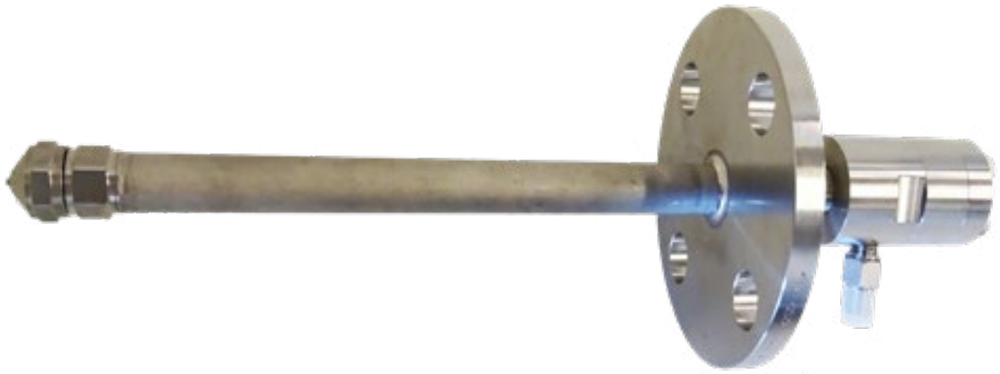
Nozzle series	GSIM		Surmised spray conditions			Surmised droplet size	
Nozzle name	GSIM20110II		Supplied air pre.	0.35	MPa	Immersion sampling method(dma	μm
			Air consumption	1000	NL/ min	Immersion sampling method(SMI	μm
Number of Nozzle	4	pc(s)	Supplied water pres	0.3	MPa	Laser Doppler method (X99)	μm
Capacty of each nozzle	283.1	L/ hr	Spray capacity	283	L/hr	Laser Doppler method (SMD)	μm
	4.7	L/ min	Air-water ratio	212	-		

PROVIDING NOZZLE SELECTION AND SPRAY CONDITIONS

Based on the “specifications Check Sheet” you complete, we select suitable nozzles and send our suggestions report, inwhich we include suitable spray conditions and spray droplet sizes required for full evaporation cofirmed by our original program. Nozzle lances, flanged connections and other optional mounting systems are custom-built to meet your expectations.

FINE ATOMIZATION SCR NOZZLES

SETOJET SERIES - CLOG-RESISTANT FINE FOG NOZZLES FOR SCR



DESIGNED FOR THE APPLICATION ENVIRONMENT

· Liquid pipe is set inside the air pipe so that liquid is not affected by heat.

Designed to mix air and liquid outside the nozzle. Clogging due to precipitated air is mini-mized.

· Protector has an air purging hole to protect the nozzle and liquid from heat.

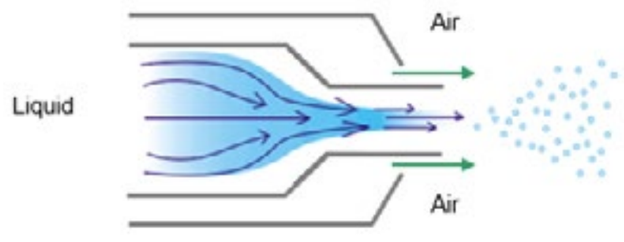
· Odor tight structure

OPTIMAL SPRAY LANCE FOR YOUR EQUIPMENT OR THE ENVIRONMENT

· Integrated spray lance requires no troublesome piping arpund the nozzle.

· Easy to remove the spray lance from the equipment at site

· Spray direction can be chosen as desired, straight type or angled type, depending on the equipment and the installation position



EXTERNAL MIXING SPRAY NOZZLES

CLOG-RESISTANT SNCR NOZZLES

DOVVA-G SERIES - FLAT SPRAY PNEUMATIC SPRAY NOZZLES FOR

CLOG-RESISTANT DESIGN

· Pneumatic spray nozzle suitable for spraying aqueous ammonia and urea. Due to its large passage diameter, it also minimizes clogging.

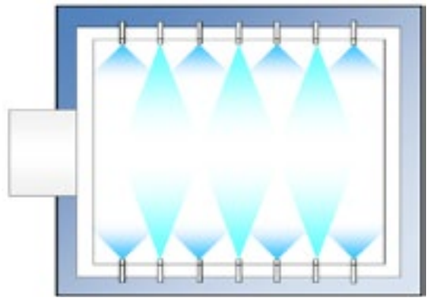
·Weighs less than half the weight of stainless steel.

SEMI-FINE ATOMIZATION

· Produces semi-fine atomization with a mean droplet diameter of 80μ or more.

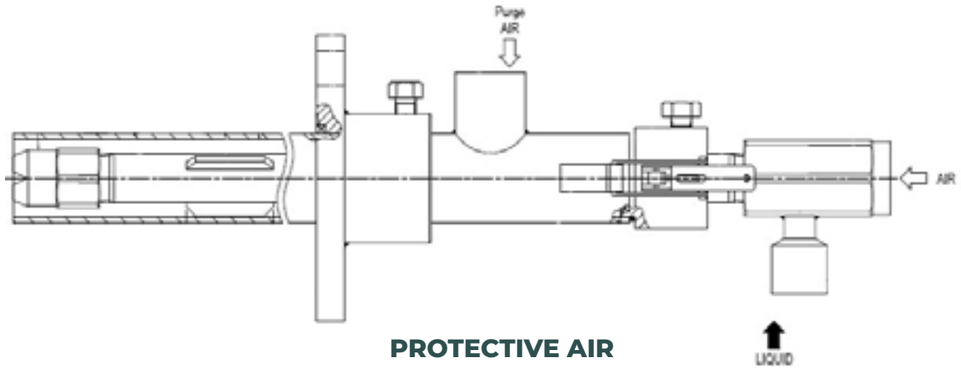
HEAT RESISTANT MATERIALS (OPTION)

· In addition to the standard material, Stainless Steel 316L, the nozzle tip is also available in heat-resistant steel such as Stainless Steel 310S



Example of an installation: To cover a wide area with a even distribution, alternate a wide angle spray nozzle with a narrow angle spray nozzle

WE ENSURE A LIFE-LONG APPLICATION FOR YOUR PRODUCT. WE OFFER OPTIONAL EQUIPMENT TO PROTECT AGAINST: HEAT DAMAGES, CLOGGING



PROTECTIVE AIR TUBE

HEAT DAMAGES

CLOGGING ISSUES

EXTERIOR

TECHNICAL SUPPORT FOR GAS COOLING NOZZLES

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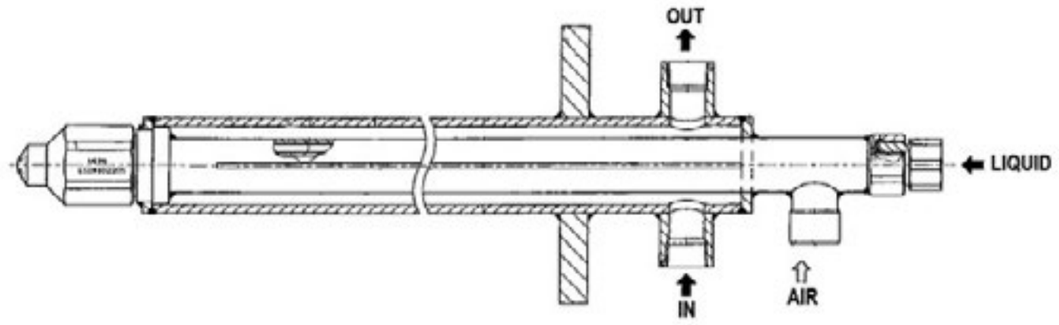
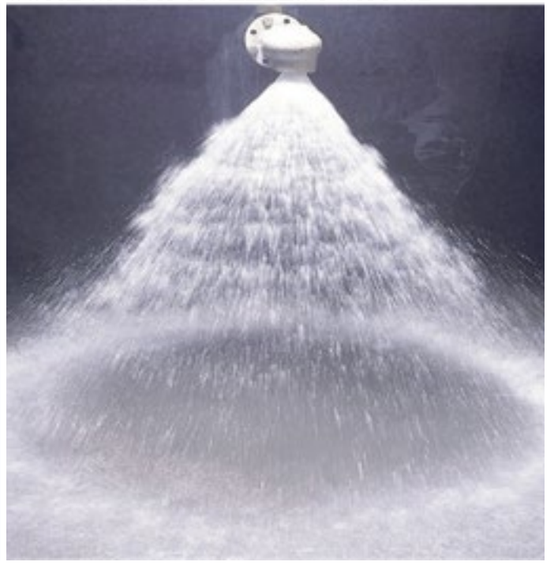


WATER COOLING JACKET

SIC, SISIC NOZZLES FOR FGD

TAA SERIES LARGE CAPACITY, HOLLOW CONE SPRAY NOZZLES FOR FGD



HIGH WEAR AND ACID RESISTANCE

· Made of wear-/acid- resistant clog-resistant SIC (silicone carbide). Also available in SiSiC (siliconized silicon carbide)

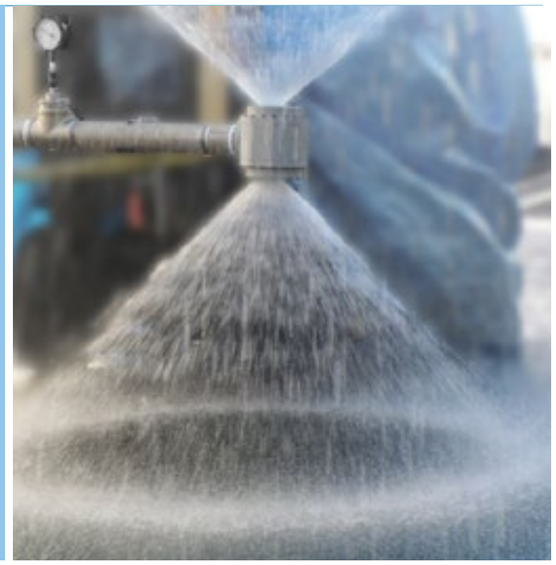
DESIGNED FOR LOW-PRESSURE OPERATION

· Due to its unique internal design, the spray angle and spray distribution are stable even at 0.03MPa (ca. 0.3 bar).

LARGE FREE PASSAGE DIAMETER

·No internal parts to minimize clogging issues

BI-DIRECTIONAL SLURRY SPRAY NOZZLE FOR FGD



WEAR-RESISTANT, LIGHTWEIGHT

· Made of SiC / SiSiC (silicon carbide / silicon infiltraded silicon carbide) with excellent wear-resistance and chemical durability.

·Weighs less than half the weight of stainless steel.

BI-DIRECTIONAL SPRAY

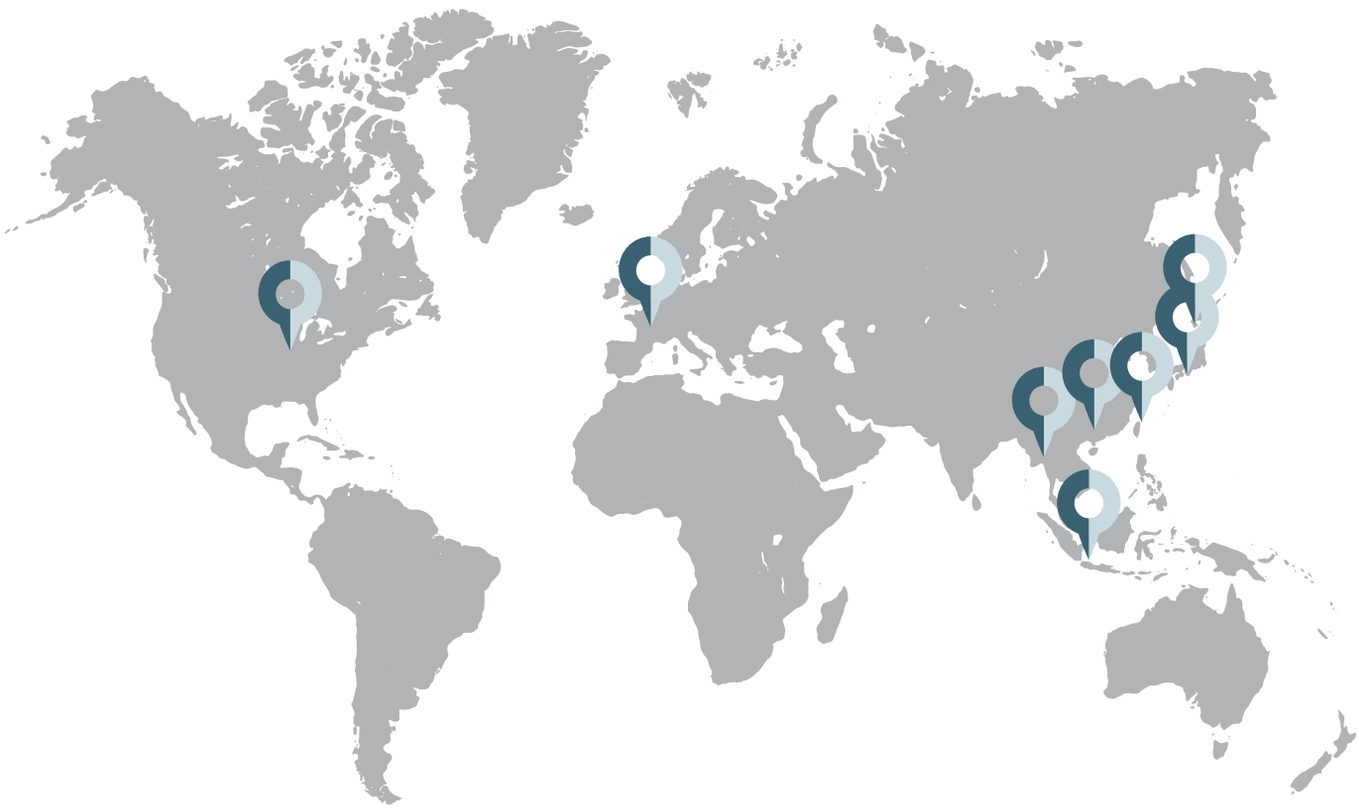
· The TWAA series is bi-directional, so one nozzle unit can take the place of two.

· The result: Simpler equipment layout, less maintenance and reduced costs.

SMALLER DROPLETS

· With 2 orifices, the flow normally sent through 1 orifice is halved, yielding smaller droplets.

· Best for applications with contact / reactions.



Ikeuchi is a Japanese company with branches all over the world. It was founded in 1954 in Osaka and has since then expanded across Asia, North america and Europe.

For inquiries / information requests / quotations related this product, please contact us

Ikeuchi Europe
The fog engineers

"Taking the path less traveled"

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