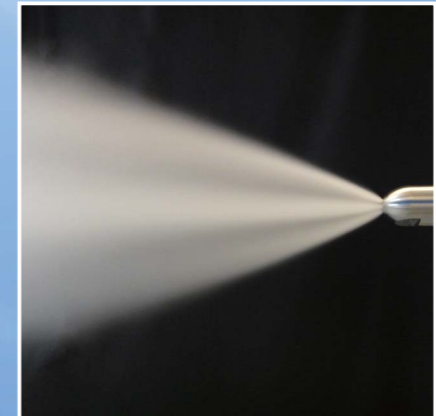
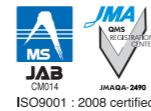


LINEUP OF IKEUCHI'S SPRAY NOZZLES



“The Fog Engineers”
H. IKEUCHI & CO., LTD.



Headquarters

Daiichi Kyogyo Bldg., 1-15-15, Awaza, Nishi-ku,
Osaka 550-0011, Japan
Tel: 81-6-6538-4015 Fax: 81-6-6538-4022
e-mail: overseas@kirinoikeuchi.co.jp
URL: <http://www.kirinoikeuchi.co.jp/eng/>

Affiliated Companies

IKEUCHI USA, INC.

8110 Beckett Center Drive, West Chester OH 45069, USA
Tel: 1-513-942-3060 Fax: 1-513-942-3064
e-mail: info@ikeuchiusa.com
URL: <http://www.ikeuchiusa.com/>

IKEUCHI EUROPE B.V.

Asterweg 17 A6, 1031 HL Amsterdam, The Netherlands
Tel: 31-20-820-2175 Fax: 31-20-820-2176
e-mail: info@ikeuchieurope.com
URL: <http://www.ikeuchieurope.com/>

IKEUCHI (SHANGHAI) CO., LTD.

Room C, 21/F, Electrical & Mechanical Bldg.,
600 Hengfeng Road, Shanghai 200070, P.R.China
Tel: 86-21-6140-9731 Fax: 86-21-6123-4239
e-mail: mist@kirinoikeuchi.com
URL: <http://www.kirinoikeuchi.com/>

IKEUCHI TAIWAN CO., LTD.

11F-1, No. 27, Sec. 1, Chung Shan N. Rd., Taipei Taiwan, R.O.C.
Tel: 886-2-2511-6289 Fax: 886-2-2541-6392
e-mail: sales@ikeuchi.com.tw
URL: <http://www.ikeuchi.com.tw/>

Tianjin Branch Tel: 86-22-2320-1676 Fax: 86-22-2320-1675
e-mail: mist@kirinoikeuchi.com

PT. IKEUCHI INDONESIA

Ruko Easton Jalan Gunung Panderman Blok E No.9,
Lippo Cikarang Kel. Cibatu Kec., Cikarang Selatan Bekasi 17550
Indonesia
Tel: 62-21-2909-3246 Fax: 62-21-2909-3247
e-mail: sales@ikeuchi.co.id
URL: <http://www.kirinoikeuchi.co.jp/ijk/>

■ Specifications and contents of this catalog are subject to change without prior notice for purpose of product improvement.



“The Fog Engineers”
H. IKEUCHI & CO., LTD.

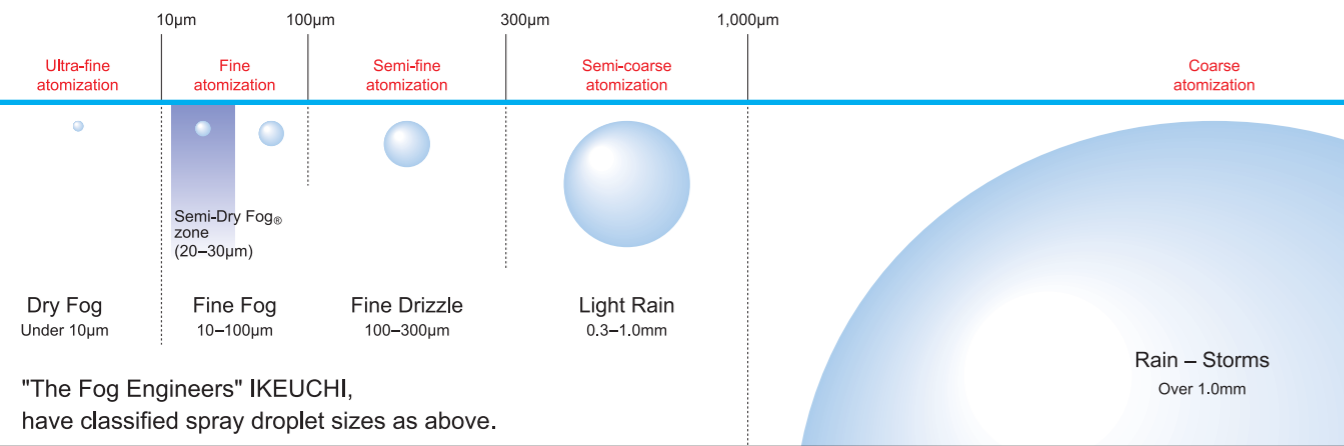
IKEUCHI, "The Fog Engineers"

Based on accumulated advanced technology and know-how as the Fog Engineers, IKEUCHI continues to pursue methods to generate and utilize fog to meet the ever diversifying and sophisticated needs of its customers, and to contribute to the development of a greater industrial world.

Guarantee of Precision Nozzle Performance

All IKEUCHI's precision-made hydraulic spray nozzles are guaranteed for spray angles and spray capacities. Each pneumatic spray nozzle series also has spray capacity inspection standard, and only the nozzles that pass the inspection will be shipped.

Classification of Spray Droplet Size



Variety of Spray Nozzles

Category	Sub-category	Description
Hydraulic Spray Nozzles (Produce atomization using liquid pressure)	Flat Spray Nozzles	Provide a flat fan spray pattern with mountain-shaped or even distribution. Ideal for (high-pressure) cleaning and spraying.
	Cone Spray Nozzles	Provide a hollow cone or full cone spray pattern (or square pattern). Suitable for gas cleaning, steel plate cooling, humidifying, etc.
	Solid Stream Jet Nozzles	Solid stream with highest spray impact. Ideal for powerful cleaning.
	Special Purpose Nozzles	Slit laminar nozzles, air nozzles, ejector nozzles, etc.
Pneumatic Spray Nozzles (Produce atomization using air and liquid pressures)	Fine Fog Spray Nozzles	Widely used pneumatic nozzles for gas cooling, moisture control, precision cleaning, etc. Mean droplet diameter: 10-100µm
	Semi-Fine, Semi-Coarse Fog Spray Nozzles	Ideal for precision cooling in the steel industry, and for precision cleaning in the electronics industry. Mean droplet diameter: 100µm or more (semi-fine atomization)
	Clog-resistant Spray Nozzles	Designed specially for spraying viscous liquid.
	Blower-Air Driven, Ultra-Low Pressure Spray Nozzles	Utilize blower air instead of compressed air for atomizing to save installation and running cost.
	Steam-Driven Spray Nozzles	Innovative pneumatic nozzles using steam instead of compressed air for atomizing.

HYDRAULIC SPRAY NOZZLES — FLAT SPRAY

[Symbol key] ●: Features ■: Main applications

Standard Flat Spray Nozzles

	3-piece structure V/VV series	● Flat spray pattern with mountain-shaped distribution. Tapered spray pattern edges provide uniform spray distribution in multiple-nozzle arrangements. ■ Cleaning, spraying, cooling, etc.		Coin-shaped CVVP series	● So thin that nozzle alignment in a narrow space is easy. ■ Cleaning and cooling.
	One-piece structure VP/VVP series	■ Cleaning, spraying, cooling, etc. * For polishing, available in UPE material (UVVP series).		Quick detachable INVV series	● Easy installation without tools, which saves maintenance time. ■ Applications that require accurate nozzle positioning. Etching, cleaning, etc. * Successor to ISVV series

Even Flat Spray Nozzles

	3-piece structure VE series	● Flat spray with uniform distribution and even spray impact across the entire spray area. ■ Cleaning, cooling and spraying.		High-pressure cleaning VNP series	● Flat spray with uniform distribution. ■ High pressure cleaning (for cars, containers, tanks).
	One-piece structure VEP series	■ Cleaning, cooling and spraying.		Descaling nozzles DSP series	● Powerful cleaning and descaling nozzle with a thin flat spray like a razor blade.
				Descaling nozzles TDSS series	● Water saving & high impact descaling nozzle for steel industries. Longer lasting design, uniform spray impact. (See TDSS individual catalog.)

Wide-angle Flat Spray Nozzles

	Wide-angle spray YYP series	● Produces wide-angle flat spray at low liquid pressure with minimal clogging. ■ Cleaning, foam breaking, water screen applications.
	Wide-angle, ultra-low pressure LYYP series	● Soft spray impact without bubbles. Uniform distribution produced at ultra-low pressure. ■ Spraying developer in semi-conductor manufacturing processes.

Off-center Even Flat Spray Nozzles

	Off-center spray OVVEP series	● Off-center flat spray with uniform distribution across the entire spray area solves the problem of accumulation of spray fluid in multiple-nozzle arrangements. No need for oblique installation. ■ Steel plate cooling, water rinsing after acid washing.
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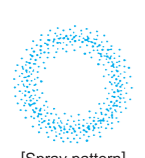


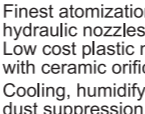
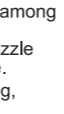

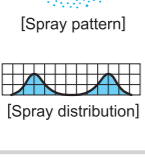


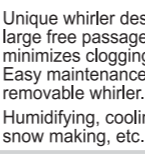
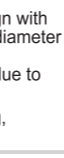



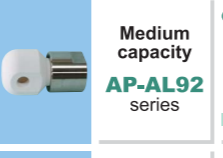
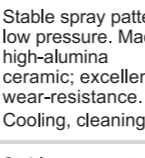


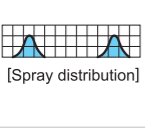


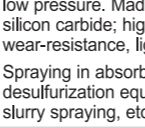
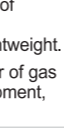
Special Flat Spray Nozzles

	Self-cleaning MOMOJet® series	● Spray tip purges foreign particles by reducing the pressure. Straight-through orifice is suitable for multiple-nozzle arrangement. ■ Cleaning with circulated water, cooling, defoaming, and cleaning wire and felt parts of paper making machines. * For solid stream spray, MOMOJet® C series is available.
	Universal-joint type UT+VP series	● Universal joint allows easy adjustment of the spray direction after connected to a pipe. Spray direction is adjustable over a range of 40 degrees as desired. ■ Cleaning, spraying, etc. * For solid stream spray, UT+CP series is available.
	Air & steam spraying VZ series	● Produces flat spray pattern in air or steam. ■ Cleaning, dust suppression, drying, air curtain, humidification, moisture control, etc.
	Quick installation QB series	● Quick installation just by drilling a hole in a pipe and inserting a nozzle. Spray direction can be adjusted as you like within 50°. Easy maintenance due to quick detachable nozzles. ■ Pre-treatment for painting, water cleaning, etc.

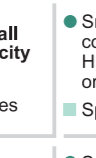
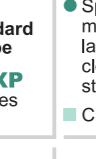

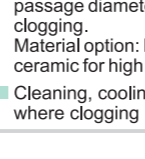
HYDRAULIC SPRAY NOZZLES — CONE SPRAY

[Symbol key] ●: Features ■: Main applications




Hollow Cone Spray Nozzles

	 [Spray pattern]	 Fine fog, ultra-small capacity KB series	<ul style="list-style-type: none"> ● Finest atomization among hydraulic nozzles, with high wear resistant ceramic tip. ■ Humidifying, cooling, spraying, etc. 		 [Spray pattern]	 Fine fog, ultra-small capacity KBN series	<ul style="list-style-type: none"> ● Finest atomization among hydraulic nozzles. Low cost plastic nozzle with ceramic orifice. ■ Cooling, humidifying, dust suppression.
	 [Spray distribution]	 Semi-fine fog, small capacity K series	<ul style="list-style-type: none"> ● Ceramic orifice and closer provide excellent wear-resistance. ■ Humidifying, cooling, spraying, etc. 		 [Spray pattern]	 Semi-fine fog, small capacity KKBP series	<ul style="list-style-type: none"> ● Unique whirler design with large free passage diameter minimizes clogging. Easy maintenance due to removable whirler. ■ Humidifying, cooling, snow making, etc.
	 [Spray pattern]	 Small capacity KD series	<ul style="list-style-type: none"> ● Semi-fine atomization, compact design with ceramic orifice and whirler for high wear-resistance. ■ Cooling, spraying, etc. 		 [Spray pattern]	 Medium capacity AP-AL92 series	<ul style="list-style-type: none"> ● Stable spray pattern under low pressure. Made of high-alumina ceramic; excellent wear-resistance. ■ Cooling, cleaning, etc.
	 [Spray distribution]	 Medium capacity AAP series	<ul style="list-style-type: none"> ● Stable spray pattern for a wide range of operating pressures. No whirler design minimizes clogging. ■ Cooling, spraying, cleaning, etc. 		 [Spray pattern]	 Large capacity TAA series	<ul style="list-style-type: none"> ● Stable spray pattern under low pressure. Made of silicon carbide; high wear-resistance, lightweight. ■ Spraying in absorber of gas desulfurization equipment, slurry spraying, etc.



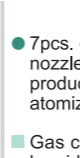
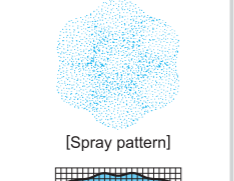
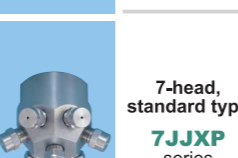
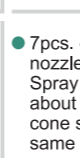
Full Cone Spray Nozzles

	 [Spray pattern]	 Small capacity J series	<ul style="list-style-type: none"> ● Smallest spray capacity among full cone spray nozzles. High wear-resistance due to ceramic orifice and ceramic closer. ■ Spraying, cleaning, cooling, etc. 		 [Spray pattern]	 Quick detachable INJX(-Y) series	<ul style="list-style-type: none"> ● Easy installation without tools, saving maintenance time. ■ Etching, cleaning, etc. * Successor to ISJX(-Y) series
	 [Spray distribution]	 Standard type JJXP series	<ul style="list-style-type: none"> ● Spray capacity ranges from small to medium. X-shaped whirler provides largest free passage for minimal clogging. Available in brass, stainless steel, PVDF. ■ Cleaning, cooling, spraying, etc. 		 [Spray pattern]	 Small capacity JJRP series	<ul style="list-style-type: none"> ● Plastic nozzle with disc whirler, providing uniform distribution at small spray capacity. ■ Pure water cleaning, spraying, etc.
	 [Spray pattern]	 Ceramic orifice & whirler JUP series	<ul style="list-style-type: none"> ● Ceramic disc whirler and ceramic orifice provide excellent wear-resistance. ■ Cleaning, cooling, spraying, etc. 		 [Spray pattern]	 Narrow-angle spray NJJP series	<ul style="list-style-type: none"> ● No whirler; minimal clogging. Unique design to produce narrow-angle full cone spray. ■ Cleaning, cooling, etc.
	 [Spray distribution]	 All alumina JUXP-AL92 series	<ul style="list-style-type: none"> ● Made of high-purity alumina ceramic; excellent wear-resistance. ■ Spraying in absorber of gas desulfurization equipment, slurry spraying, etc. 		 [Spray pattern]	 Clog-resistant AJP series	<ul style="list-style-type: none"> ● No-whirler design with large free passage diameter minimizes clogging. Material option: high-purity alumina ceramic for high wear-resistance. ■ Cleaning, cooling, applications where clogging is a concern.
	 [Spray distribution]	 Large capacity TJJX series	<ul style="list-style-type: none"> ● Large spray capacity, flange connection. ■ Cooling, reacting, spraying, etc. 		 [Spray pattern]	 Wide-angle spray BBXP series	<ul style="list-style-type: none"> ● Spray angle of 120° provides larger spray coverage. ■ Fire extinguishing, cooling, spraying, etc.

Square Spray Nozzles

	 [Spray pattern]	 Square spray SSXP series	<ul style="list-style-type: none"> ● Square spray pattern with uniform distribution, which leaves no gaps in multiple-nozzle arrangements. ■ Cleaning, cooling, spraying.
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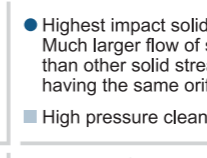

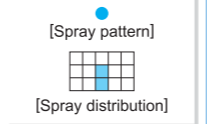

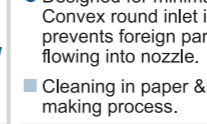
Special Full Cone Spray Nozzles

	 [Spray pattern]	 7-head, fine fog 7KB series	<ul style="list-style-type: none"> ● 7pcs. of KB hollow cone spray nozzles with compact adaptor produce large volume of fine atomization. ■ Gas cooling, moisture control, humidification.
	 [Spray pattern]	 7-head, standard type 7JJXP series	<ul style="list-style-type: none"> ● 7pcs. of JJXP full cone spray nozzles with compact adaptor. Spray droplet diameter is about half the size of other full cone spray nozzles having the same spray capacity. ■ Gas cooling, dust suppression, etc.

HYDRAULIC SPRAY NOZZLES — SOLID STREAM

[Symbol key] ●: Features ■: Main applications

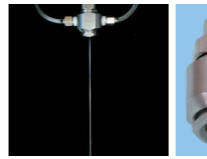
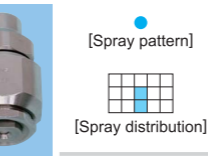


Solid Stream Spray Nozzles

	 [Spray pattern]	 Standard type CP/CCP series	<ul style="list-style-type: none"> ● Highest impact solid stream. Much larger flow of solid stream than other solid stream nozzles having the same orifice diameter. ■ High pressure cleaning. 		<ul style="list-style-type: none"> ● Extra fine solid stream with high impact cutting force. Spray orifice available in alumina ceramic or tungsten carbide. ■ Paper trimming, cleaning of precision machine parts, food cutting, etc.
	 [Spray distribution]	 Convex round inlet CRP(AL99)/CCRP series	<ul style="list-style-type: none"> ● Designed for minimal clogging. Convex round inlet inside pipe prevents foreign particles from flowing into nozzle. ■ Cleaning in paper & pulp making process. 		

Multiple-orifice Solid Stream Spray Nozzles

	 [Spray pattern]	 Multiple-orifice solid stream 2CP/2CCP series	<ul style="list-style-type: none"> ● Multiple solid streams with high impact force. 2-orifice and 7-orifice types are available. Compact design. ■ Bottle washing, cleaning dandy rolls and returnable containers, etc.
	 [Spray pattern]	 Multiple-orifice solid stream 7CP/7CCP series	





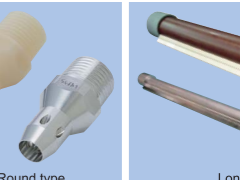
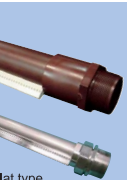
Special Solid Stream Spray Nozzles

	 [Spray pattern]	 ON/OFF spray control SO-CM series	<ul style="list-style-type: none"> ● Quick spray ON/OFF function, regulated by pilot air ON/OFF, which prevents dripping after spraying stops. ■ Trimming, cutting, marking, etc. * For flat spray, SO-V series is available. 		Pipe cleaning RSP series
			<ul style="list-style-type: none"> ● Cleans inside pipes and tubes, moves by spraying high-impact solid stream jets in different directions as driving force. ■ Cleaning inside pipes/drains/tubes, removing scale and dirt inside tubes of heat exchangers and cooling machines. 		

SPECIAL PURPOSE NOZZLES






Air Nozzles

TAIFUJet series

					
For compressors			For blowers		

● Takes in surrounding air, boosting the volume of powerful air flow. Available in stainless steel or plastic.
■ Blow-off drying/dust, cleaning, cooling, etc.


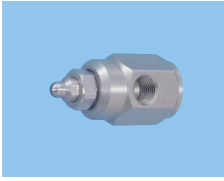

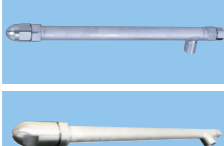


Special Purpose Nozzles / Accessories

				
<ul style="list-style-type: none"> ● Slit nozzles with thin laminar flow of water or air. 	<ul style="list-style-type: none"> ● Spray capacity is variable without changing spray pressure. Single/multiple-head, single/multiple-orifice type. 	<ul style="list-style-type: none"> ● Compact rotating nozzle; rotates by cleaning liquid force only. Ideal for tank cleaning, CIP cleaning. 	<ul style="list-style-type: none"> ● Spouts out 3-4 times the supplied amount. Ideal for solution agitation. 	<ul style="list-style-type: none"> ● Adaptor for adjusting spray direction. Metal or plastic.




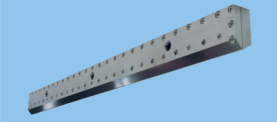

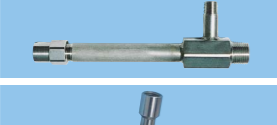

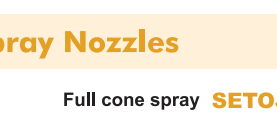
PNEUMATIC SPRAY NOZZLES

[Symbol key] ●: Features ■: Main applications



Fine Fog Spray Nozzles

		<p>Small capacity BIM series CBIM series</p>	<ul style="list-style-type: none"> ● Fine atomization with mean droplet diameters 10–50µm. Unique, minimal-clogging design. Available in flat/full cone/hollow cone spray pattern. Spray can be regulated by turning compressed air ON/OFF with controlling adaptors. ● CBIM nozzles: Ultra compact, one fourth (1/4) of BIM nozzle in volume. <p>■ Spraying, cooling, moisture control, washing, etc.</p>
		<p>Medium / Large capacity GBIM series</p>	<ul style="list-style-type: none"> ● Large spray capacity, low air-water ratio. Produces fine atomization with multistage atomization mechanism. <p>■ Gas cooling tower in waste incineration plant.</p>
		<p>Medium / Large capacity GSIIM II series</p>	<ul style="list-style-type: none"> ● Large spray capacity, low air-water ratio. Simple structure, easy maintenance. <p>■ Gas cooling tower in waste incineration plant.</p>
		<p>Impinging-atomization AKIJet series</p>	<ul style="list-style-type: none"> ● Atomized droplets are impinged against each other at optimum condition, which results in uniform distribution of droplet size. <p>■ Moisture control, combustion, cooling, etc.</p>




Semi-Fine, Semi-Coarse Fog Spray Nozzles

		<p>High impact, flat spray VVEA series</p>	<ul style="list-style-type: none"> ● Thin and sharp spray pattern with high impact. Stable spray angle over large turndown ratio. <p>■ Precision cleaning.</p>
		<p>Slit nozzles PSN series</p>	<ul style="list-style-type: none"> ● Pneumatic slit nozzles providing uniform spray in the total width. Achieve higher spray impact by installing closer to the object. <p>■ Glass substrate cleaning, etc.</p>
		<p>Flat spray DOVEA series</p>	<ul style="list-style-type: none"> ● Secondary cooling nozzles developed to satisfy crucial requirements for spray nozzles in continuous casting processes in steel making. Minimal variation in spray angle, spray distribution and droplet size over a large turndown ratio. A large free passage diameter. DOVEA series for flat spray pattern, DDA for oval spray, JJA for full cone spray.
		<p>Oval spray DDA series</p>	
		<p>Full cone spray JJA series</p>	

Clog-resistant Spray Nozzles

	<p>Full cone spray SETOJet series</p> <ul style="list-style-type: none"> ● Pneumatic spray nozzle specially designed for spraying viscous liquid. Clog-resistant design. External mixing type that air and liquid are mixed outside nozzle for atomization. ● Spraying viscous liquid (oil, lubricant, etc.) or slurry. <p>* Solenoid-activated type (SETO-SD series) is also available.</p>		<p>Wide-angle flat spray YYA series</p> <ul style="list-style-type: none"> ● Combines "clog-resistant" and "wide spray angle" features. Capable of spraying viscous liquid up to approx. 300cP. <p>■ Compact design.</p> <p>■ Spraying viscous liquid (oil, honey, etc.)</p>
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Blower-Air Driven, Ultra-Low Pressure Spray Nozzles

		<p>Fine fog, flat spray BAVV series</p> <ul style="list-style-type: none"> ● Flat spray pattern, fine atomization with mean droplet diameter of 40µm or more. Energy-saving for blower-use. Low running cost. Large free passage diameter. <p>■ Steel plate cooling, cleaning, etc.</p>		<p>Semi-fine fog LSIM series</p> <ul style="list-style-type: none"> ● Semi-fine atomization by applying blower air pressure. Saves on installation and running cost due to utilizing blower air for atomizing. <p>■ Gas cooling, etc.</p>
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Steam-Driven Spray Nozzles


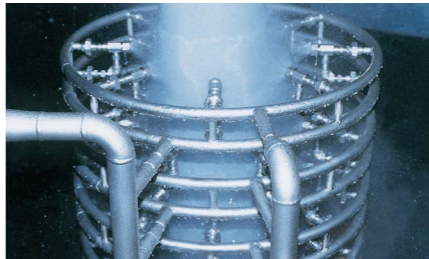
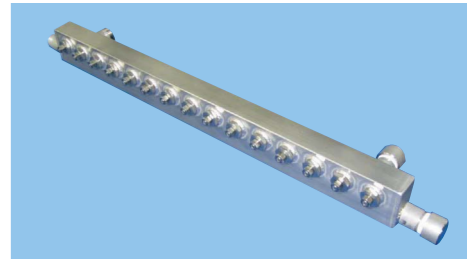
		<p>Steam-driven JOKIJet series</p>	<ul style="list-style-type: none"> ● Atomization by steam instead of compressor air. Drastic saving on running cost. <p>■ Gas cooling, moisture control.</p>
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SPRAY NOZZLES HEADER / APPLIED EQUIPMENT

Hydraulic Spray Nozzle Header

<p>BRASIKan series</p>  <ul style="list-style-type: none"> ● Spray header with inner brush, which clears the clog by turning a handwheel. 	<p>MOMOJet Spray Header</p>  <ul style="list-style-type: none"> ● Spray header with MOMOJet®, purging foreign particles by reducing the pressure. 	<p>CVVP Spray Header</p>  <ul style="list-style-type: none"> ● Coin-shaped CVVP nozzles set in header without bulge. Space-saving.
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Pneumatic Spray Nozzle Header

<p>BIM Spray Header</p>  <ul style="list-style-type: none"> ● Integrated BIM fine fog spray header combining air and water pipes into one rectangular header. Compact and easy installation. 	<p>Ring Header</p>  <ul style="list-style-type: none"> ● Ring header equipped with pneumatic nozzles, providing uniform spray from all directions. 	<p>VVEA Spray Header</p>  <ul style="list-style-type: none"> ● Integrated VVEA high impact spray header combining air and water pipes into one rectangular header. Compact and easy installation.
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Related Products Applying Nozzles

<p>LYOHM System for outdoor cooling</p>  <ul style="list-style-type: none"> ● Energy-saving, outdoor cooling system with Semi-Dry Fog®, which provides effective evaporative cooling effect without wetting people. 	<p>Fog cooling fan COOLJetter.</p>  <ul style="list-style-type: none"> ● Combined unit of a fan and nozzles that can blow Semi-Dry Fog® further and broader using fan wind. Ideal for cooling and dust suppression. 	<p>Auto Reverse Self-cleaning Filter ARS Filter</p>  <ul style="list-style-type: none"> ● Auto reverse self-cleaning by powerful jet spraying. Water saving and minimal maintenance.
<p>Dry Fog Humidifier AKIMist®"E"</p>  <ul style="list-style-type: none"> ● Compact, high efficiency humidifier that produces a large volume of Dry Fog (non-wetting fog). Energy-saving design. 	<p>Industrial humidification system AirAKI.</p>  <ul style="list-style-type: none"> ● The world's first humidification system that guarantees the target humidity using the highest quality Dry Fog. 	<p>Cooling System</p>  <ul style="list-style-type: none"> ● Industrial cooling solution for solid and gas, offered by our "Cooling Division".