"The Fog Engineers"

H.IKEUCHI & CO., LTD.

Spray Nozzle Products for Automotive Manufacturing



Proven technology creating a new era for the automotive industry

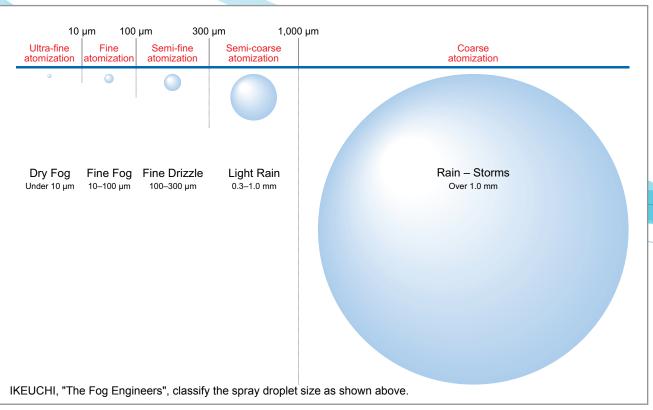
Cleaning, cooling, dust suppression, humidification, air blowers, and more for production facilities with increasingly diverse and complex needs...

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.



+/-5%

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.



+/-5°

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:

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

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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.







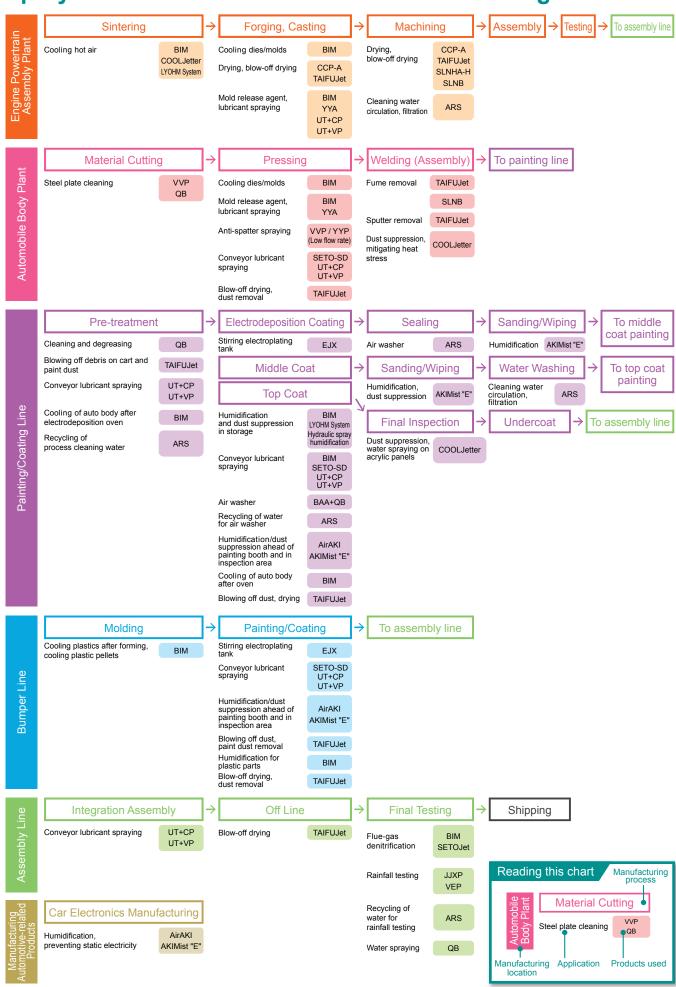


3D/2D CAD models of IKEUCHI's products can be previewed and downloaded for free on the PARTcommunity website. IKEUCHI is continuously adding CAD models to its library for the convenience of our customers.

https://ikeuchi.partcommunity.com/3d-cad-models/?languagelso=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

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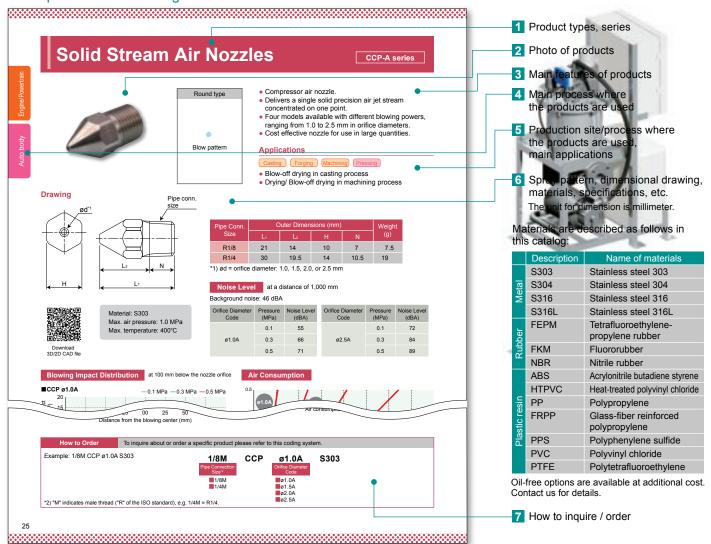
The management of manufacturing process systems must be more precise to produce even higher quality products. IKEUCHI introduces cooling and humidification systems and units that make the complexities of system management more user-friendly.

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



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

Systems

Cooling methods to suit product design, usage, and processes

Nozzles

Cooling systems

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

Cooling units

Using cooling nozzles and configurations tailored to your product designs

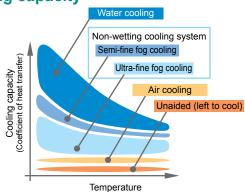
Cooling nozzles

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

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

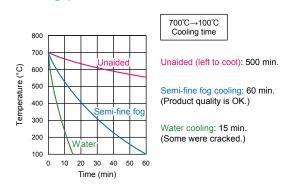
Cooling capacity and performance of cooling system and unit

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

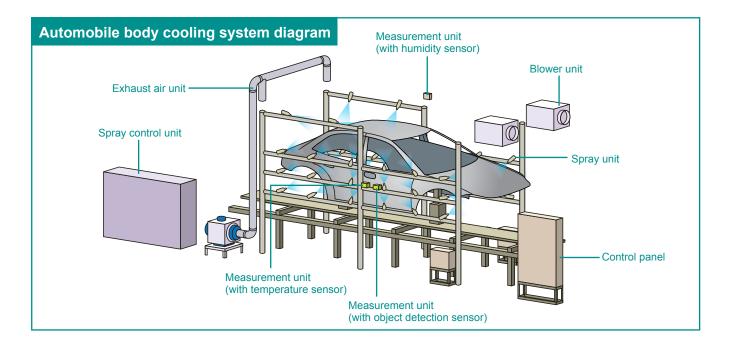
Work area cooling, Dust suppression



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



- Improving work environment
- Mitigating heat stress
- Dust suppression



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

Reduce dust/debris adhesion Improve product quality and productivity

Improved work environment

Cooling workplaces and mitigating heat stress Reduced cycle times

Reducing costs

Reduce maintenance costs
Reduce losses by
lowering defect rates

Effective humidification according to application and process

Fine

Quality of fog designed for each process and product

Coarse

Extremely fine fog

Dry Fog makes non-wetting humidification possible

Fine fog

Effective humidification with fine atomization nozzles

Slightly wetting fog

Low-cost humidification

Coating, Circuit Board Mounting, Casting Processes

Preventing dust/debris adhesion in coating processes, body and bumper manufacturing, storage and inspection area, preventing static electricity in circuit board mounting and electronic component installation, humidification for cast products

Painting/Coating, Casting Processes

Humidification for

- Auto body
- Exterior/interior equipment
- Cast products

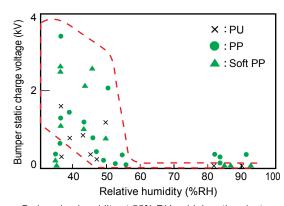
Painting/Coating, Casting Processes

Humidification for

- Auto body
- Cast products

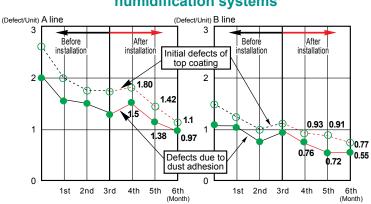
Electrostatic discharge control with humidification systems and its effects

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"



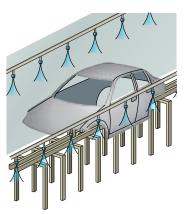


- Humidification systems create and maintain a stable humidity environment year-round
- Maintain the proper level of humidity for assembly processes of printed circuit boards, ECUs, car navigations, power windows, power steerings and other electronics devices as well as painting/coating processes.

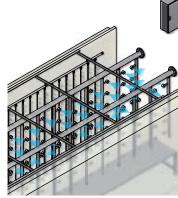
Results

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

Hydraulic spray humidification/cooling LYOHM System®





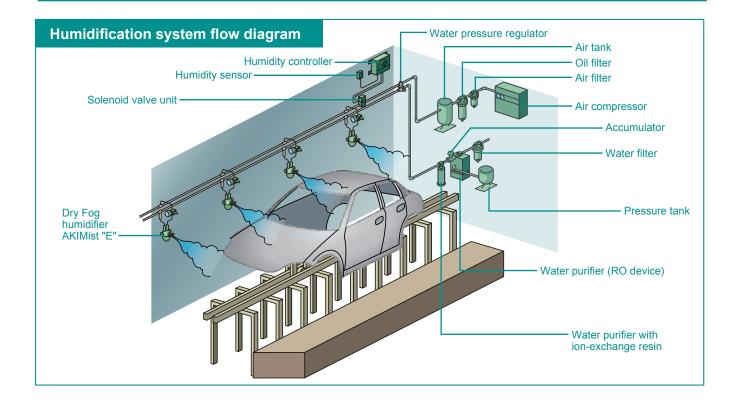


Humidification in air washer

- 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

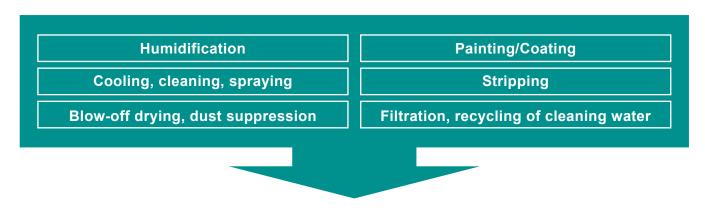


Spray Nozzles and Related Products

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

Pneumatic spray nozzles



Pneumatic spray nozzles produce extremely fine droplets, especially effective in cooling, humidification, and coating.

BIM series, AKIMist "E", SETO-SD series

Hydraulic spray nozzles



A huge selection of nozzle series for various processes and uses including cleaning, cooling, and spraying.

UT+VP, UT+CP series, QB series, EJX series, and other hydraulic spray nozzles

Air nozzles



Air nozzles not only blow off water, but suppress airborne dust and prevent dust adhesions, effectively lowering paint defects.

TAIFUJet, CCP-A series, SLNHA-H series, SLNB series

Related products



Effective measures for recycling process water, removing impurities, and especially interesting when clean water resources are limited.

Auto Reverse Self-cleaning Filter ARS series

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 $20-100 \mu m$.

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



High Performance

The BIM series produces excellent atomization resulting in higher product quality.



Easy Maintenance, Uninterrupted Use

Unique clog-resistant design makes long and continuous spraying possible.



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.



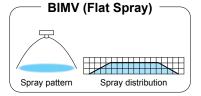
Cost Reduction

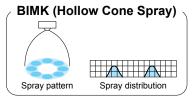
The BIM series has fewer parts, which allows for easier maintenance and lower price.

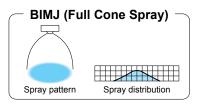


Spray Patterns in 3 Types

Available in three spray patterns, flat spray (BIMV/BIMV-S), hollow cone spray (BIMK/BIMK-S), and full cone spray (BIMJ).







BIM Series Pneumatic Fine Fog Spray Nozzles

Liquid Feeding System Liquid Pressure Type

This system feeds pressurized liquid to the nozzle. By changing the compressed air and liquid pressures, spray capacity can be changed over a wide range from small to large flows.

Suitable when..

- Spray flow needs to be changed according to target and timing.
- A large amount of fine droplets is needed.
- The required spray amount has not yet been determined.

Liquid Feeding System Liquid Siphon Feed Type

This system feeds liquid sucked up by compressed air.

Suitable when

- A small amount of fine droplets is needed.
- The liquid cannot be pressurized (no pressure feed).

Spray Pattern

Flat Spray

BIMV

BIMK

Spray Pattern

Full Cone Spray

Full Cone Spray

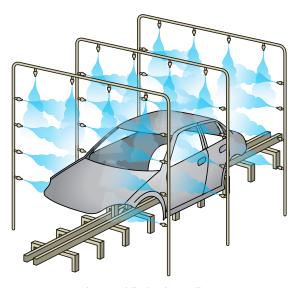
BIMJ

Flat Spray

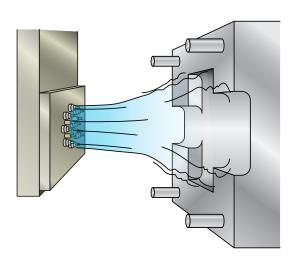
BIMV-S

BIMK-S

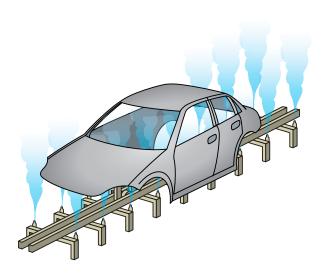
Examples for Uses of the BIM Nozzles



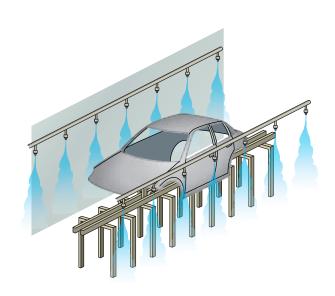
Automobile body cooling



Mold release agent spraying system



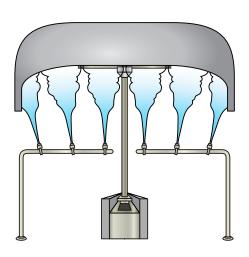
Carriage cooling



Humidification in storage



Cooling of castings



Cooling of bumpers







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

Materia

 S303, PP (PP is available only for BIMV80075 and BIMJ2004)

Optional material: S316L

Applications



processes









- Middle coat Top coat Molding Bumper painting Final testing

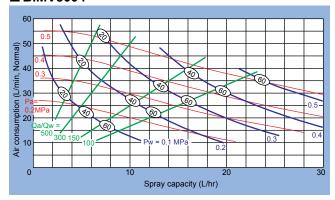
 Cooling auto bodies, metal castings, dies in casting and coating
- Spraying release agent, lubricant, and anti-rust oil in forging, casting, and press processes
- Humidification and dust suppression in storage areas
- Dust suppression, humidification before the booth, cooling after the oven in painting/coating 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.
- 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	Air	Air	Spray Ca	apacity (L/hr) / Air Consu	mption (L/mi	in, Normal)	Spra	ıy Width (ı	mm) ^{*3}	Mean Droplet Dia. (µm)	Free Passage Diameter (mm)		
Angle Code*2		Pressure (MPa)		Liqui	id Pressure	(MPa)		Liquic	l Pressure	(MPa)	Laser Tip		Adaptor	
	Couc	(IVII a)	0.1	0.15	0.2	0.25	0.3	0.1	0.15	0.25	Doppler Method	Orifice	rifice	Air
		0.2	2.2 / 14	5.3 / 11	-	-	-	200	260	-		0.3		
	02	0.3	1.0 / 20	2.5 / 19	4.6 / 17	8.3 / 12	14.3 / 7	170	210	300	20–100		0.9	0.7
		0.4	-	1.4 / 25	2.3 / 24	4.0 / 23	6.3 / 20	-	200	250				
		0.2	4.5 / 25	9.5 / 20	17.0 / 13	-	-	200	260	-		0.4	0.9	0.9
	04	0.3	2.0 / 36	4.7 / 35	8.5 / 31	13.1 / 27	19.6 / 20	170	210	310	20–100			
		0.4	-	2.8 / 45	4.8 / 44	7.7 / 41	11.4 / 37	-	200	260				
		0.2	8.7 / 51	18.4 / 42	33.3 / 29	-	-	200	270	-		0.6	1.2	1.4
80	075	0.3	4.0 / 74	8.8 / 71	15.5 / 64	24.3 / 54	38.5 / 40	170	210	310	20–100			
		0.4	-	5.6 / 91	9.1 / 89	14.8 / 82	21.8 / 74	-	200	260				
		0.2	16.8 / 107	34.8 / 90	64.4 / 60	-	-	210	280	-				
	15	0.3	8.0 / 150	17.7 / 144	30.8 / 130	50.0 / 108	74.5 / 87	180	220	320	20–100	0.9	1.8	1.9
		0.4	-	11.2 / 190	18.3 / 183	29.1 / 172	42.9 / 154	-	200	270				
		0.2	22.3 / 140	45.6 / 116	92.1 / 77	-	-	210	280	-				
	22	0.3	11.5 / 200	23.9 / 189	41.3 / 169	68.5 / 138	107 / 103	180	220	330	20–100	1.1	2.1	2.2
		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)	opidy dapatity (2111)	Air Consumption (L/min, Normal)*4 (0.1-0.3 MPa)	Mean Droplet Diameter (µm) by Laser Doppler Method	Spray Pattern
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	СВІМУ	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	вімк	60	0.2–0.4	2.0 – 107	13 – 245	20–100	
Compact Type Low Flow Rate Hollow Cone Spray	СВІМК	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	<u></u>
Compact Type Low Flow Rate Full Cone Spray	СВІМЈ	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.



Mounting Bracket



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



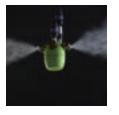


- Able to generate a large volume of Dry Fog with a maximum of 9.6 L/hr.
- Each AKIMist can accommodate up to four nozzles.
- Easy maintenance as parts can be detached by hand.
- Dry Fog, spreading over four meters horizontally, can provide effective humidification.

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







Pipe conn. size **Drawing** Water Rc1/4 Pipe conn. size Rc1/4 timinin) 110 AKIMist ® "E" ø77

125

Specifications

	Number	At air pressure of 0.3 MPa (44 psi)			
Model No.	of Nozzles	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: PlasticOther 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 (03C) + Hanging-down Kit 1 To add a pipe connection kit, please specify the type of connection kit. Number of Nozzles Type of Pipe Connection Kit ■Wall Mounting Kit 2 Hanging-down Kit Hanging-down (NP) Kit (w/o plate)

4

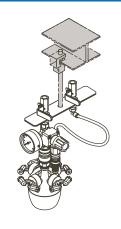


Pipe Connection Kits (optional) for easy installation of AKIMist "E"

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.

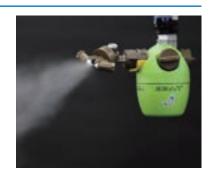
Note: Gray parts are NOT included in the kit. These kits come assembled.

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.

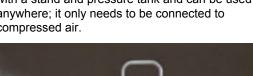
Note: Stop spraying before you change the direction.



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.

Portable Dry Fog Humidifier Set

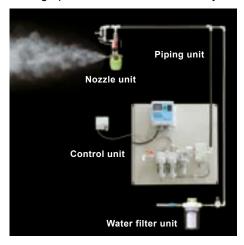


Dry Fog Humidifier Kit

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.

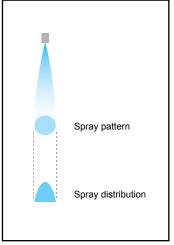


Solenoid-activated Pneumatic Spray Nozzles

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

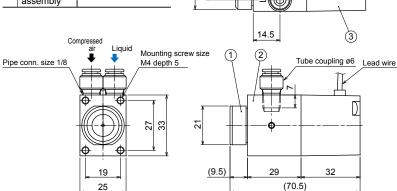
- Casting Pressing Painting/Coating Bumper painting
- · Spraying release agent in engine chassis and other metal casting processes
- Intermittent spraying with minimal spray amount in paint/coating process
- Spraying conveyor lubricant

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

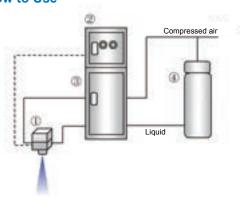
Drawing

Components and materials

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



How to Use



140.	Description
1	Solenoid-activated pneumatic spray nozzle
2	Solenoid control panel
3	Pressurized flow control unit
4	Liquid pressurization tank (required only if

Specifications

Nozzle	Jozzle Air		apacity (L/hr)	/ Air Consu	mption (L/mir	n, Normal)*1	Spray Mean Droplet Diameter *3		Free Passage Diameter (mm)		Weight
Code	Pressure		Liqui	d Pressure	(MPa)		Width*2	(µm)	Ada	(g)	
	(MPa)	0	0.05	0.13	0.2	0.3	(mm)	Laser Doppler Method	Liquid	Air	
	0.2	-	-	1.0/50	3.2/48	-			0.3		
07503R-I	0.3	-	-	-	0.9/66	4.0/64				0.4	
	0.4	-	-	-	-	1.9/80	40–50	15–25			180
0405R		2.0/ 36	6.5/ 36	-	-	-	40-50	15–25	0.5	0.1	160
07507R	0.3	5.0/ 71	13.9/ 71	-	-	-			0.7	0.2	
2210R		10.0/200	26.4/200	-	-	-			1.0	0.5	

0

- *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).

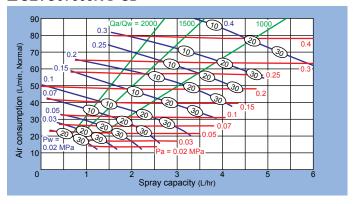
Valve Function	Min. Operating Frequency (sec)	Max. Operating Pressure (MPa)	Current (A)	Voltage (VDC)	Max. Allowable Temperature
Single solenoid, normally closed	ON: 0.02 OFF: 0.02	0.5 for both air/liquid	0.26	24	50°C (120°F)

Flow-rate Diagram

■How to read the chart

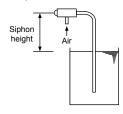
- 1. The spray capacity shown is for one nozzle.
- 2. Red lines (—) represent compressed air pressures Pa in MPa.
 - Blue lines (—) represent liquid pressures Pw in MPa. Green lines (—) represent air-water ratio Qa/Qw.
- 3. Numbers in ovals indicate Sauter mean diameters (µm) measured by laser Doppler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

■ SETO07503R-I+SD

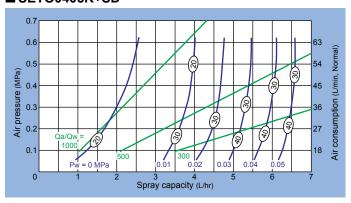


■How to read the chart

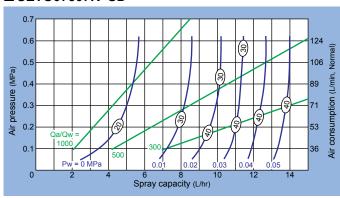
- 1. The spray capacity shown is for one nozzle.
- 2. Blue lines (—) represent liquid pressures Pw in MPa. Green lines (—) represent air-water ratio Qa/Qw.
- 3. Measured at 100 mm liquid siphon height with Pw of 0 MPa.
- 4. Numbers in ovals \igcup indicate Sauter mean diameters (µm) measured by laser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



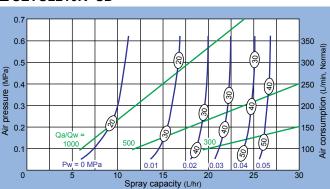
■ SETO0405R+SD



■ 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 07503R-I **SETO**

07503R-I 0405R 07507R

2210R

+ SD AL

This nozzle series is made-to-order.

Quick-installation Flat Spray Nozzles QB series



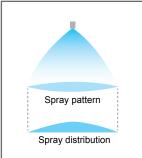


- Easy to install. Just drill a hole (ø14.3 mm) into the pipe and insert the nozzle.
- O-ring seals between the pipe and adaptor for pressures of up to 0.4 MPa.
- Quick-detachable design helps to reduce maintenance time significantly.
- Spray direction is adjustable within 50 degrees as desired.
- Nozzle 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

*2) 9 is optional at extra cost.

[QB for metal pipes]

Pipe	Pipe Adaptor		Dimensions (mm)							
(inch)	Color	L ₁	L ₂	Lз	L4	øD₁	øD ₂	(g)		
1		105	89	72	55	34	48			
11⁄4		114	98	76	55	42.7	48	61		
11/2		120	104	79	55	48.6	48			
2		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			Di	imensio	ns (mm))		Weight
(ND)*1	Color	L ₁	L ₂	Lз	L ₄	øD₁	øD ₂	(g)
25A		103	87	71	55	32	48	
30A		109	93	74	55	38	48	61
40A		120	104	79	55	48.6	48	01
50A		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.

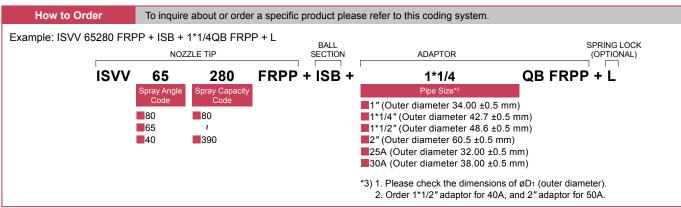
Structure:

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

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

Specifications

Spray Angle	Spray Capacity	Pipe	Size	:	Spray Capac	ity (L/min)	Mean Droplet Diameter	Free Passage Diameter	Nozzle Tip Color	
Code	Code	(inch)	(ND)	0.1 MPa	0.2 MPa	0.3 MPa	0.4 MPa	(µm)	(mm)	00101
80	80 100 120 160 180 200 240 280 390	1, 1¼ (1*1/4), 1½ (1*1/2), or 2	25A, 30A, (40A), or (50A)	4.62 5.77 6.93 9.24 10.4 11.5 13.9 16.2 22.5	6.53 8.16 9.80 13.1 14.7 16.3 19.6 22.9 31.8	8.00 10.0 12.0 16.0 18.0 20.0 24.0 28.0 39.0	9.24 11.5 13.9 18.5 20.8 23.1 27.7 32.3 45.0	430– 610	1.7 2.0 2.3 2.7 2.8 2.8 3.2 3.6 4.3	
65	80 100 120 160 180 200 240 280 390	1, 1½ (1*1/4), 1½ (1*1/2), or 2	25A, 30A, (40A), or (50A)	4.62 5.77 6.93 9.24 10.4 11.5 13.9 16.2 22.5	6.53 8.16 9.80 13.1 14.7 16.3 19.6 22.9 31.8	8.00 10.0 12.0 16.0 18.0 20.0 24.0 28.0 39.0	9.24 11.5 13.9 18.5 20.8 23.1 27.7 32.3 45.0	460– 650	1.8 2.2 2.4 2.8 3.0 3.3 3.6 3.8 4.5	
40	80 100 120 160 180 200 240 280 390	1, 1½ (1*1/4), 1½ (1*1/2), or 2	25A, 30A, (40A), or (50A)	4.62 5.77 6.93 9.24 10.4 11.5 13.9 16.2 22.5	6.53 8.16 9.80 13.1 14.7 16.3 19.6 22.9 31.8	8.00 10.0 12.0 16.0 18.0 20.0 24.0 28.0 39.0	9.24 11.5 13.9 18.5 20.8 23.1 27.7 32.3 45.0	560– 800	2.2 2.5 2.8 3.2 3.3 3.6 3.9 4.3 5.1	



A CAUTIONS

- Maximum operating pressure is 0.4 MPa.
- Do not use under conditions where sudden or drastic changes in water pressure may occur.

QB Series Related Products



BAA+QB Series

- Air washer nozzle made by combining an AA series hollow cone spray nozzle and QB series adaptor.
- Includes a spring lock to firmly secure the nozzle in place.
- No-whirler design with a large free passage diameter minimizes clogging. Note: The spray direction is NOT adjustable; the ball part is fixed in place.





Universal-jointed Spray Nozzles UT+CP / UT+VP Series

- Nozzle tip has an integrated universal ball joint to adjust the spray direction within a range of 40 degrees as needed.
- UT+VP series is a flat spray nozzle and UT+CP series is a solid stream spray nozzle.
- Standard pressure: 0.3 MPa

Ejector Nozzles for Solution Agitation

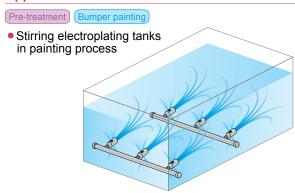
Some Models are Made-to-Order

EJX series

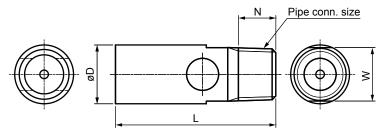


- EJX shoots out 3 to 4 times the amount of liquid supplied, by suctioning additional liquid from its surroundings through negative pressure.
- Simple one-piece structure with a compact, lightweight design.
- Standard pressure: 0.05 MPa

Applications



Drawing



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

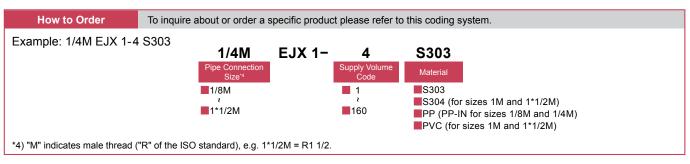
Pipe	Out	er Dimer	nsions*² (m	nm)	Weight (g)		
Connection Size	L	W	øD	N	S303 S304	PP PVC	
R1/8	30	10 (11)	11	7	11	1.3 ^{*1}	
R1/4	48	14 (16)	16	10.5	26	3.2*1	
R3/8	72	22	24	11	80	10	
R1/2	93	27	31	14	170	20	
R3/4	126	34	42	15	420	48	
R1	172	60	76.3 (80)	18	2,200	460	
R11/2	212	80	89.1 (90)	20	3,200	540	

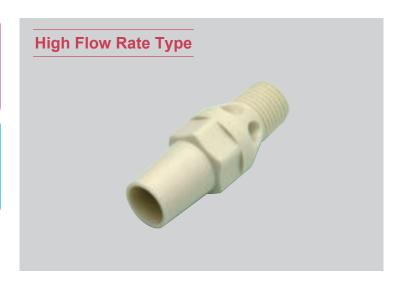
- *1) Nozzles with sizes R1/8 and R1/4 are made of PP and are injection molded.
- *2) Dimensions in () show those of plastic EJX series nozzles.

Specifications

Supply	Pipe		Supply Volume (L/min)					Spray Volume (L/min) [Reference Value]					Free Passage	
Volume Code	Connection Size*3	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	Diameter (mm)
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	R11/2	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.





- 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

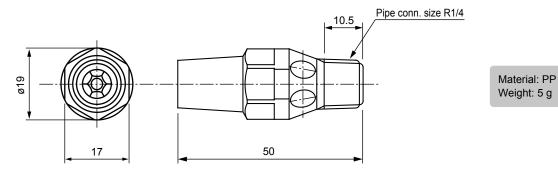
Applications

Pre-treatment Bumper painting

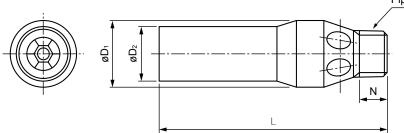
• Stirring electroplating tanks in painting process

Drawing

■1/4M EJX 1*0/5.8 PP-IN (ø19-50, ø6)



- ■1/2M EJX 1*0/22 PP (ø32-110)
- 3/4M EJX 1*0/64 PP (ø45-160)



Pipe conn. size

Material: PP

Pipe Conn.	Ou	Outer Dimensions (mm)							
Size	L	øD1	øD2	N	(g)				
R1/2	110	32	25	14	30				
R3/4	160	45	41	15	90				

Specifications

	Supply Volume (L/min)					Spray Volume (L/min) [Reference Value]					Free Passage		
Nozzle Code	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	Diameter (mm)
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.

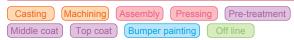
These nozzle series are made-to-order.

Air Nozzles

TAIFUJet_® series
SLN series

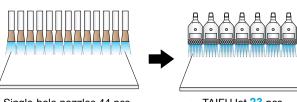
The use of the right nozzle will effectively suppress dust from becoming airborne and adhered that causes problems during the painting/coating process, helping improve quality and productivity.

Applications



- 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

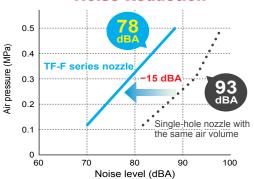


Single-hole nozzles 44 pcs. Total air consumption: 17,600 L/min, Normal (equivalent to compressor energy consumption of 100 kWh) TAIFUJet 23 pcs.
Total air consumption:
10,120 L/min, Normal
Air blowing volume:

(equivalent to compressor energy consumption of **55** kWh)

20,700 L/min, Normal

Noise Reduction



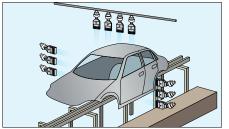
15 dBA Reduction in Noise Level*

*Results may vary depending on the conditions.

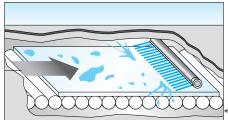
Approx. 45% Energy Savings*

Example of Air Nozzle Usage

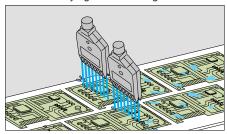
■ Blow-off dust before paint/coating process



■ Installation in tight places



■ Blow-off drying after cleaning electronics

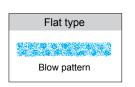


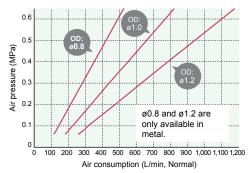
TAIFUJet TF-F42 Series Flat Type Using Compressed Air

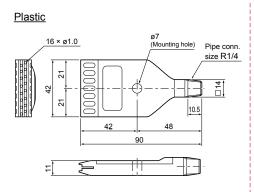
Metal

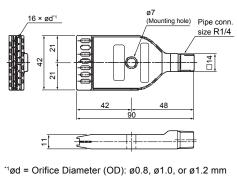












Material
Plastic: PPS,
Metal: S316L equivalent
Max. air pressure

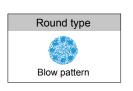
Plastic: 0.7 MPa, Metal: 1.0 MPa

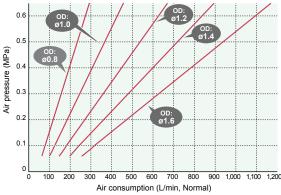
Max. temperature Plastic: 40–80°C, Metal: 400°C (Heat resistance of the plastic TF-F42 series varies depending on the pressure applied. Contact us for details.)

TAIFUJet TF-R Series Round Type Using Compressed Air









Orifice diameter ø1.0 is available in both plastic and metal.

Material

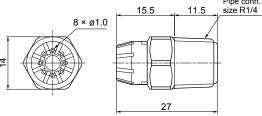
Plastic: PP

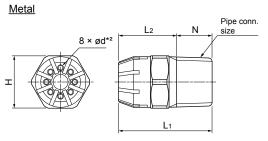
■ Metal TF-R series

Pipe Conn.	(Outer Dimer	nsions (mm)		Weight
Size	L1	L2	Н	N	(g)
R1/8	20.0	13.0	12.0	7.0	7
R1/4	25.0	15.5	14.0	9.5	12

The other models are only available in metal.

Plastic





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

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 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.

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

Max. air pressure

Top: 1.0 MPa, Bottom: 0.7 MPa

Max. temperature

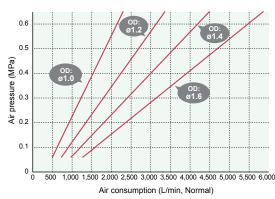
Top: 400°C, Bottom: 40-80°C (Heat resistance of the bottom model varies

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

Material Nozzle: S316L equivalent, nozzle-header and adaptor: S303 Max. air pressure

volume and powerful air flow.

1.0 MPa Max. temperature 216°C

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

Made-to-Order



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.

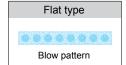
The SLNHA-H series is available in stainless steel 304 or PVC. The SLNHA-NA series requires no adjustment of slit opening after maintenance.

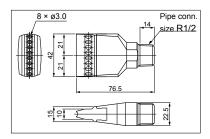
TAIFUJet TF-BF42 Series Flat Type Using Blower Air



Material: ABS

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

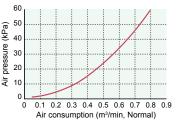






Material: Aluminum A5052 Max. air pressure: 100 kPa Max. temperature: 150°C

Adhesive is used for assembly of some parts.



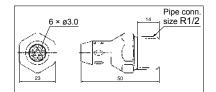
TAIFUJet TF-BR Series Round Type Using Blower Air



Material: ABS

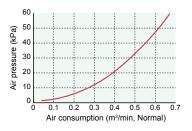
Max. air pressure: 100 kPa Max. temperature: 80°C







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



TAIFUJet TF-BPF Series Long Flat Type Using Blower Air



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.



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.

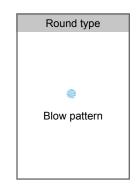
For details please refer to the Air Nozzle Catalog on the website.



Solid Stream Air Nozzles

CCP-A series



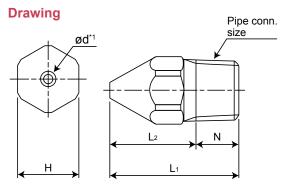


- Compressor air nozzle.
- Delivers a single solid precision air jet stream concentrated on one point.
- Four models available with different blowing powers, ranging from 1.0 to 2.5 mm in orifice diameters.
- Cost effective nozzle for use in large quantities.

Applications

Casting Forging Machining Pressing

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



Outer Dimensions (mm) Pipe Conn. Weight Size (g) L_1 R1/8 21 14 10 7.5 R1/4 30 19.5 10.5 19 14

*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



Download 3D/2D CAD file

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

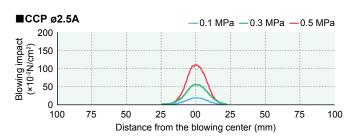
Orifice Diameter Code	Pressure (MPa)	Noise Level (dBA)
	0.1	55
ø1.0A	0.3	66
	0.5	71

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

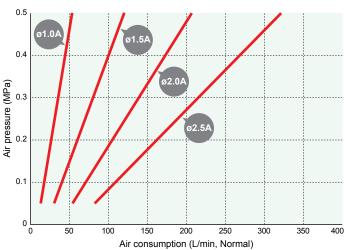
Blowing Impact Distribution

at 100 mm below the nozzle orifice

■CCP ø1.0A 0.1 MPa -0.3 MPa -0.5 MPa Blowing impact (×10⁻²N/cm²) 15 10 5 0 75 25 100 100 Distance from the blowing center (mm)



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 CCP S303 1/8M ø1.0A **Drifice Diameter** 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



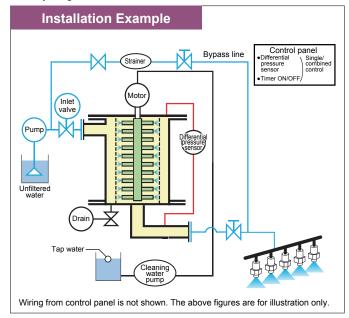
- ARS Filter with non-contact jet cleaning system provides stable, longer filtration performance with minimal maintenance.
- Compact and space-saving design.
- Detecting the pressure difference caused by an accumulation of foreign particles on the filter, ARS automatically starts jet spray cleaning and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



Specifications

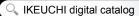
Model No.		l No.	ARS-150	ARS-500	ARS-1000	ARS-2500	
Max. Filtration Capacity (L/min)		apacity (L/min)	150	500	1,000	2,500	
Мах. Оре	rating f	Pressure (MPa)	0.7	0.7*2	0.7	0.5	
Power Supply		Supply	100 VAC, 0.3 kW (steel pump) 100 VAC, 0.5 kW (stainless steel pump)*1	200 VAC (3-phase), 1.7 kW	200 VAC (3-phase), 2.5 kW	200 VAC (3-phase), 3.8 kW	
	Inlet		32	50	80	150	
Pipe Conne		Outlet	32	30	80	130	
,		Drain	25	25	40	50	
Filter Screen	Me	tal Wire Screen*3	#300 #150 #100 #60 #35	#150 #100 #60 #35	#150 #100 #60 #35	#150 #100 #60 #35	
Mesh Size	Wedge Wire Screen (µm)		-	100 150 300 500	100 150 300 500	100 150 300 500	
Dimensions (WxDxH)*4 (mm) Weight (kg) without water		/xDxH)*4 (mm)	360 × 510 × 1,300	433 × 666 × 1,053	560 × 1,000 × 1,223	1,000 × 1,800 × 1,882	
			67 (steel pump) 71 (stainless steel pump)*1	115	175	850	

^{*1)} Stainless steel pump is optional.

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/

^{*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









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