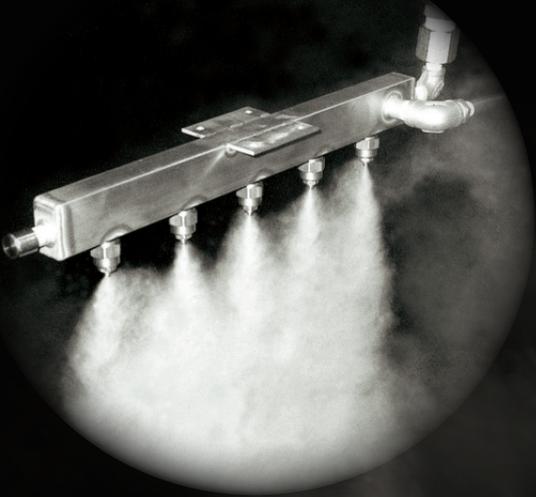


23VC



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

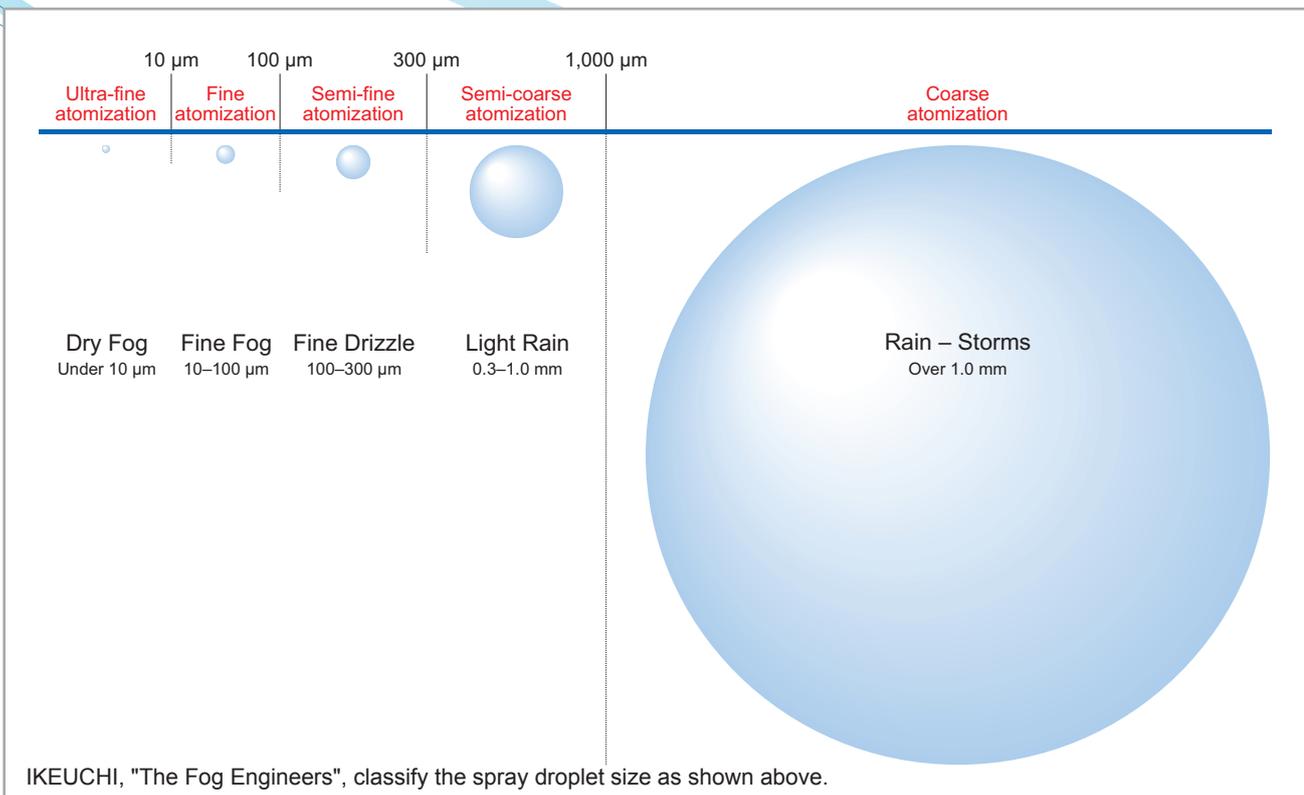
Spray Nozzle Products for **Automotive** Manufacturing



Proven technology creating a new era for the automotive industry

Cleaning, cooling, dust suppression, humidification, air blowers, and more for production facilities with increasingly diverse and complex needs... Meeting the ever growing requirements to save energy, water and electricity, to recycle and protect the environment.

Automotive manufacturing is a key industry in today's economy and has a large number of high-tech needs. H. IKEUCHI & CO., LTD. has decades of experience in research and developing industrial spray nozzles and nozzle-related systems. Our Fog Engineers have a proven performance record, the know-how and technology to meet the constantly changing needs in this industry.



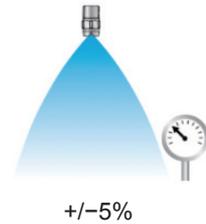
This classification is based on the spray droplet size, by measuring the spray droplet diameter with the immersion sampling method. If the Sauter mean droplet diameter measured with the immersion sampling method equals 1, the value will be 0.7-0.9 when measured with the laser Doppler method.

Spray Nozzle Precision Guarantee

All IKEUCHI's precision-made hydraulic spray nozzles are guaranteed for spray capacity and spray angle. This guarantee covers metal, plastic, and ceramic nozzles.

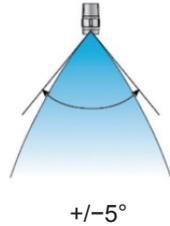
Spray Capacity Tolerance

Guaranteed within +/- 5% of the rated spray capacity under standard pressure.



Spray Angle Tolerance

Guaranteed within +/- 5 degrees of the rated spray angle under standard pressure. The spray angle gives the angle of the spray measured near the nozzle, unless otherwise specified.



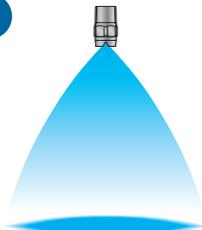
Spray Angle Tolerance for Solid Stream Nozzles

The solid stream spray nozzles are guaranteed for the axis of spray direction to be within 3 degrees from the nozzle body centerline under standard pressure.



Spray Pattern

Standard pressure, or design pressure, is defined as the most commonly used liquid pressure for each hydraulic spray nozzle series. Our nozzles are designed to provide the specified spray capacity, spray angle, optimal spray pattern (horizontal cross sectional shape of the spray), and spray distribution at each standard pressure. We also set our own inspection standard for spray pattern. Each pneumatic spray nozzle series also has a spray capacity inspection standard at each standard pressure. Only the nozzles that pass the inspection will be shipped.



Note:

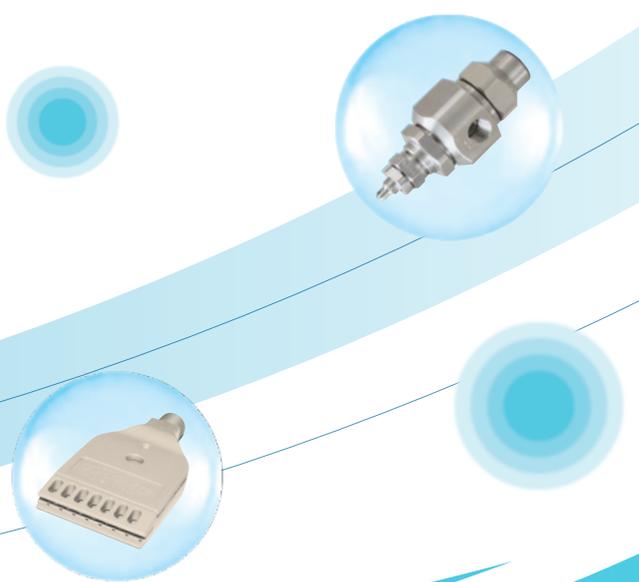
- 1) The values in this catalog are based on tap water at room temperature and the liquid pressure is measured immediately before the nozzle.
- 2) This guarantee does not cover air nozzles. The air consumption, or volume of blown air, shown in this catalog is for reference only.
- 3) EJX series ejector nozzles are guaranteed only for the spray capacity at standard pressure.

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- | Spray Nozzle Uses in Automotive Manufacturing Processes p.3
- | How to Read This Catalog p.4
- | Cooling Units and Systems p.5
- | Humidification Units and Systems p.7
- | Spray Nozzles and Related Products p.9
- | BIM Series Pneumatic Fine Fog Spray Nozzles p.10
- | AKIMist "E" Dry Fog Humidifiers p.14
- | SETO-SD Series Solenoid-activated Pneumatic Spray Nozzles p.16
- | QB Series Quick-installation Flat Spray Nozzles p.18
- | EJX Series Ejector Nozzles for Solution Agitation p.20
- | TAIFUJet and SLN Series Air Nozzles p.22
- | CCP-A Series Solid Stream Air Nozzles p.25
- | ARS Filter / Auto Reverse Self-cleaning Filter p.26

Appearance and dimensions may differ slightly depending on material and product code.

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

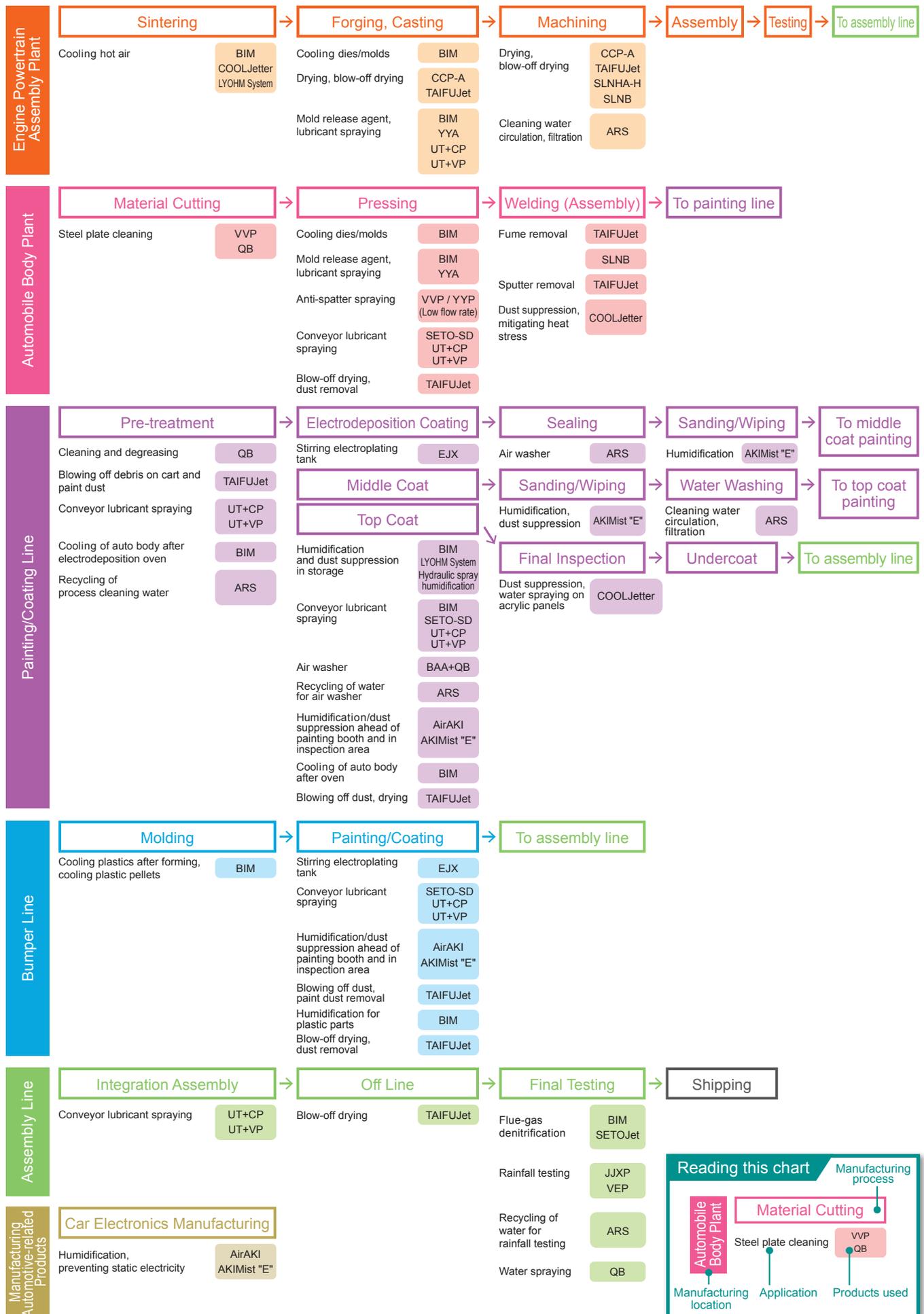


3D/2D CAD models of IKEUCHI's products can be previewed and downloaded for free on the PARTcommunity website. IKEUCHI is continuously adding CAD models to its library for the convenience of our customers.

https://ikeuchi.partcommunity.com/3d-cad-models/?languageIso=en&info=ikeuchi/metric_unit



Spray Nozzle Uses in Automotive Manufacturing Processes



How to Read This Catalog

Scan this 2D bar-code for information of proper pipe size for water flow rate, and conversion of units including the pressure, flow rate and length.



Cooling Units and Systems, Humidification Units and Systems

...p.5-8

The management of manufacturing process systems must be more precise to produce even higher quality products. IKEUCHI introduces cooling and humidification systems and units that make the complexities of system management more user-friendly.

Spray Nozzle Product Line, Related Products

...p.9

This section introduces the applications, features and performance charts of the most typically used spray nozzles and products. For more information and other commonly used spray nozzles, please refer to the general catalog.

Example of Products Page

Engine/Powertrain

Auto body

Solid Stream Air Nozzles

CCP-A series



Round type

Blow pattern

- Compressor air nozzle.
- Delivers a single solid precision air jet stream concentrated on one point.
- Four models available with different blowing powers, ranging from 1.0 to 2.5 mm in orifice diameters.
- Cost effective nozzle for use in large quantities.

Applications

Casting

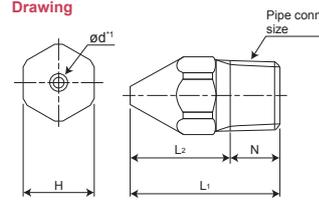
Forging

Machining

Pressing

- Blow-off drying in casting process
- Drying/ Blow-off drying in machining process

Drawing



Pipe conn. size

Pipe Conn. Size	Outer Dimensions (mm)				Weight (g)
	L ₁	L ₂	H	N	
R1/8	21	14	10	7	7.5
R1/4	30	19.5	14	10.5	19

*) ød = orifice diameter: 1.0, 1.5, 2.0, or 2.5 mm

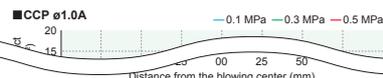
Noise Level at a distance of 1,000 mm
Background noise: 46 dBA

Orifice Diameter Code	Pressure (MPa)	Noise Level (dBA)	Orifice Diameter Code	Pressure (MPa)	Noise Level (dBA)
	0.3	66		0.3	84
	0.5	71		0.5	89

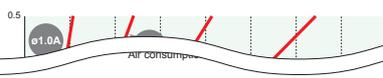
Material: S303
Max. air pressure: 1.0 MPa
Max. temperature: 400°C

Download 3D/2D CAD file

Blowing Impact Distribution at 100 mm below the nozzle orifice



Air Consumption



How to Order To inquire about or order a specific product please refer to this coding system.

Example: 1/8M CCP ø1.0A S303

1/8M

Pipe Connection Size

■ 1/8M

■ 1/4M

CCP

Orifice Diameter Code

■ ø1.0A

■ ø1.5A

■ ø2.0A

■ ø2.5A

ø1.0A

Orifice Diameter Code

■ ø1.0A

■ ø1.5A

■ ø2.0A

■ ø2.5A

S303

Material

*) "M" indicates male thread ("R" of the ISO standard), e.g. 1/4M = R1/4.

- 1 Product types, series
- 2 Photo of products
- 3 Main features of products
- 4 Main process where the products are used
- 5 Production site/process where the products are used, main applications
- 6 Spray pattern, dimensional drawing, materials, specifications, etc.
The unit for dimension is millimeter.

Materials are described as follows in this catalog:

	Description	Name of materials
Metal	S303	Stainless steel 303
	S304	Stainless steel 304
	S316	Stainless steel 316
	S316L	Stainless steel 316L
Rubber	FEPM	Tetrafluoroethylene-propylene rubber
	FKM	Fluororubber
	NBR	Nitrile rubber
	ABS	Acrylonitrile butadiene styrene
Plastic resin	HTPVC	Heat-treated polyvinyl chloride
	PP	Polypropylene
	FRPP	Glass-fiber reinforced polypropylene
	PPS	Polyphenylene sulfide
	PVC	Polyvinyl chloride
	PTFE	Polytetrafluoroethylene

Oil-free options are available at additional cost. Contact us for details.

- 7 How to inquire / order

Threads noted in this catalog are tapered pipe threads unless otherwise specified. The connection thread size and type are described according to the ISO standard. When ordering our nozzles, please specify the thread size using our thread code as shown on the right. For mixed fractions, our thread size code inserts "*" after the whole number, for example "1*1/4M" for "R1 1/4".

Description of thread size and type

Thread type	ISO standard	British standard	Our thread code
Male tapered pipe threads	R1/4	1/4 BSPT male	1/4M
Female tapered pipe threads	Rc1/4	1/4 BSPT female	1/4F

This catalog includes only a part of IKEUCHI's nozzles. For more of the over 42,000 available nozzles please request the catalogs for hydraulic/pneumatic spray nozzles, air nozzles and unit products.

Cooling Units and Systems

Supporting systematic manufacturing management

Converting the conventional spray cooling method into a cooling unit makes it easier to manage processes and production while improving cooling and product quality.

Desired measures and effects

Improved work environment

Cooling workplaces and mitigating heat stress
Reduced cycle times

Measures against uneven cooling, leaks

Improve product quality and productivity
Reduce defects

Reducing costs

Reduce maintenance costs
Improve energy savings

Effective cooling according to application and process



Cooling systems

Managing processes with cooling units, control panels, sensors, etc.

Cooling units

Using cooling nozzles and configurations tailored to your product designs

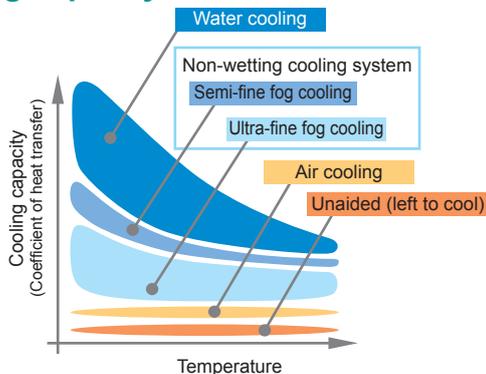
Cooling nozzles

Fine and semi-fine fog atomization ensures uniform cooling without wetting

- Automobile body, bumper, carriage cooling
- Die-casting and molded plastic cooling
- Cooling workplaces and mitigating heat stress
- Cast product cooling
- Dust suppression

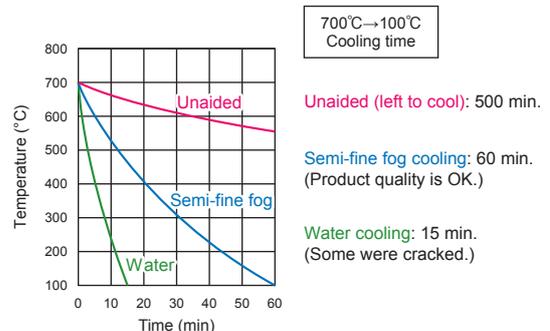
Cooling capacity and performance of cooling system and unit

Cooling capacity



Non-wetting cooling system for green sand mold frame achieves maximum cooling effect without water stains or damaging product quality. It controls the spray time and area with hard cooling and pinpoint cooling.

Cooling performance



With unaided cooling, the product will take too long to cool down and water cooling will lead to inferior product quality. Cooling with semi-fine fog will cool the product faster and without compromising the product quality.

Cast product cooling, Die cooling



- Replacing complicated equipment with small units designed for the die casting process makes installation and management easy.
- Optimized spray flow rate for strong/hard cooling and pinpoint cooling

Results

- Reduced cycle time
- Extended lifespan of dies
- Fewer defects

Product cooling, Auto body cooling



- Uniform spray distribution across entire spray area
- Control the spray time and area with strong focused cooling

Results

- Reduced cycle time
- Reducing uneven cooling
- Improving productivity, reducing defect rates

Work area cooling, Dust suppression

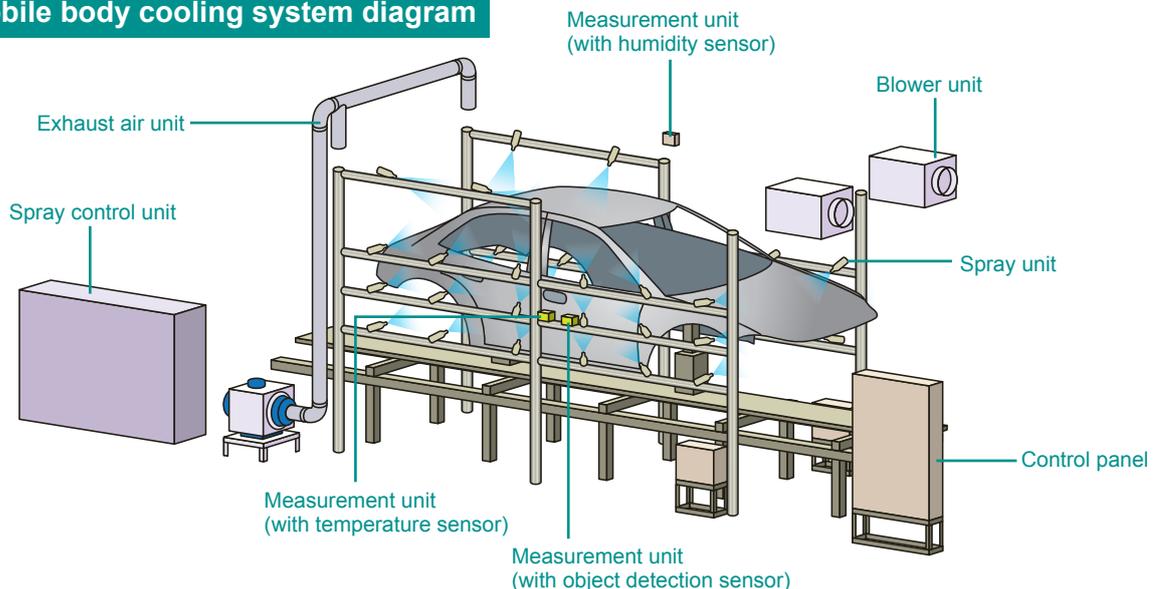


- Cooling off large, high temperature work areas
- Energy-saving cooling in areas where slight wetting does not cause any problems

Results

- Improving work environment
- Mitigating heat stress
- Dust suppression

Automobile body cooling system diagram



Humidification Units and Systems

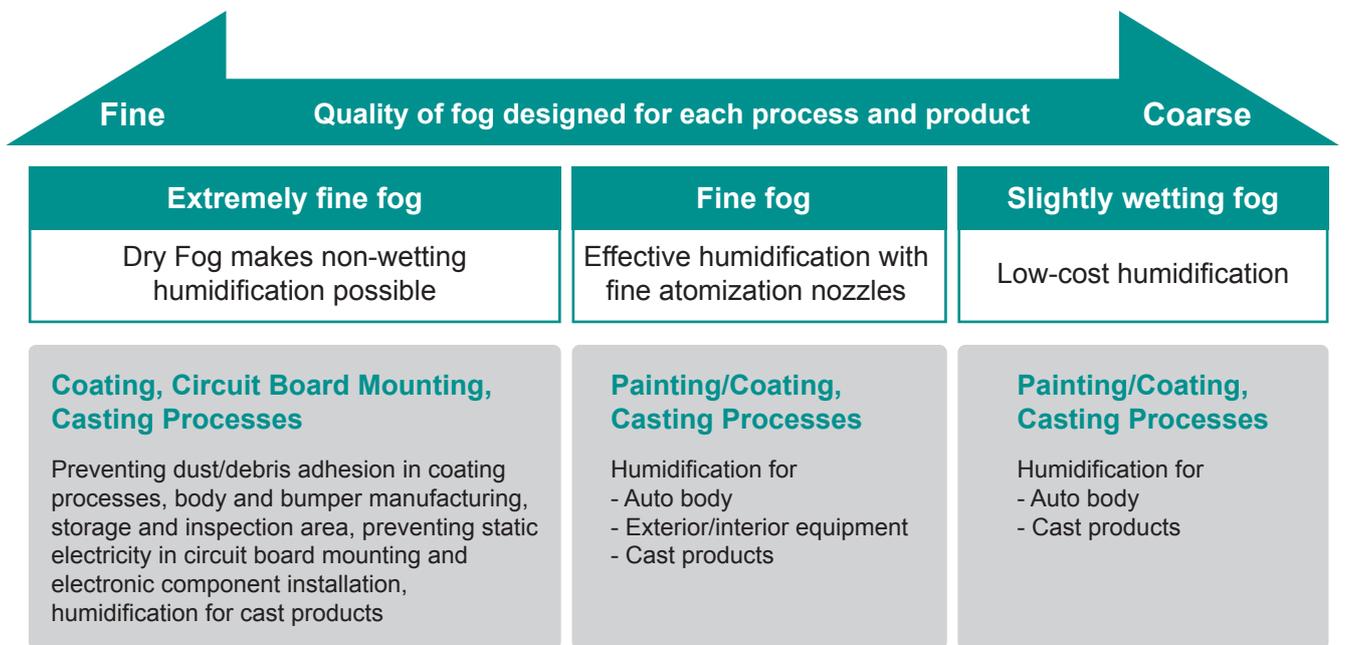
Supporting systematic manufacturing management

As is common knowledge, accurate humidification is essential in the mounting process of electronic components installed in automobiles. Our Dry Fog humidification systems have the best track record in the industry for providing the most suitable humidity environment.

Desired measures and effects

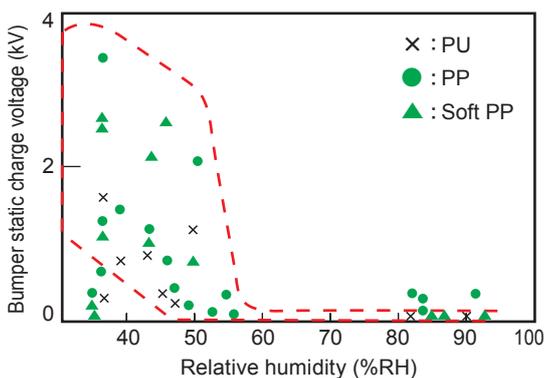
Preventing static electricity	Improved work environment	Reducing costs
Reduce dust/debris adhesion Improve product quality and productivity	Cooling workplaces and mitigating heat stress Reduced cycle times	Reduce maintenance costs Reduce losses by lowering defect rates

Effective humidification according to application and process



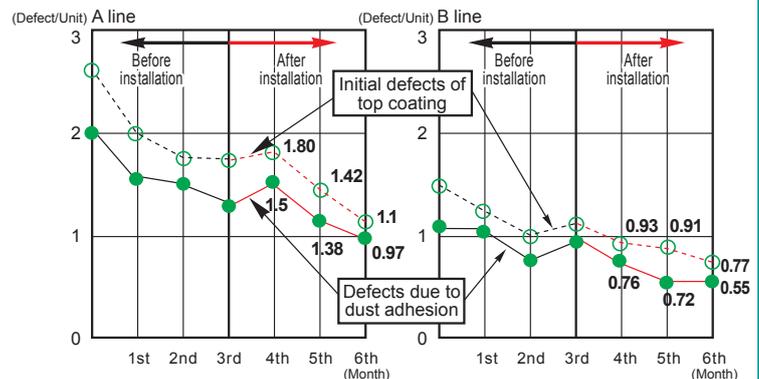
Electrostatic discharge control with humidification systems and its effects

Relation between humidity and electrostatic charge on bumpers



By keeping humidity at 55% RH or higher, the electrostatic charge on bumpers is reduced dramatically.

Reduction of dust adhesion with humidification systems



After installation of humidification system, defects due to dust adhesion and initial defects are reduced.

**Humidification system
AirAKI®**



**Dry Fog humidifier
AKIMist® "E"**

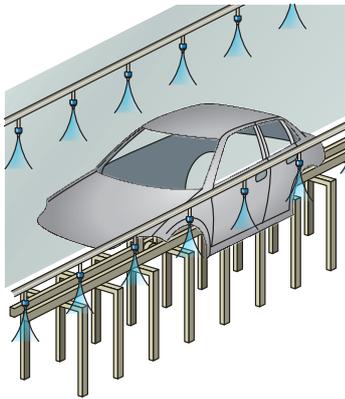


- Humidification systems create and maintain a stable humidity environment year-round
- Maintain the proper level of humidity for assembly processes of printed circuit boards, ECUs, car navigations, power windows, power steering and other electronics devices as well as painting/coating processes.

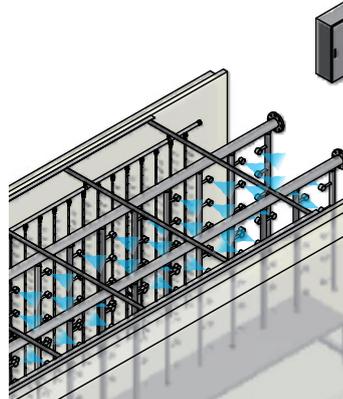
Results

- Reducing dust/debris adhesion
- Reducing pick and place errors
- Improved first run rates

**Hydraulic spray humidification/cooling
LYOHM System®**



Humidification in storage



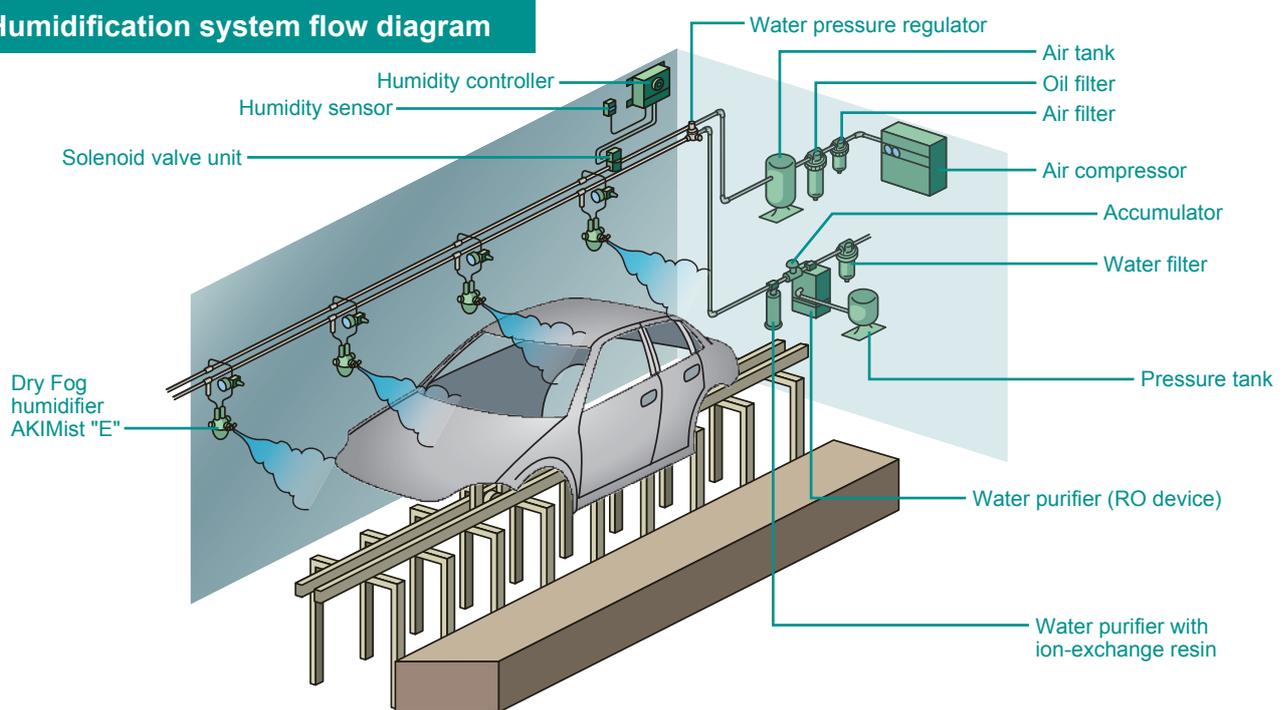
Humidification in air washer

- Hydraulic spray humidification/cooling system produces semi-fine atomization without using air
- Cost-saving humidification/cooling in areas where wetting does not cause any problems
- Prevent airborne dust in storage (spraying water without drenching floor)
- Cooling the work environment

Results

- Large reduction in cooling costs
- Cooling of workspaces
- Fog curtain to prevent spreading of dust at building and paint booth entryways

Humidification system flow diagram

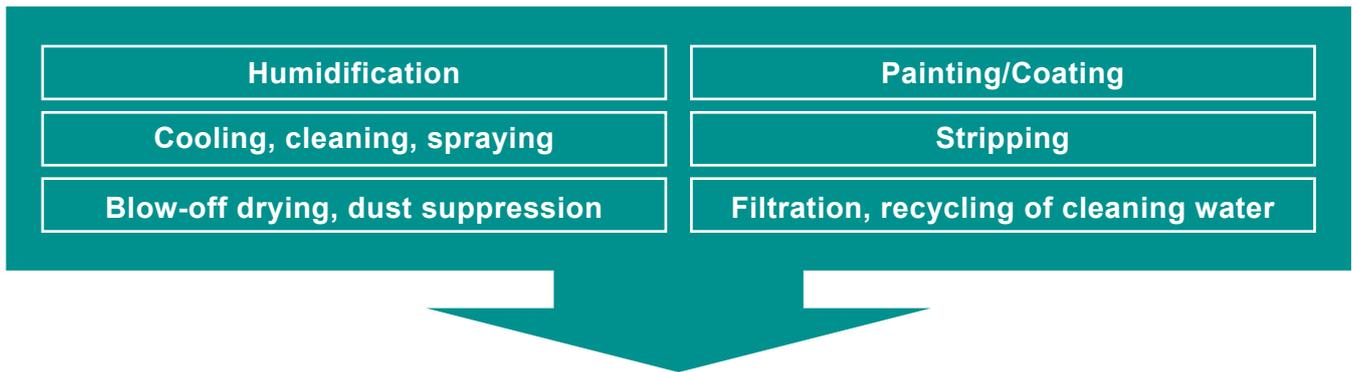


Spray Nozzles and Related Products

High-performance spray nozzles improve production quality, productivity, and precision in processes

IKEUCHI's spray nozzles are extremely important for quality, productivity, and efficiency in manufacturing processes.

Nozzle applications and effects



- Improved productivity, product quality, work efficiency, work environment
- Easy maintenance • Cost reduction
- Saving water, electricity, and energy • Recycling material

Selecting the right nozzle for the job

<p>Pneumatic spray nozzles</p>	 <p>Pneumatic spray nozzles produce extremely fine droplets, especially effective in cooling, humidification, and coating.</p> <p>➔ BIM series, AKIMist "E", SETO-SD series</p>
<p>Hydraulic spray nozzles</p>	 <p>A huge selection of nozzle series for various processes and uses including cleaning, cooling, and spraying.</p> <p>➔ UT+VP, UT+CP series, QB series, EJX series, and other hydraulic spray nozzles</p>
<p>Air nozzles</p>	 <p>Air nozzles not only blow off water, but suppress airborne dust and prevent dust adhesions, effectively lowering paint defects.</p> <p>➔ TAIFUJet, CCP-A series, SLNHA-H series, SLNB series</p>
<p>Related products</p>	 <p>Effective measures for recycling process water, removing impurities, and especially interesting when clean water resources are limited.</p> <p>➔ Auto Reverse Self-cleaning Filter ARS series</p>

Nozzles with Superior Controllability Solve Problems

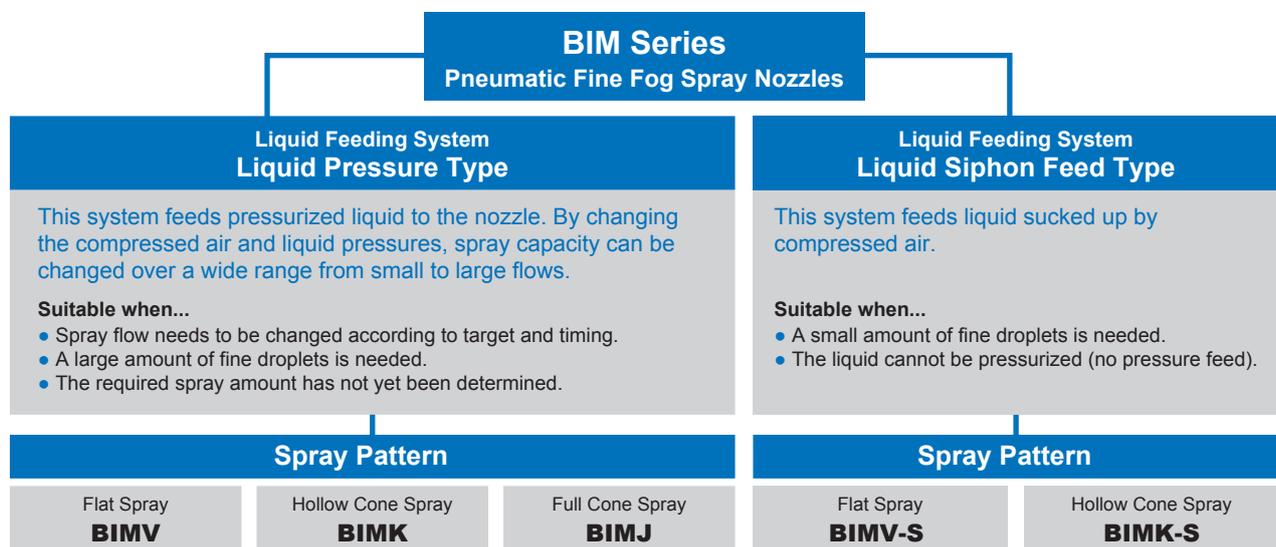
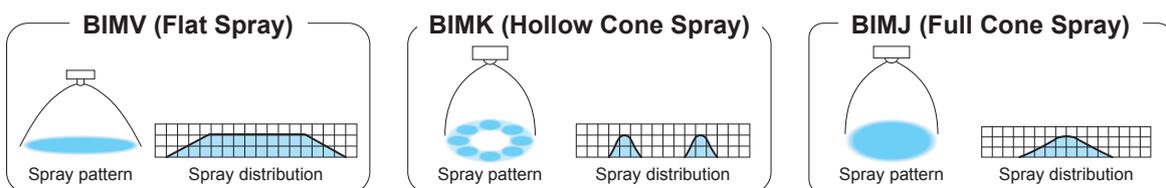
Pneumatic Fine Fog Spray Nozzles: BIM Series

BIM series nozzles have a wide range of control patterns and meet the needs of various uses and conditions. This pneumatic spray nozzle series produces extremely fine atomization with a mean droplet diameter of 20–100 μm. Accommodating a wide range of operating conditions, from fully or slightly wetting to non-wetting spray, the BIM series is particularly well-suited to the demands of the automotive manufacturing industry.

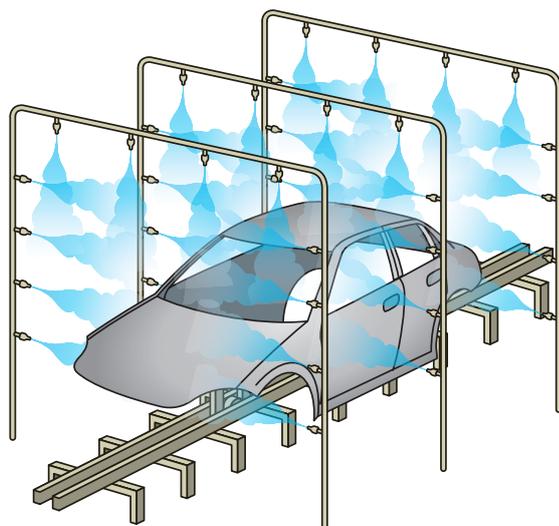


Features of the BIM series

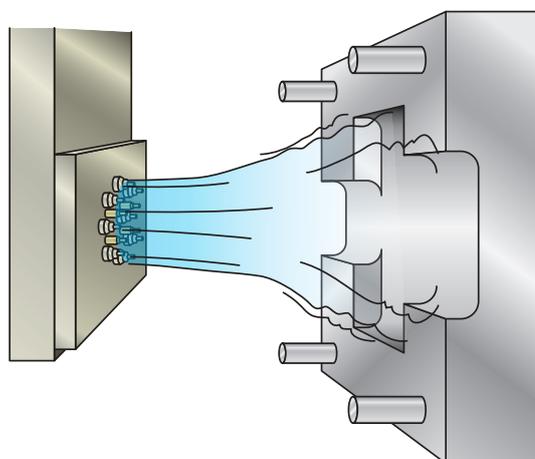
- 1 High Performance**
The BIM series produces excellent atomization resulting in higher product quality.
- 2 Easy Maintenance, Uninterrupted Use**
Unique clog-resistant design makes long and continuous spraying possible.
- 3 Diversity**
Three types of spray patterns and two types of liquid feeding systems with various header configurations allow arrangements suited for a wide range of uses.
- 4 Cost Reduction**
The BIM series has fewer parts, which allows for easier maintenance and lower price.
- 5 Spray Patterns in 3 Types**
Available in three spray patterns, flat spray (BIMV/BIMV-S), hollow cone spray (BIMK/BIMK-S), and full cone spray (BIMJ).



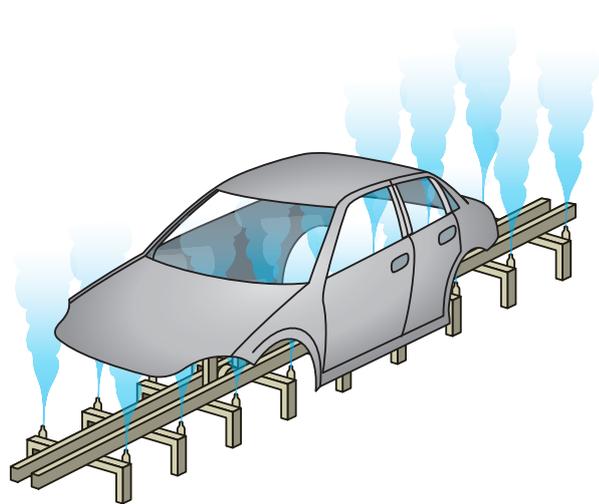
Examples for Uses of the BIM Nozzles



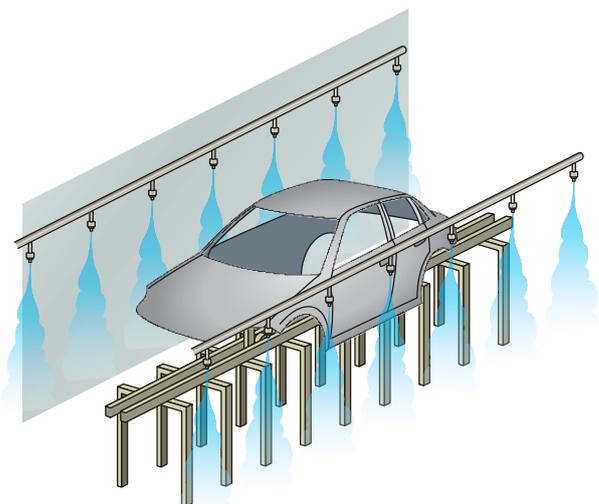
Automobile body cooling



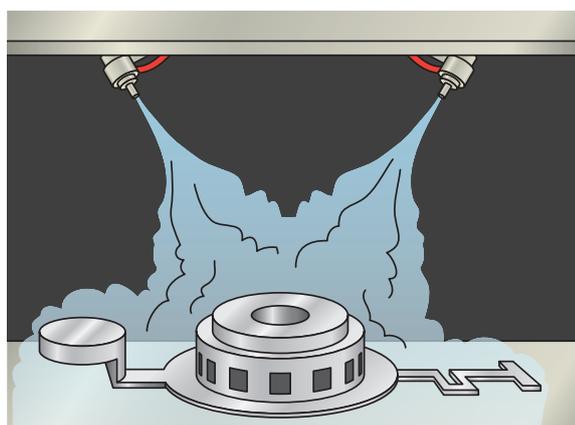
Mold release agent spraying system



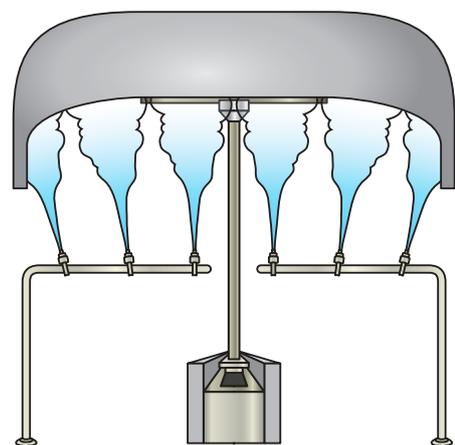
Carriage cooling



Humidification in storage



Cooling of castings



Cooling of bumpers

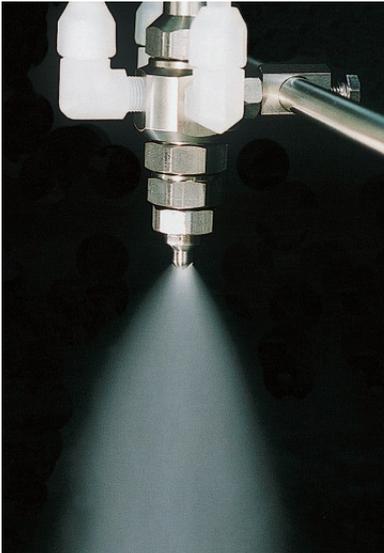
Engine/Powertrain

Auto body

Painting

Bumper

Assembly



Download 3D/2D CAD file

- Produces fine atomization with a mean droplet diameter of 100 um or less (measured by laser Doppler method).
- Unique design with reduced number of parts greatly minimizes clogging, allowing for easy maintenance and lower costs.

Structure

- Four-part structure: Nozzle tip, core, cap, and adaptor.*1

Material

- S303, PP (PP is available only for BIMV80075 and BIMJ2004)
Optional material: S316L

Applications

- Sintering plant
- Casting
- Forging
- Pressing
- Electrodeposition
- Storage
- Middle coat
- Top coat
- Molding
- Bumper painting
- Final testing

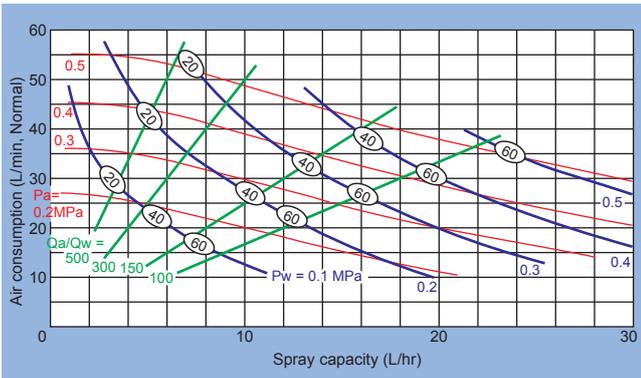
- Cooling auto bodies, metal castings, dies in casting and coating processes
- Spraying release agent, lubricant, and anti-rust oil in forging, casting, and press processes
- Humidification and dust suppression in storage areas
- Dust suppression, humidification before the booth, cooling after the oven in painting/coating processes
- Cooling plastics after forming, cooling plastic pellets
- Cooling hot air from sintering and improving work environment (heat reduction)

How to read the chart

- ① The spray capacity shown is for one nozzle.
- ② Red lines (—) represent compressed air pressure Pa in MPa.
Blue lines (—) represent liquid pressure Pw in MPa.
Green lines (—) represent air-water ratio Qa/Qw.
- ③ Numbers in ovals ○ indicate Sauter mean droplet diameters (μm) measured by laser Doppler method.
- ④ This flow-rate diagram is applicable to adaptor types of T and N only.*1

Flow-rate Diagram

BIMV8004



BIMV Performance Chart (Excerpt from Pneumatic Spray Nozzle Catalog)

Liquid pressure type BIMV (Flat spray)

Spray Angle Code ²⁾	Air Consumption Code	Air Pressure (MPa)	Spray Capacity (L/hr) / Air Consumption (L/min, Normal)					Spray Width (mm) ³⁾			Mean Droplet Dia. (μm)	Free Passage Diameter (mm)			
			Liquid Pressure (MPa)					Liquid Pressure (MPa)				Laser Doppler Method	Tip Orifice	Adaptor	
			0.1	0.15	0.2	0.25	0.3	0.1	0.15	0.25				Liquid	Air
80	02	0.2	2.2 / 14	5.3 / 11	—	—	—	200	260	—	20-100	0.3	0.9	0.7	
		0.3	1.0 / 20	2.5 / 19	4.6 / 17	8.3 / 12	14.3 / 7	170	210	300					
		0.4	—	1.4 / 25	2.3 / 24	4.0 / 23	6.3 / 20	—	200	250					
	04	0.2	4.5 / 25	9.5 / 20	17.0 / 13	—	—	200	260	—	20-100	0.4	0.9	0.9	
		0.3	2.0 / 36	4.7 / 35	8.5 / 31	13.1 / 27	19.6 / 20	170	210	310					
		0.4	—	2.8 / 45	4.8 / 44	7.7 / 41	11.4 / 37	—	200	260					
075	0.2	8.7 / 51	18.4 / 42	33.3 / 29	—	—	200	270	—	20-100	0.6	1.2	1.4		
	0.3	4.0 / 74	8.8 / 71	15.5 / 64	24.3 / 54	38.5 / 40	170	210	310						
	0.4	—	5.6 / 91	9.1 / 89	14.8 / 82	21.8 / 74	—	200	260						
15	0.2	16.8 / 107	34.8 / 90	64.4 / 60	—	—	210	280	—	20-100	0.9	1.8	1.9		
	0.3	8.0 / 150	17.7 / 144	30.8 / 130	50.0 / 108	74.5 / 87	180	220	320						
	0.4	—	11.2 / 190	18.3 / 183	29.1 / 172	42.9 / 154	—	200	270						
22	0.2	22.3 / 140	45.6 / 116	92.1 / 77	—	—	210	280	—	20-100	1.1	2.1	2.2		
	0.3	11.5 / 200	23.9 / 189	41.3 / 169	68.5 / 138	107 / 103	180	220	330						
	0.4	—	15.3 / 245	24.5 / 238	39.1 / 220	57.7 / 198	—	210	280						

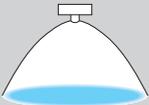
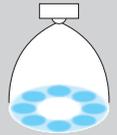
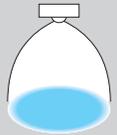
*2) Spray angle measured at compressed air pressure of 0.3 MPa and liquid pressure of 0.1 MPa. *3) Measured at a spray distance of 100 mm from nozzle.

How to Order

For specifications of BIMV flat spray nozzles with other spray angle codes, BIMJ full cone spray nozzles and BIMK hollow cone spray nozzles, please refer to our pneumatic spray nozzle catalog.

*1) See our pneumatic spray nozzle catalog for details of adaptors, including materials of each part.

BIM Series Specifications (Excerpts)

Nozzle Type	Series	Spray Angle Code*2	Compressed Air Pressure (MPa)	Spray Capacity (L/hr)*4	Air Consumption (L/min, Normal)*4	Mean Droplet Diameter (µm) by Laser Doppler Method	Spray Pattern
				Liquid Pressure (0.1–0.3 MPa)			
Low Flow Rate Flat Spray	BIMV	110, 80, or 45	0.2–0.4	1.0 – 107	7 – 245	20–100	
Compact type Low Flow Rate Flat Spray	CBIMV	110, 80, or 45	0.2–0.4	0.25– 38.5	2.6 – 91	20–100	
Ultra-compact Type Low Flow Rate Flat Spray	SCBIMV	110, 80, or 45	0.2–0.4	0.25– 3.3	2.6 – 12.4	20–100	
Low Flow Rate Hollow Cone Spray	BIMK	60	0.2–0.4	2.0 – 107	13 – 245	20–100	
Compact Type Low Flow Rate Hollow Cone Spray	CBIMK	60	0.2–0.4	2.0 – 38.5	13 – 91	20–100	
Low Flow Rate Full Cone Spray	BIMJ	70 or 20	0.2–0.4	2.0 – 107	13 – 245	20–100	
Compact Type Low Flow Rate Full Cone Spray	CBIMJ	20	0.2–0.4	0.25– 38.5	2.6 – 91	20–100	
Ultra-compact Type Low Flow Rate Full Cone Spray	SCBIMJ	20	0.2–0.4	0.25– 3.3	2.6 – 12.4	20–100	

*4) Spray capacity measured at compressed air pressure of 0.3 MPa and liquid pressure of 0.1–0.3 MPa. Air consumption measured at compressed air pressure of 0.2–0.4 MPa. For details please refer to the pneumatic spray nozzle catalog.

Mounting Bracket (product code: MBW)

- This mounting bracket allows for easy installation of BIM series nozzles to a metal pole/rod in the desired spray direction.
- Available in two sizes for pipe diameters of 8 mm and 10 mm.



BIM Integrated Spray Header

BIM series fine fog spray header integrates air and water pipes in one rectangular header. Compact and easy to install and maintain.



Spray Controller

The controller allows for automated spray control with ON/OFF timer or with signal inputs.



Dry Fog Humidifiers

AKIMist® "E"



- Able to generate a large volume of Dry Fog with a maximum of 9.6 L/hr.
- Each AKIMist can accommodate up to four nozzles.
- Easy maintenance as parts can be detached by hand.
- Dry Fog, spreading over four meters horizontally, can provide effective humidification.

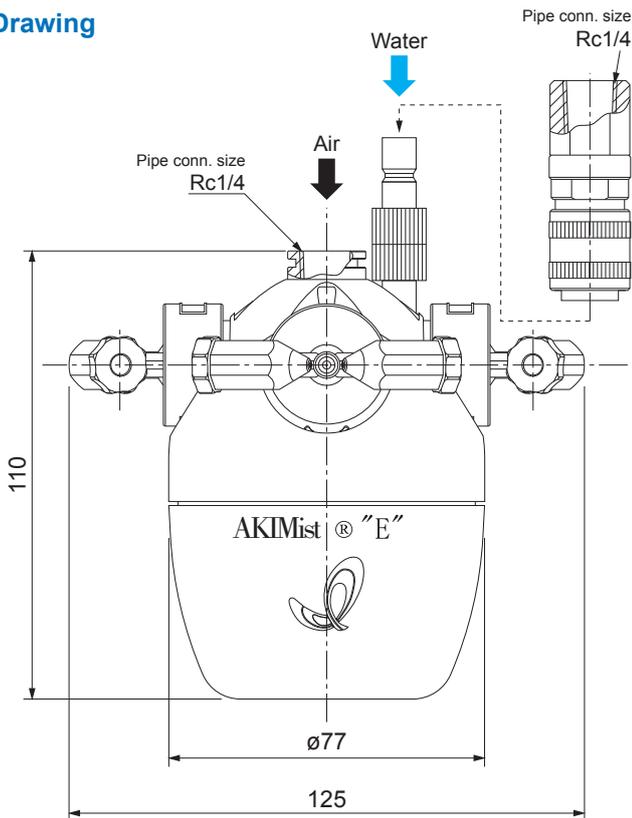
Applications

Painting/Coating Inspection area Storage Bumper painting Manufacturing automotive-related products

- Humidification and dust suppression before painting booth and in inspection areas, during sanding/wiping processes
- Humidification and prevention of static electricity in car electronics manufacturing processes



Drawing



Specifications

Model No.	Number of Nozzles	At air pressure of 0.3 MPa (44 psi)	
		Spray Volume L/hr (GPH)	Air Consumption L/min, Normal (SCFM)
AE-1 (03C)	1	2.4 (0.63)	29 (1.08)
AE-2 (03C)	2	4.8 (1.27)	58 (2.16)
AE-3 (03C)	3	7.2 (1.90)	87 (3.24)
AE-4 (03C)	4	9.6 (2.54)	116 (4.32)

Note:

- 1) Only use with a compressed air pressure of 0.2–0.5 MPa (29–73 psi) and a water pressure of 0.05–0.4 MPa (8–58 psi).
- 2) Before disassembly, close the water valve to prevent water leakage.
- 3) Handle AKIMist with care as its main parts are made of plastic and delicate.

Materials

- Body: PP, S303
- Nozzle: S303, PPS
- Nozzle tip: Plastic
- Other parts: NBR, FKM (O-ring, Packing)

Weight Approx. 340 g (with four nozzles and filled with water)

How to Order

To inquire about or order a specific product please refer to this coding system.

Example: AE-1 (03C) + Hanging-down Kit

To add a pipe connection kit, please specify the type of connection kit.

AE- 1 (03C) + Hanging-down Kit

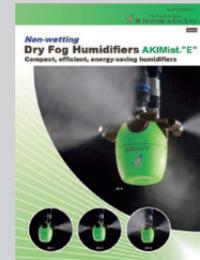
Number of Nozzles

- 1
- 2
- 3
- 4

Type of Pipe Connection Kit

- Wall Mounting Kit
- Hanging-down Kit
- Hanging-down (NP) Kit (w/o plate)

For details, our catalog of AKIMist "E" is available.



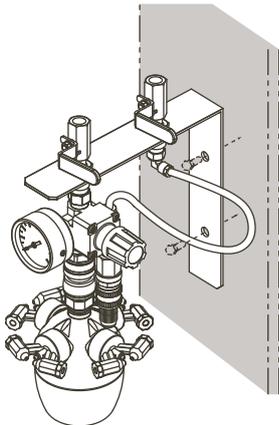
Painting

Bumper

Automotive-related products

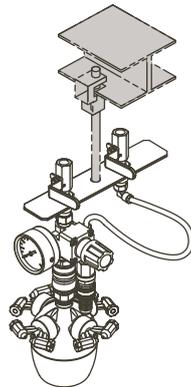
Pipe Connection Kits (optional) for easy installation of AKIMist "E"

Wall Mounting Kit



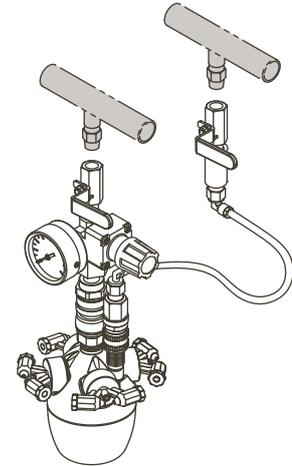
- Bolts to install the mounting plate are not included and need to be supplied by customer.
- The diameter of the holes on the plate is 9 mm.
- Rc 1/4" threaded connection.

Hanging-down Kit



- Bolts and hanging fixture are not included and need to be supplied by customer.
- The diameter of the hole on the plate is 11 mm.
- Rc 1/4" threaded connection.

Hanging-down (NP) Kit (w/o plate)



- Rc 1/4" threaded connection.

Note: Gray parts are NOT included in the kit. These kits come assembled.

Optional Product

AE-UT Adaptor

The AE-UT provides flexibility to adjust the spray direction as needed and is installed between the nozzle and humidifier body. Easy to attach and remove by hand.



Note: Stop spraying before you change the direction.

Portable Dry Fog Humidifier Set

AE-T set

No piping needed. The portable AE-T set comes with a stand and pressure tank and can be used anywhere; it only needs to be connected to compressed air.

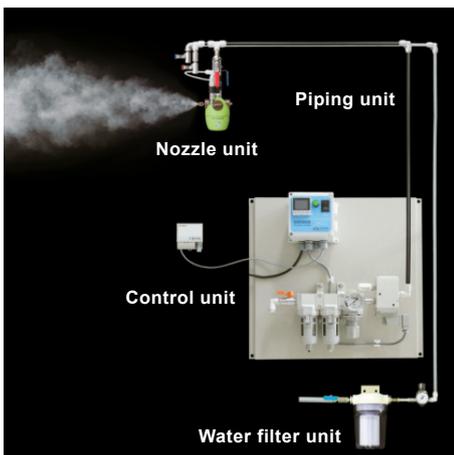


Dry Fog Humidifier Kit

AE-KIT

This easy DIY kit includes all components for efficient humidification.

No complicated setup needed: just supply the electricity and compressed air. High-performance humidification system at affordable price.



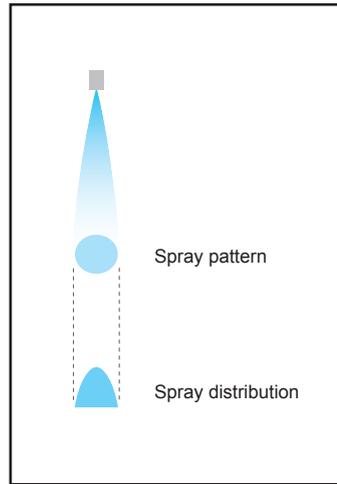
Includes: Nozzle unit, control unit, water filter unit, and piping unit.

One AE-KIT can humidify an 800 m³ area. Please contact IKEUCHI for an inquiry sheet and technical drawing.

Solenoid-activated Pneumatic Spray Nozzles

Made-to-Order

SETO-SD series



- Fast response action with solenoid activation: Intermittent pulse spray with 0.02 sec/shot and as little as 0.006 cc/shot is possible.
- Ideal for applying a small amount of coating with protective agents, etc.
- IP65, IP67 (dust-proof and water-proof) structure.

Applications

Casting Pressing Painting/Coating Bumper painting

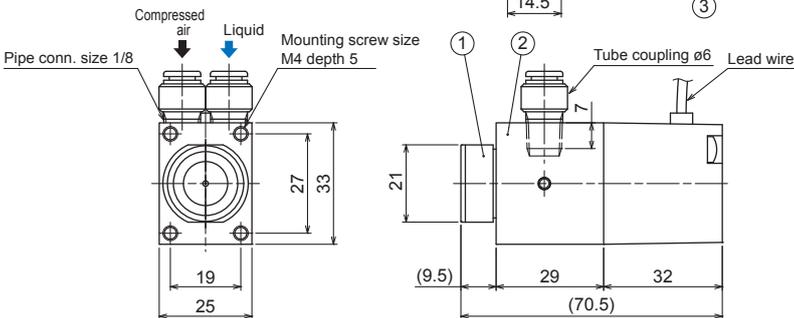
- Spraying release agent in engine chassis and other metal casting processes
- Intermittent spraying with minimal spray amount in paint/coating process
- Spraying conveyor lubricant

Note: As this nozzle includes stainless steel parts, not all liquids can be used. Contact us for details.

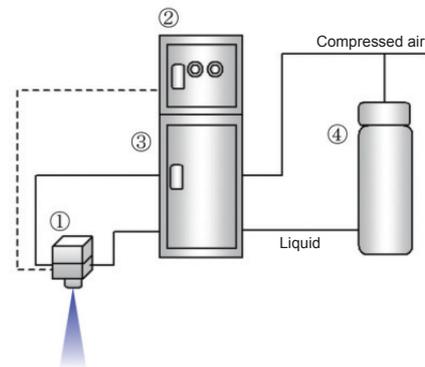
Drawing

Components and materials

No.	Components	Standard materials
①	Nozzle body	Aluminum (tip: S303)
②	Adaptor	Aluminum
③	Solenoid assembly	Various materials



How to Use



No.	Description
①	Solenoid-activated pneumatic spray nozzle
②	Solenoid control panel
③	Pressurized flow control unit
④	Liquid pressurization tank (required only if oil-based release agent is used)

Specifications

Nozzle Code	Air Pressure (MPa)	Spray Capacity (L/hr) / Air Consumption (L/min, Normal) ^{*1}					Spray Width ^{*2} (mm)	Mean Droplet Diameter ^{*3} (μm)	Free Passage Diameter (mm)		Weight (g)
		Liquid Pressure (MPa)							Adaptor		
		0	0.05	0.13	0.2	0.3			Liquid	Air	
07503R-I	0.2	–	–	1.0/50	3.2/48	–	40–50	15–25	0.3	0.4	180
	0.3	–	–	–	0.9/66	4.0/64			0.5	0.1	
	0.4	–	–	–	–	1.9/80			0.7	0.2	
0405R	0.3	2.0/ 36	6.5/ 36	–	–	–			1.0	0.5	
07507R		5.0/ 71	13.9/ 71	–	–	–			–	–	
2210R		10.0/200	26.4/200	–	–	–			–	–	

*1) Spray capacity and air consumption at liquid pressure of 0 MPa (liquid siphon feed) are measured at 100 mm siphon height.

*2) Spray width measured at 100 mm from nozzle.

*3) 07503R- I: Sauter mean diameters measured at compressed air pressure of 0.2 MPa and liquid pressure of 0.13 MPa.

0405R, 07507R, 2210R: Sauter mean diameters measured at compressed air pressure of 0.3 MPa and liquid pressure of 0 MPa (siphon height of 100 mm).

Valve Function	Min. Operating Frequency (sec)	Max. Operating Pressure (MPa)	Current (A)	Voltage (VDC)	Max. Allowable Temperature
Single solenoid, normally closed	ON: 0.02 OFF: 0.02	0.5 for both air/liquid	0.26	24	50°C (120°F)

Engine/Powertrain

Auto body

Painting

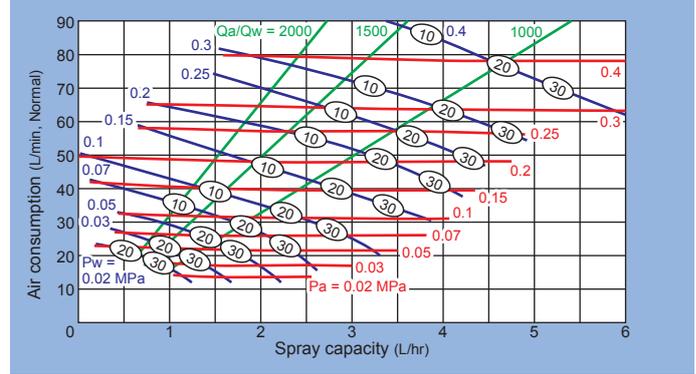
Bumper

Flow-rate Diagram

How to read the chart

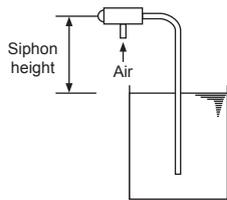
1. The spray capacity shown is for one nozzle.
2. Red lines (—) represent compressed air pressures P_a in MPa.
- Blue lines (—) represent liquid pressures P_w in MPa.
- Green lines (—) represent air-water ratio Q_a/Q_w .
3. Numbers in ovals \bigcirc indicate Sauter mean diameters (μm) measured by laser Doppler method (measured at 300 mm from the nozzle).

SETO07503R-I+SD

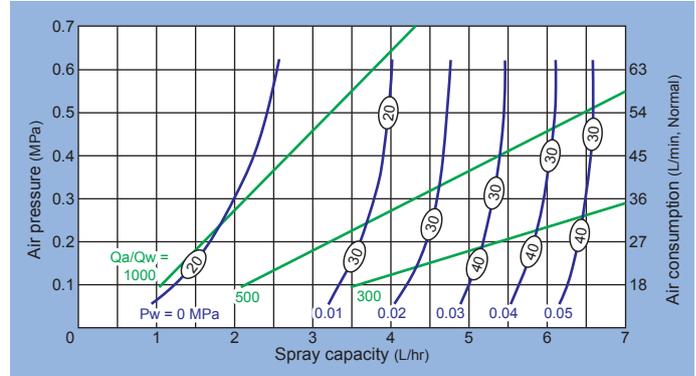


How to read the chart

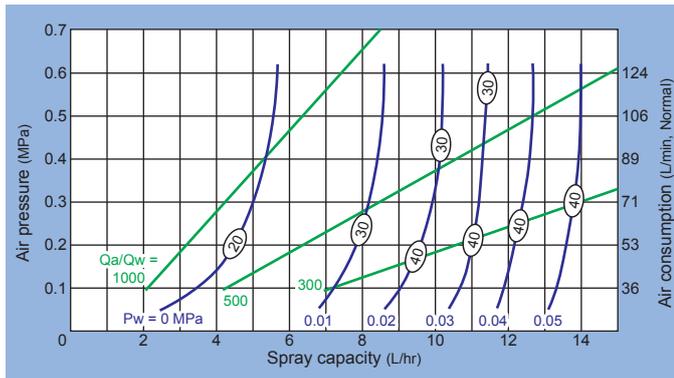
1. The spray capacity shown is for one nozzle.
2. Blue lines (—) represent liquid pressures P_w in MPa.
- Green lines (—) represent air-water ratio Q_a/Q_w .
3. Measured at 100 mm liquid siphon height with P_w of 0 MPa.
4. Numbers in ovals \bigcirc indicate Sauter mean diameters (μm) measured by laser Doppler method (measured at 300 mm from the nozzle).



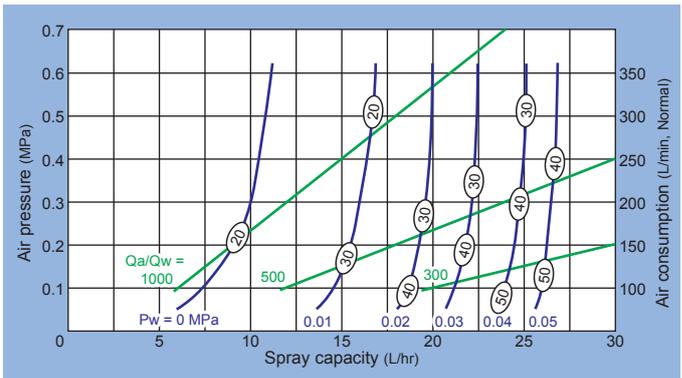
SETO0405R+SD



SETO07507R+SD



SETO2210R+SD



How to Order

To inquire about or order a specific product please refer to this coding system.

Example: SETO 07503R-I + SD AL

SETO 07503R-I + SD AL

Nozzle Code

- 07503R-I
- 0405R
- 07507R
- 2210R

This nozzle series is made-to-order.

Quick-installation Flat Spray Nozzles QB series

Auto body

Painting

Assembly

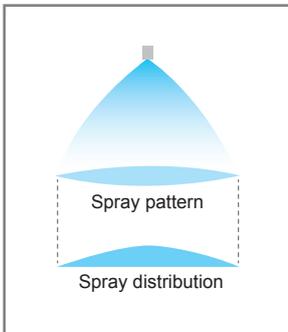


- Easy to install. Just drill a hole ($\phi 14.3$ mm) into the pipe and insert the nozzle.
- O-ring seals between the pipe and adaptor for pressures of up to 0.4 MPa.
- Quick-detachable design helps to reduce maintenance time significantly.
- Spray direction is adjustable within 50 degrees as desired.
- Nozzle tips are color-coded by spray capacity for easy identification. Adaptors are also color-coded by size.
- Double locked with an optional fitting spring lock.
- Standard pressure: 0.3 MPa

Applications

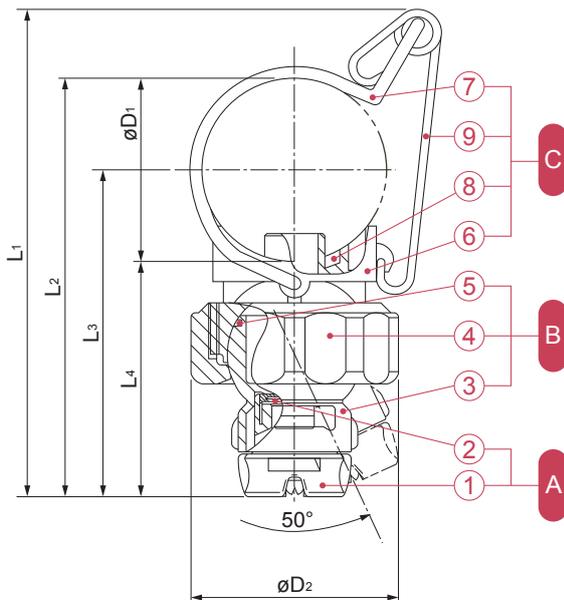
Material cutting Pre-treatment Final testing

- Cleaning and degreasing prior to painting/coating
- Reducing maintenance work for water spraying nozzles
- Cleaning steel plate during body material cutting process



- Material**
- Main parts: FRPP
 - Packing: FEPM
 - O-ring: NBR
 - Spring clip and lock: S304

Drawing



- (A) Nozzle tip:** ① Nozzle tip ② Packing (FEPM)
(B) Ball section: ③ Ball adaptor ④ Cap ⑤ O-ring (NBR)
(C) Adaptor: ⑥ Adaptor ⑦ Spring clip ⑧ O-ring (NBR) ⑨ Spring lock²

*2) ⑨ is optional at extra cost.

【QB for metal pipes】

Pipe Size (inch)	Adaptor Color	Dimensions (mm)						Weight (g)
		L ₁	L ₂	L ₃	L ₄	øD ₁	øD ₂	
1	Green	105	89	72	55	34	48	61
1¼	Light Green	114	98	76	55	42.7	48	
1½	Yellow	120	104	79	55	48.6	48	
2	Orange	132	116	85	55	60.5	48	

Use stainless steel pipes compliant with JIS G 3459.

【QB for PVC pipes】

Pipe Size (ND) ¹⁾	Adaptor Color	Dimensions (mm)						Weight (g)
		L ₁	L ₂	L ₃	L ₄	øD ₁	øD ₂	
25A	Blue	103	87	71	55	32	48	61
30A	Light Blue	109	93	74	55	38	48	
40A	Yellow	120	104	79	55	48.6	48	
50A	Orange	132	116	85	55	60.5	48	

Use PVC pipes compliant with JIS K 6742.

*1) 40A, 50A adaptors for PVC pipes are the same as 1 1/2", 2" adaptors for metal pipes.

Structure:

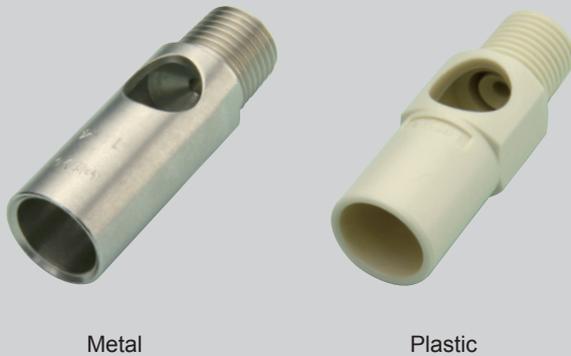
Includes a nozzle tip, ball section, and adaptor.
 Worn-out nozzle tips can be replaced separately.

Ejector Nozzles for Solution Agitation

Some Models are Made-to-Order

EJX series

One-direction Jet Type

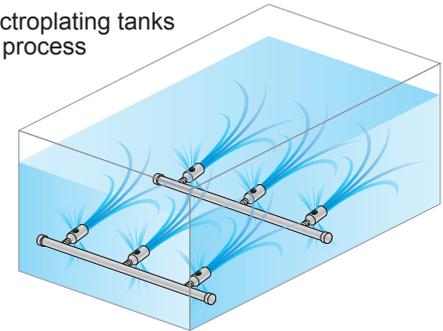


- EJX shoots out 3 to 4 times the amount of liquid supplied, by suctioning additional liquid from its surroundings through negative pressure.
- Simple one-piece structure with a compact, lightweight design.
- Standard pressure: 0.05 MPa

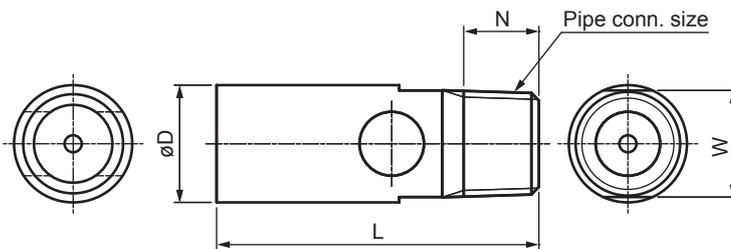
Applications

Pre-treatment Bumper painting

- Stirring electroplating tanks in painting process



Drawing



Material: S303 (S304 for sizes R1 and R1 1/2), PP (PVC for sizes R1 and R1 1/2)

Pipe Connection Size	Outer Dimensions ^{*2} (mm)				Weight (g)	
	L	W	øD	N	S303 S304	PP PVC
R1/8	30	10 (11)	11	7	11	1.3 ^{*1}
R1/4	48	14 (16)	16	10.5	26	3.2 ^{*1}
R3/8	72	22	24	11	80	10
R1/2	93	27	31	14	170	20
R3/4	126	34	42	15	420	48
R1	172	60	76.3 (80)	18	2,200	460
R1 1/2	212	80	89.1 (90)	20	3,200	540

*1) Nozzles with sizes R1/8 and R1/4 are made of PP and are injection molded.
*2) Dimensions in () show those of plastic EJX series nozzles.

Specifications

Supply Volume Code	Pipe Connection Size ^{*3}	Supply Volume (L/min)						Spray Volume (L/min) [Reference Value]						Free Passage Diameter (mm)
		0.03 MPa	0.05 MPa	0.1 MPa	0.15 MPa	0.2 MPa	0.3 MPa	0.03 MPa	0.05 MPa	0.1 MPa	0.15 MPa	0.2 MPa	0.3 MPa	
1	R1/8	0.85	1.10	1.56	1.91	2.20	2.69	2.2	3.1	5.0	6.6	9.2	10	1.5
4	R1/4	3.10	4.00	5.66	6.93	8.00	9.80	8.1	11	18	24	34	38	2.8
9	R3/8	6.97	9.00	12.7	15.6	18.0	22.0	18	26	41	54	75	85	4.2
16	R1/2	12.4	16.0	22.6	27.7	32.0	39.2	33	46	72	95	134	151	5.7
30	R3/4	23.2	30.0	42.4	52.0	60.0	73.5	61	86	140	180	250	280	7.7
90	R1	69.7	90.0	127	156	180	220	180	260	410	540	760	850	13.3
160	R1 1/2	124	160	226	277	320	392	330	460	720	950	1,340	1,510	17.5

*3) The EJX series with thread size R1 or larger are made-to-order.

How to Order

To inquire about or order a specific product please refer to this coding system.

Example: 1/4M EJX 1-4 S303

1/4M	EJX 1-	4	S303
Pipe Connection Size ^{*4}		Supply Volume Code	Material
■ 1/8M		■ 1	■ S303
■ 1*1/2M		■ 160	■ S304 (for sizes 1M and 1*1/2M)
			■ PP (PP-IN for sizes 1/8M and 1/4M)
			■ PVC (for sizes 1M and 1*1/2M)

*4) "M" indicates male thread ("R" of the ISO standard), e.g. 1*1/2M = R1 1/2.

High Flow Rate Type



- High flow rate EJX series effectively agitates liquids for cleaning and promoting reactions, featuring 1.5-2 times higher spray impact (flow velocity) compared to the conventional EJX series.
- One-piece structure.
- Standard pressure: 0.1 MPa

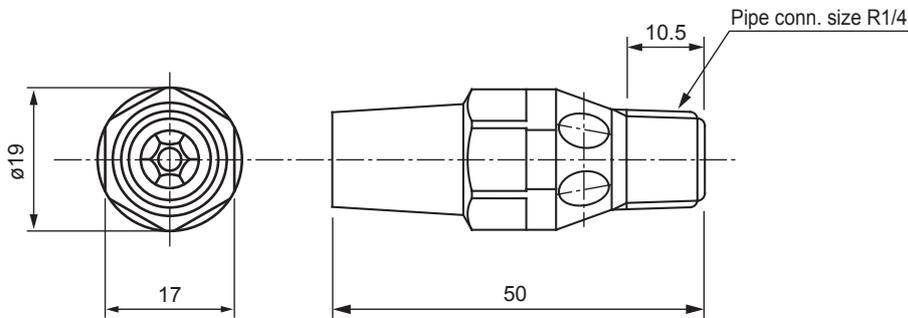
Applications

Pre-treatment Bumper painting

- Stirring electroplating tanks in painting process

Drawing

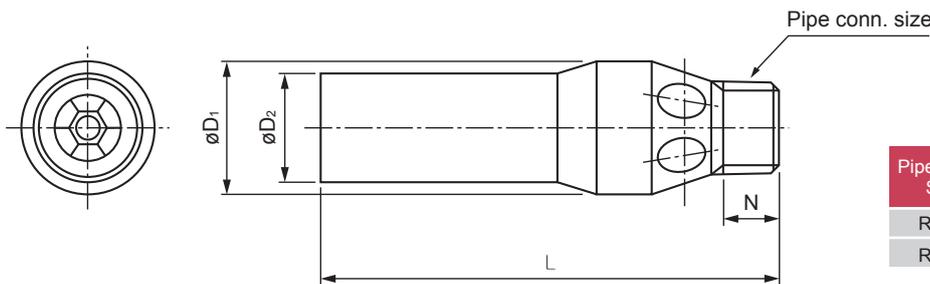
■ 1/4M EJX 1*0/5.8 PP-IN (ø19-50, ø6)



Material: PP
Weight: 5 g

■ 1/2M EJX 1*0/22 PP (ø32-110)

■ 3/4M EJX 1*0/64 PP (ø45-160)



Material: PP

Pipe Conn. Size	Outer Dimensions (mm)				Weight (g)
	L	øD ₁	øD ₂	N	
R1/2	110	32	25	14	30
R3/4	160	45	41	15	90

Specifications

Nozzle Code	Supply Volume (L/min)						Spray Volume (L/min) [Reference Value]						Free Passage Diameter (mm)
	0.03 MPa	0.05 MPa	0.1 MPa	0.15 MPa	0.2 MPa	0.3 MPa	0.03 MPa	0.05 MPa	0.1 MPa	0.15 MPa	0.2 MPa	0.3 MPa	
1/4M EJX 1*0/5.8 PP-IN (ø19-50, ø6)	3.20	4.00	5.80	7.10	8.20	10.0	10.5	13.4	18.8	23.2	27.0	34.5	2.8
1/2M EJX 1*0/22 PP (ø32-110)	12.0	16.0	22.0	27.5	32.0	39.0	36.0	47.0	73.0	95.0	111	134	5.5
3/4M EJX 1*0/64 PP (ø45-160)	36.0	46.0	64.0	77.0	90.6	109	103	140	206	260	301	380	9.1

How to Order

To inquire about or order a specific product please use the above nozzle code.

These nozzle series are made-to-order.

Air Nozzles

TAIFUJet® series
SLN series

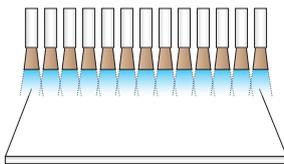
The use of the right nozzle will effectively suppress dust from becoming airborne and adhered that causes problems during the painting/coating process, helping improve quality and productivity.

Applications

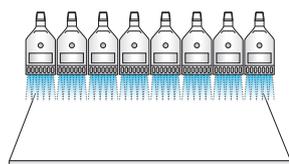
Casting Machining Assembly Pressing Pre-treatment
Middle coat Top coat Bumper painting Off line

- Blow-off drying and dust removal in all the above processes
- Blow-off dust and debris on carriage in paint/coating process
- Blow-off drying in engine block

Energy Saving & Cost Reduction



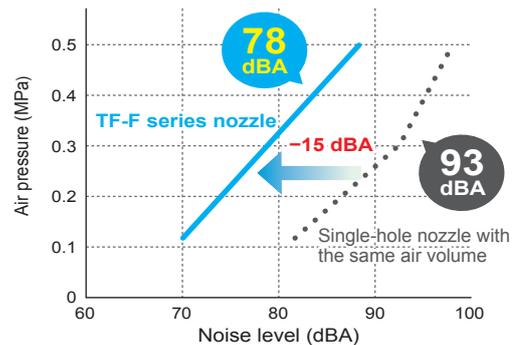
Single-hole nozzles 44 pcs.
Total air consumption:
17,600 L/min, Normal
(equivalent to compressor energy consumption of 100 kWh)



TAIFUJet 23 pcs.
Total air consumption:
10,120 L/min, Normal
Air blowing volume:
20,700 L/min, Normal
(equivalent to compressor energy consumption of 55 kWh)

Approx. **45%** Energy Savings*

Noise Reduction

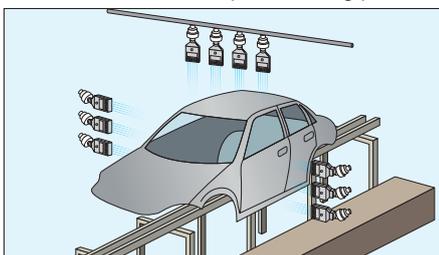


15 dBA Reduction in Noise Level*

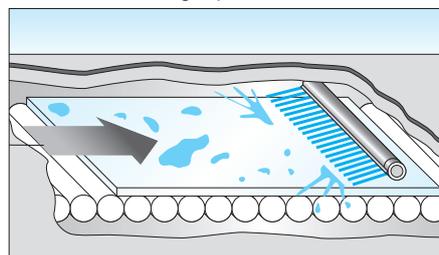
*Results may vary depending on the conditions.

Example of Air Nozzle Usage

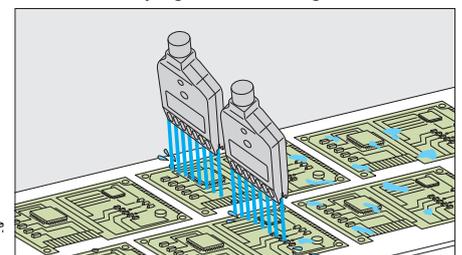
■ Blow-off dust before paint/coating process



■ Installation in tight places



■ Blow-off drying after cleaning electronics

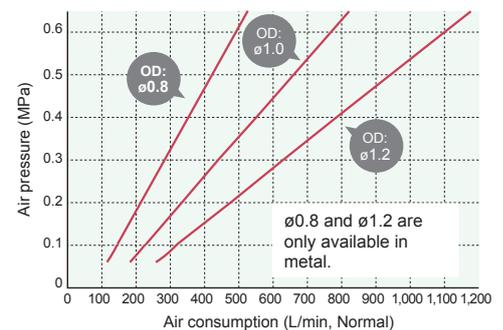
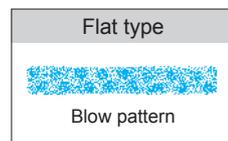


TAIFUJet TF-F42 Series Flat Type Using Compressed Air

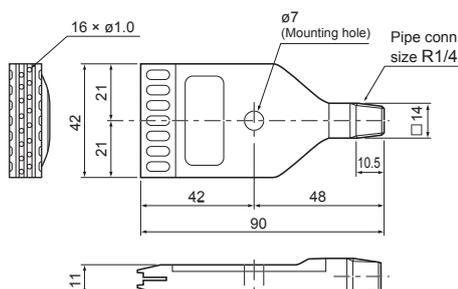
● Plastic
42 mm wide



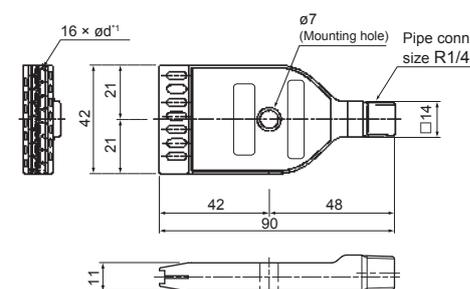
● Metal
42 mm wide



Plastic



Metal



*¹ød = Orifice Diameter (OD): ø0.8, ø1.0, or ø1.2 mm

Material
Plastic: PPS,
Metal: S316L equivalent

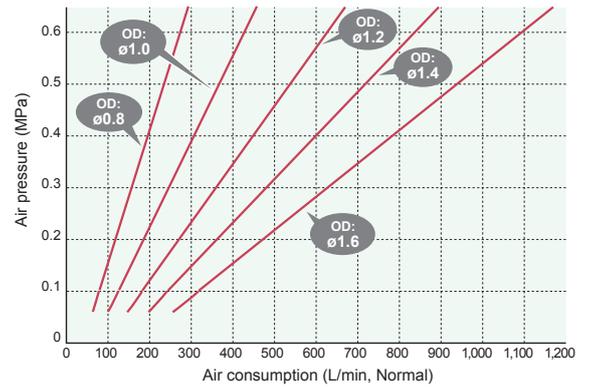
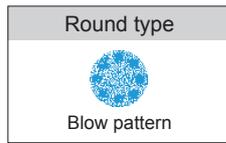
Max. air pressure
Plastic: 0.7 MPa, Metal: 1.0 MPa

Max. temperature
Plastic: 40–80°C, Metal: 400°C
(Heat resistance of the plastic TF-F42 series varies depending on the pressure applied. Contact us for details.)

TAIFUJet TF-R Series Round Type Using Compressed Air

● Plastic

● Metal

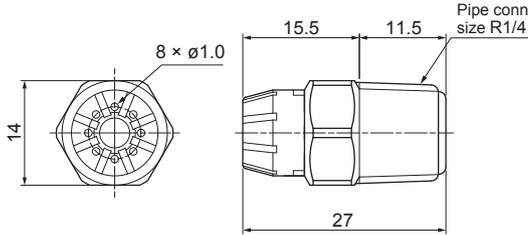


Orifice diameter ø1.0 is available in both plastic and metal. The other models are only available in metal.

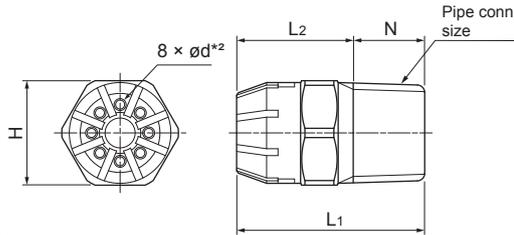
■ Metal TF-R series

Pipe Conn. Size	Outer Dimensions (mm)				Weight (g)
	L ₁	L ₂	H	N	
R1/8	20.0	13.0	12.0	7.0	7
R1/4	25.0	15.5	14.0	9.5	12

Plastic



Metal



*2ød = Orifice Diameter (OD): ø0.8, ø1.0, ø1.2, ø1.4, or ø1.6 mm

Material
Plastic: PP
Metal: S316L equivalent

Max. air pressure
Plastic: 0.7 MPa
Metal: 1.0 MPa

Max. temperature
Plastic: 60°C
Metal: 400°C

TAIFUJet TF-PF Series Long Flat Type Using Compressed Air

● TF-PF (S304)



● TF-PF with detachable PPS nozzle tip



Available in different sizes, covering a blow range from 100 to 1,400 mm for TF-PF (S304) series or from 200 to 1,200 mm for TF-PF with detachable PPS nozzle tips.

Material

Top: S304, Bottom: PPS nozzle tip + S304 pipe header

Max. air pressure

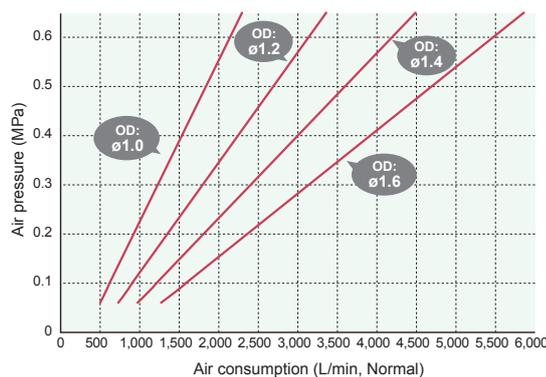
Top: 1.0 MPa, Bottom: 0.7 MPa

Max. temperature

Top: 400°C, Bottom: 40–80°C (Heat resistance of the bottom model varies depending on the pressure applied. Contact us for details.)

TAIFUJet TF-M5R Series Multi-nozzle Assembly Using Compressed Air

Made-to-Order



Compact nozzle-header with 5 nozzles.

The nozzles are available with different orifice diameters. Upon request nozzle-headers with 4 or 7 nozzles are available as well.

Recommended for applications requiring high volume and powerful air flow.

Material

Nozzle: S316L equivalent, nozzle-header and adaptor: S303

Max. air pressure
1.0 MPa

Max. temperature
216°C

Slit Nozzle SLNHA-H, SLNHA-NA Series Using Compressed Air

Made-to-Order

● SLNHA-H



● SLNHA-NA



Long slit jet producing even air flow with uniform impact distribution. Compact design with a thickness of only 20 or 24 mm (34 mm for SLNHA-H made of PVC). Ideal for installation between rollers or in tight spaces.

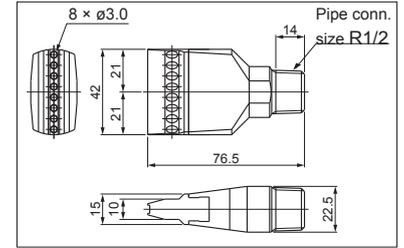
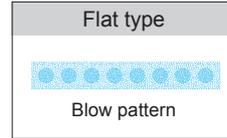
The SLNHA-H series is available in stainless steel 304 or PVC. The SLNHA-NA series requires no adjustment of slit opening after maintenance.

TAIFUJet TF-BF42 Series Flat Type Using Blower Air

- Plastic
42 mm wide



Material: ABS
Max. air pressure: 100 kPa
Max. temperature: 80°C

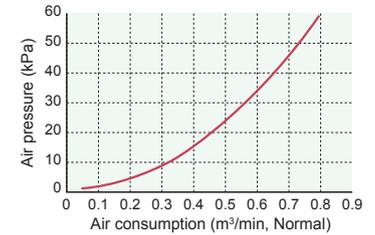


- Metal
42 mm wide



Material: Aluminum A5052
Max. air pressure: 100 kPa
Max. temperature: 150°C

Adhesive is used for assembly of some parts.

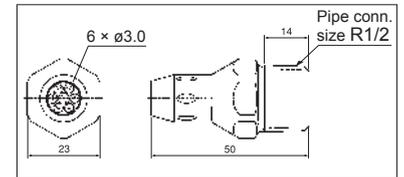
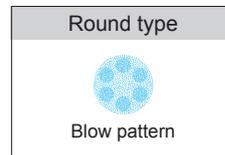


TAIFUJet TF-BR Series Round Type Using Blower Air

- Plastic



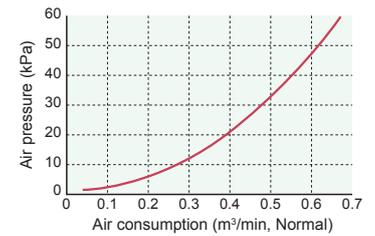
Material: ABS
Max. air pressure: 100 kPa
Max. temperature: 80°C



- Metal



Material: Aluminum A5052
Max. air pressure: 100 kPa
Max. temperature: 150°C



TAIFUJet TF-BPF Series Long Flat Type Using Blower Air

- Metal



- Plastic



Uniform and efficient air flow. Blow coverage customizable by multiples of 42 mm up to a blow width of 1,596 mm.

Material
Metal: Aluminum A5052, Plastic: PPS nozzle tip + HTPVC pipe header
Max. air pressure
Metal: 100 kPa, Plastic: 100 kPa
Max. temperature
Metal: 150°C, Plastic: 40–80°C (Heat resistance of the plastic TF-BPF series varies depending on the pressure applied. Contact us for details.)

Slit Nozzle SLNB Series Using Blower Air



Long slit jet producing even air flow with uniform impact distribution. Thin slit with tapered lip ideal for installation between rollers or in tight spaces. Able to reduce energy consumption by 2/3 compared to compressed air nozzles.



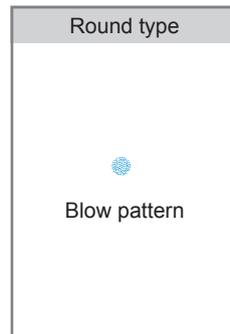
Download 3D/2D CAD files of air nozzles

A wide variety of air nozzles is available, including other TAIFUJet series such as TF-F121 (121 mm wide plastic flat jet), TF-GUN air blow gun, and the EJA series air amplifier. For details please refer to the Air Nozzle Catalog on the website.



Solid Stream Air Nozzles

CCP-A series



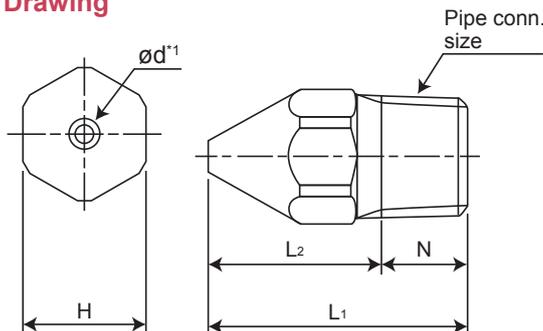
- Compressor air nozzle.
- Delivers a single solid precision air jet stream concentrated on one point.
- Four models available with different blowing powers, ranging from 1.0 to 2.5 mm in orifice diameters.
- Cost effective nozzle for use in large quantities.

Applications

Casting Forging Machining Pressing

- Blow-off drying in casting process
- Drying/ Blow-off drying in machining process

Drawing



Pipe Conn. Size	Outer Dimensions (mm)				Weight (g)
	L ₁	L ₂	H	N	
R1/8	21	14	10	7	7.5
R1/4	30	19.5	14	10.5	19

*1) ød = orifice diameter: 1.0, 1.5, 2.0, or 2.5 mm

Noise Level

 at a distance of 1,000 mm

Background noise: 46 dBA

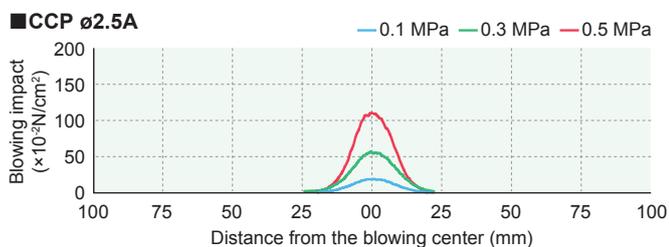
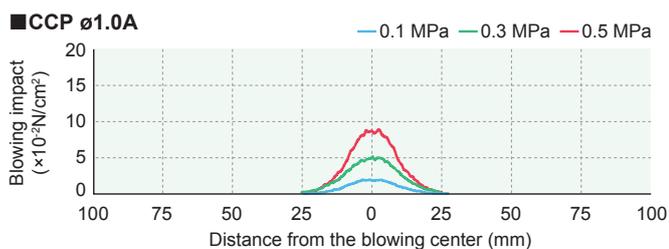
Orifice Diameter Code	Pressure (MPa)	Noise Level (dBA)	Orifice Diameter Code	Pressure (MPa)	Noise Level (dBA)
ø1.0A	0.1	55	ø2.5A	0.1	72
	0.3	66		0.3	84
	0.5	71		0.5	89



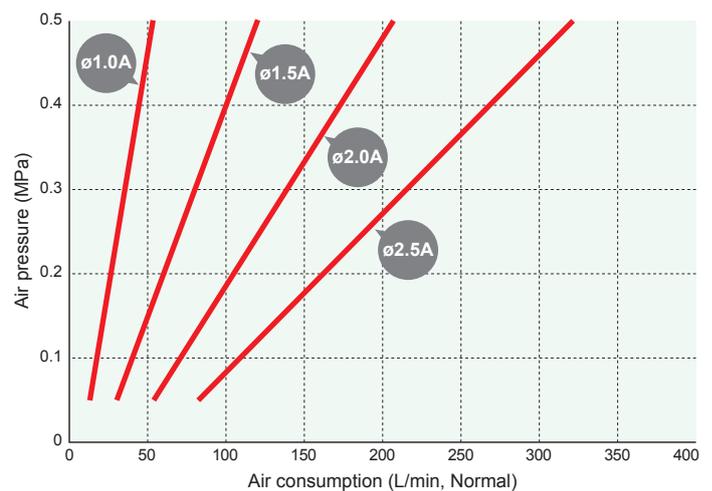
Download 3D/2D CAD file

Material: S303
Max. air pressure: 1.0 MPa
Max. temperature: 400°C

Blowing Impact Distribution

 at 100 mm below the nozzle orifice


Air Consumption



How to Order To inquire about or order a specific product please refer to this coding system.

Example: 1/8M CCP ø1.0A S303

1/8M Pipe Connection Size*2	CCP	ø1.0A Orifice Diameter Code	S303
■ 1/8M		■ ø1.0A	
■ 1/4M		■ ø1.5A	
		■ ø2.0A	
		■ ø2.5A	

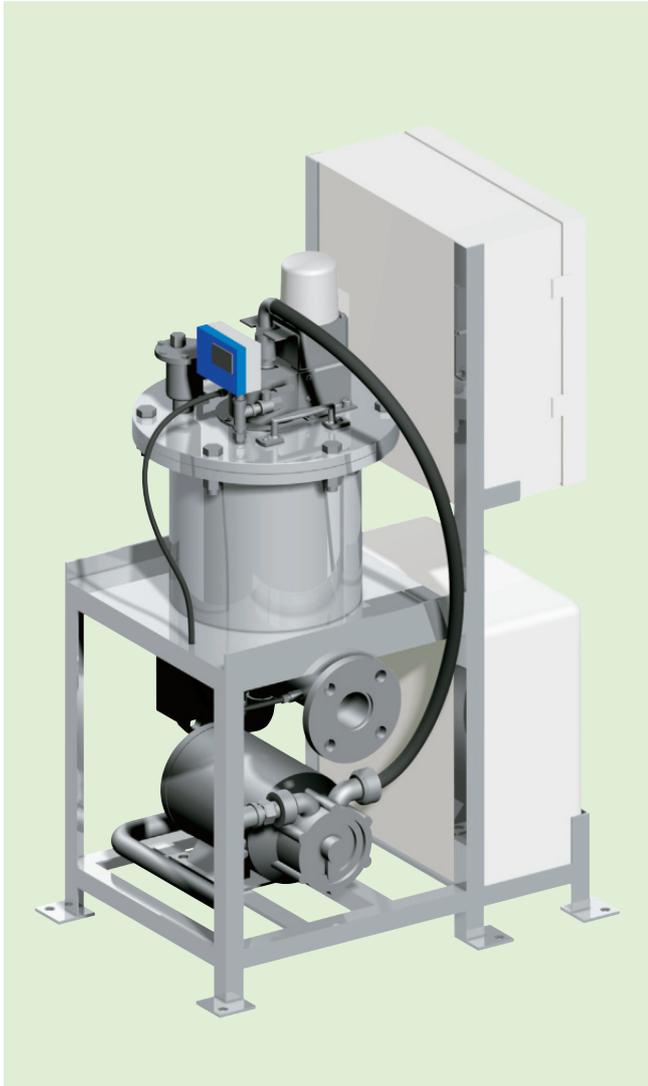
*2) "M" indicates male thread ("R" of the ISO standard), e.g. 1/4M = R1/4.

Auto Reverse Self-cleaning Filter

ARS Filter

Engine/Powertrain

Painting



- ARS Filter with non-contact jet cleaning system provides stable, longer filtration performance with minimal maintenance.
- Compact and space-saving design.
- Detecting the pressure difference caused by an accumulation of foreign particles on the filter, ARS automatically starts jet spray cleaning and then discharges the particles from the drain.

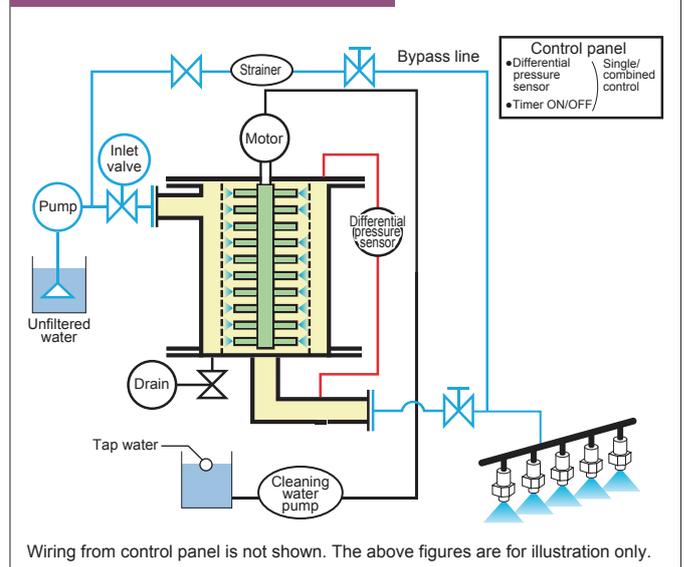
- Material**
- Main body: stainless steel (cleaning water pump and hose include non-stainless steel parts which come in contact with liquids)
 - Packing and O-ring: FKM

Applications

Machining **Pre-treatment** **Sealing** **Top coat**

- Filtration of circulated water and cleaning water for dies
- Recycling of water for air washer

Installation Example



Specifications

Model No.		ARS-150	ARS-500	ARS-1000	ARS-2500
Max. Filtration Capacity (L/min)		150	500	1,000	2,500
Max. Operating Pressure (MPa)		0.7	0.7*2	0.7	0.5
Power Supply		100 VAC, 0.3 kW (steel pump) 100 VAC, 0.5 kW (stainless steel pump)*1	200 VAC (3-phase), 1.7 kW	200 VAC (3-phase), 2.5 kW	200 VAC (3-phase), 3.8 kW
Pipe Connection Size (A)	Inlet	32	50	80	150
	Outlet				
	Drain	25	25	40	50
Filter Screen Mesh Size	Metal Wire Screen*3	#300 #150 #100 #60 #35	#150 #100 #60 #35	#150 #100 #60 #35	#150 #100 #60 #35
	Wedge Wire Screen (μm)	—	100 150 300 500	100 150 300 500	100 150 300 500
Dimensions (WxDxH)*4 (mm)		360 × 510 × 1,300	433 × 666 × 1,053	560 × 1,000 × 1,223	1,000 × 1,800 × 1,882
Weight (kg) without water		67 (steel pump)	115	175	850
		71 (stainless steel pump)*1			

*1) Stainless steel pump is optional.

*2) 0.3 MPa for clamp lid type. Clamp lid is available for ARS-500.

*3) Filter screen mesh size is shown in parenthesis: #300 (45 μm), #150 (109 μm), #100 (145 μm), #60 (240 μm), #35 (520 μm).

*4) Width × Depth × Height

For more information please visit the IKEUCHI website. The catalog for ARS Filter can be previewed and downloaded. <https://www.kirinoikeuchi.co.jp/eng/download/>

Digital catalogs are available on our website.  [IKEUCHI digital catalog](#)

Global Network



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