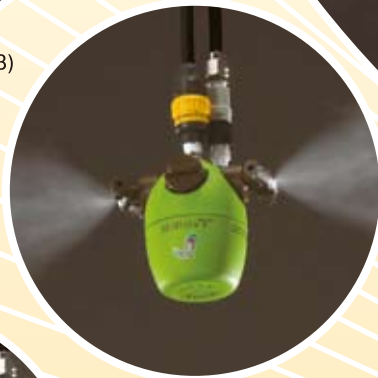


*Non-wetting*  
**Dry Fog Humidifiers = AKIMist® "E" =**  
**The world's most compact, high-powered humidifiers**

AE-4(03C) or AE-4(03B)



AE-3(03C) or AE-3(03B)



AE-2(03C) or AE-2(03B)



AE-1(03C) or AE-1(03B)



"The Mist Engineers"

**H. IKEUCHI & Co., LTD.**

## Main Applications

- Humidification ■ Moisture Control ■ Static Electricity Control
- Preventing Dust Adhesion ■ Dust Suppression ■ Curing, etc.

# We produce two types of nozzles. (AKI03C nozzle and AKI03B nozzle)



## Features

- Dry Fog is sprayed over 4 meters horizontally to provide widespread humidification (\*1)
- Consumes no electricity, runs on compressed air
- Compact water tank keeps free from bacteria
- Automatic humidity control available with timer or humidity controller

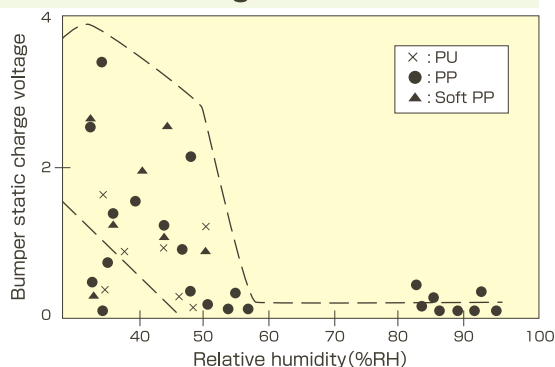
(\*1) Spray length depends on the surrounding air temperature and humidity conditions.

## Applications

- Humidification : Textile factory, Mushroom nursery, Poultry incubation, Fermentation room, Cold storage for food
- Moisture control : Textile, Paper, Plywood, etc.
- Static electricity control: Printing, Textile, Painting line, Plastic film, Plastic molding, Assembly line of electronics, Paper, etc.
- Preventing dust adhesion: Plastic molding, Bag-making, Painting line, etc.
- Dust suppression : Painting line, Foundry, Ceramic fabrication, etc.
- Curing : Concrete, etc.

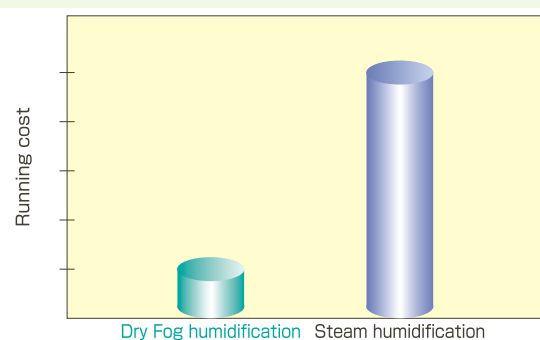


### ● Relation between humidity and static charge



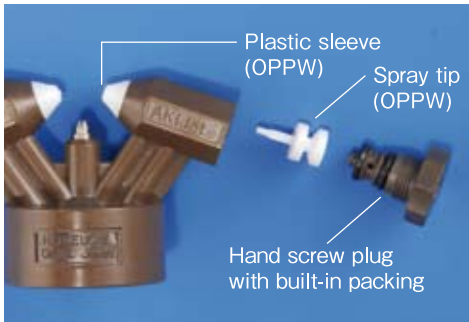
Helps to eliminate static electricity problems, improve product quality and reduce the number of defects.

### ● Comparison of the running cost of humidification methods



Energy cost for Dry Fog humidification is only 1/5 of that for steam humidification.

# New Dry Fog Nozzles **AKIO3C** and **AKIO3B**



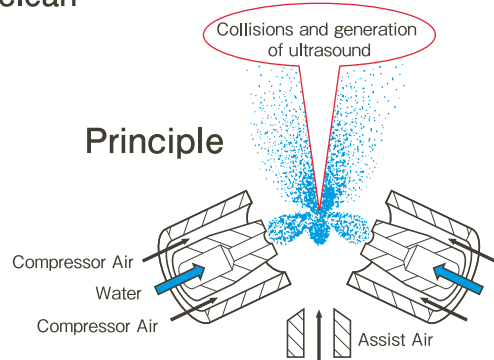
\*compatible with AKIMist "D" body (only nozzle can be replaced)

By utilizing AKIJet<sup>®</sup>, AKIMist<sup>®</sup> "E" sprays Dry Fog; highly-uniform droplet fog with mean diameter of less than 10 $\mu$ m. (\*) It can humidify without wetting targets.

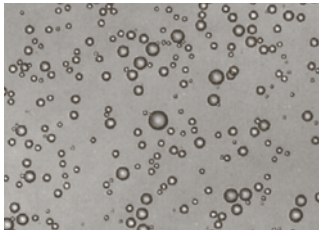
\*AKIO3B nozzle has a mean diameter of 12 $\mu$ m.

**Easier to maintain and harder to clog**

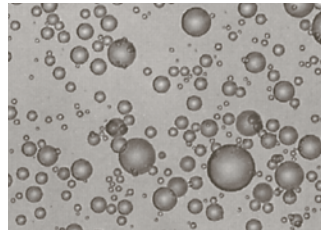
- Consumes less air
- Most clog-resistant nozzle created using new technology
- Plug and spray tip are combined, making it easier to disassemble and clean



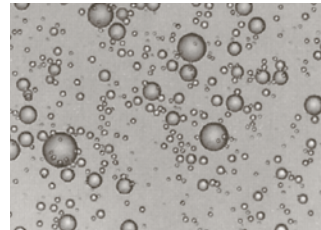
## AKIMist "E"



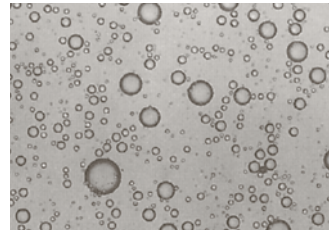
## Conventional pneumatic spray nozzle



## Spinning disk type



## Ultrasonic type



# High Quality Fog **AKIO3C** nozzle

Suitable for humidification without wetting your machines and products even within a room of limited space

### ■ Performance ■

Air Pressure MPa (psi)	Spray Volume ℓ/hr (GPH)	Air Consumption ℓ/min, Normal (SCFM)
0.2 (29)	1.3 (0.34)	22 (0.82)
0.3 (44)	2.4 (0.63)	29 (1.08)
0.4 (58)	3.1 (0.82)	36 (1.34)
0.5 (73)	3.6 (0.95)	43 (1.60)

Note: Use under the air pressure of between 0.2-0.5MPa (29-73psi)

### ■ Specifications ■

Model No.	Number of Nozzles	at air pressure of 0.3MPa (44psi)	
		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)

Sauter mean droplet diameter measured by a laser analyzer: 7.5  $\mu$ m

# Large Volume Fog **AKIO3B** nozzle

Suitable for humidification in a spacious room requiring many humidifiers

### ■ Performance ■

Air Pressure MPa (psi)	Spray Volume ℓ/hr (GPH)	Air Consumption ℓ/min, Normal (SCFM)
0.3 (44) 0.35 (51)	3.3 (0.87)	29 (1.08)

Note: Use under the air pressure of between 0.3-0.35MPa (44-51psi)

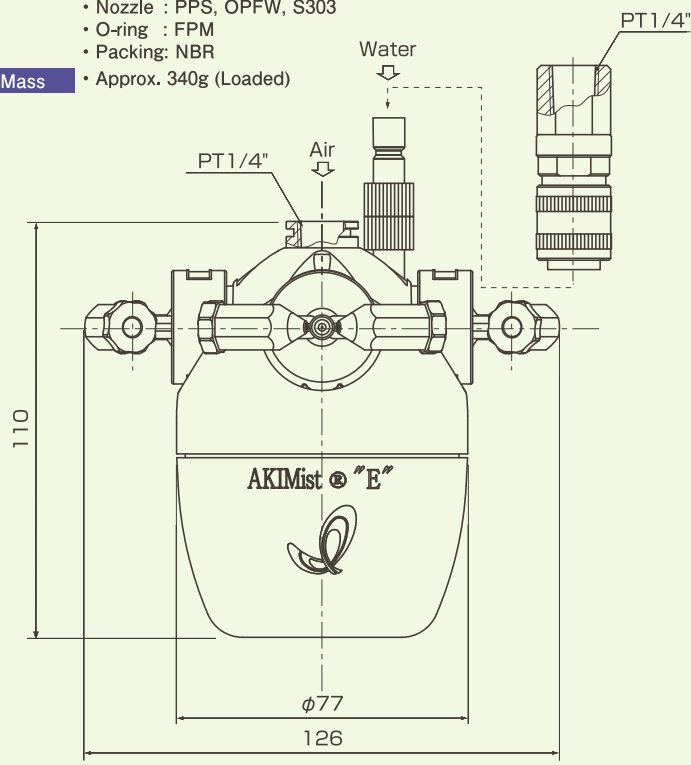
### ■ Specifications ■

Model No.	Number of Nozzles	at air pressure of 0.3MPa (44psi)	
		Spray Volume ℓ/hr (GPH)	Air Consumption ℓ/min, Normal (SCFM)
AE-1(03B)	1	3.3 (0.87)	29 (1.08)
AE-2(03B)	2	6.6 (1.74)	58 (2.16)
AE-3(03B)	3	9.9 (2.61)	87 (3.24)
AE-4(03B)	4	13.2 (3.48)	116 (4.32)

Sauter mean droplet diameter measured by a laser analyzer: 12  $\mu$ m

# AKIMist® "E" Dimensions

- Materials**
- Body : PP, S303 (Stainless steel 303)
  - Nozzle : PPS, OPFW, S303
  - O-ring : FPM
  - Packing: NBR
- Mass**
- Approx. 340g (Loaded)



**Note:**

- Use at air pressures of between 0.2-0.5MPa (29-73psi) for 03C and between 0.3-0.35MPa (44-51psi) for 03B
- Use at water pressure of between 0.05-0.2MPa(8-29psi)
- Before disassembling, close the water valve.
- As main parts are made of plastic, handle AKIMist® "E" with care. (For details, see Instruction Manual.)

## Optional product

### AE-UT Adaptor for AKIMist® "E"



■ Aim Dry Fog to designated area



■ Intensive large volume spraying

- AE-UT Adaptor enables you to adjust spray direction as desired.
  - You can easily attach and remove the AE-UT Adaptor by hand.
- Note: Stop spraying when you change the direction

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

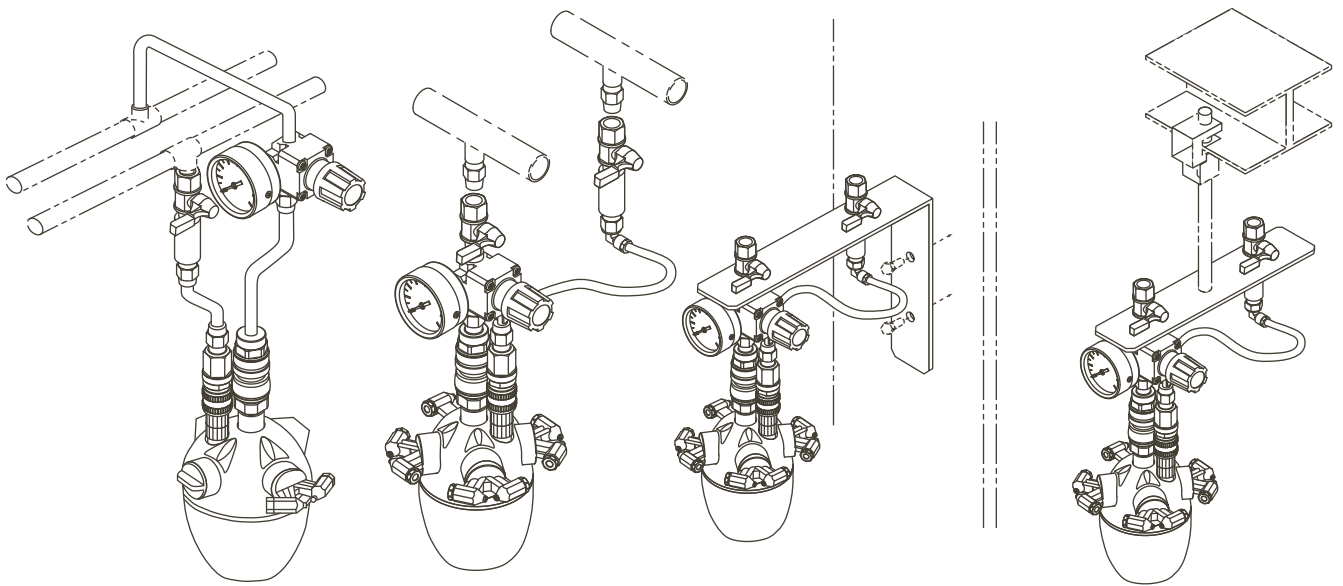
Wall mounting kit and Hanging-down kit are assembled before shipment

### Standard Kit

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

### Wall Mounting Kit

### Hanging-down Kit



- This Kit is to be assembled by customers.
- 1/4" PT male (R 1/4) threaded connection.

- 1/4"PT female (Rc1/4) threaded connection.

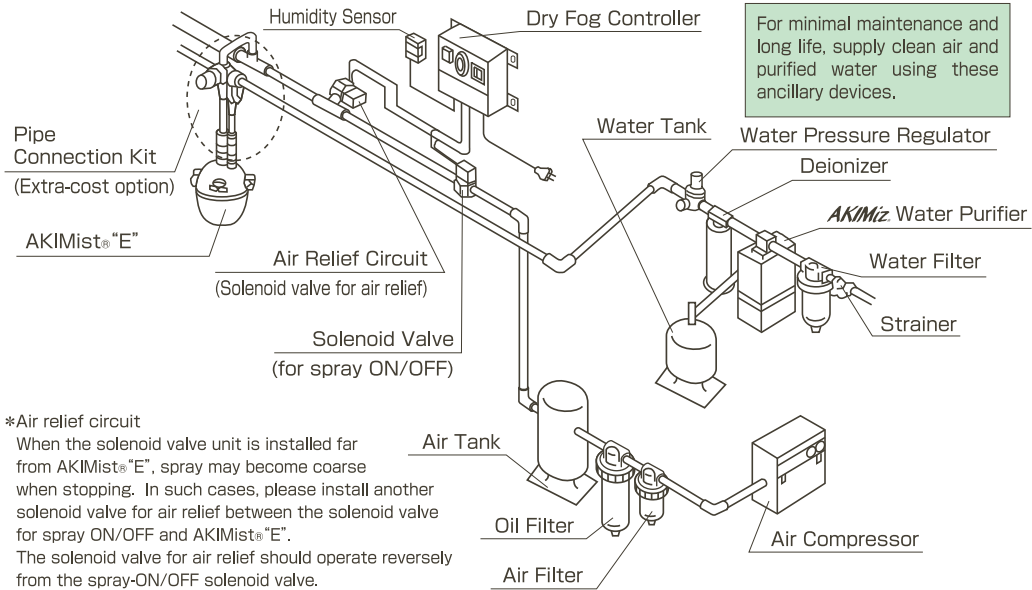
- Bolts for fixing mounting plate are not included and to be prepared by customers.
- The diameters of holes on the plate are 9mm.
- 1/4" PT female (Rc 1/4) threaded connection.

- Bolts & hanging fixture are not included and to be prepared by customers.
- The diameter of hole on the plate is 11mm.
- 1/4" PT female (Rc 1/4) threaded connection.

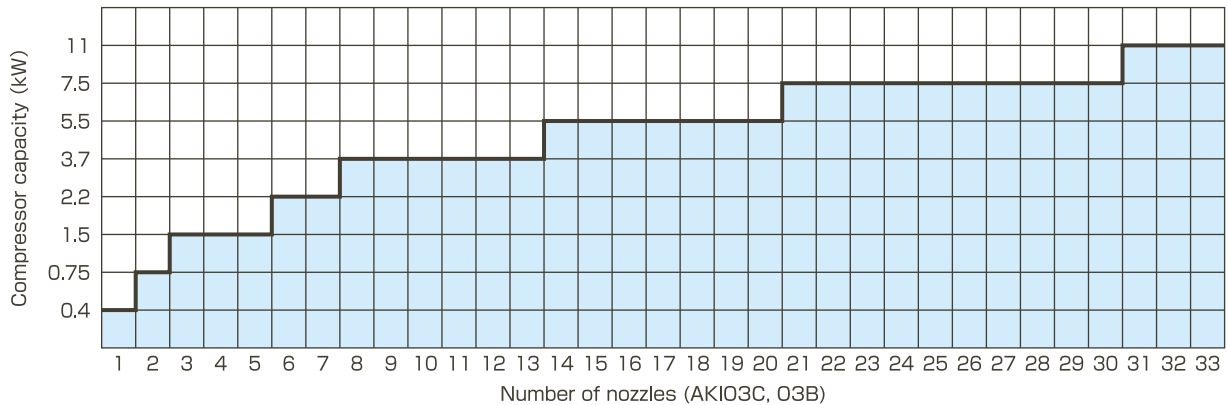


# Installation & Ancillary Devices

For minimal maintenance and long life, clean air and purified water must be supplied. IKEUCHI, with a wealth of experience, provides a wide range of ancillary devices for purifying water/air and automatic humidity control.



## Air compressor selection chart



Notes: 1. For misting with 0.3MPa air pressure.  
2. Type of compressor: reciprocating compressor for 0.4 - 7.5 kW and a screw compressor for 11 kW.  
3. Using this chart as a target, consult your compressor catalog and confirm the output capacity.

## How to select Air and Water Purifying Devices

The number of AKI03C nozzles		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Air consumption	ℓ/min, Normal (SCFM)	29ℓ/min, Normal (1.08SCFM) × the number of nozzles																																
Water consumption	ℓ/hr (GPH)	2.4ℓ/hr (0.63GPH) × the number of nozzles																																
Recommended pipe size (Stainless steel pipes should be used)	Air	1/4" PT or over			3/8" PT or over			1/2" PT or over						3/4" PT or over																				
	Water	1/4" PT or over			3/8" PT or over												1/2" PT or over																	

If you plan to use AKI03B nozzles, please inquire with us.

## For minimal maintenance and long life, supply Clean Air and Pure Water

	Air	Water
Pressure	0.2~0.5MPa (29~73psi) for 03C 0.3~0.35MPa (44~51psi) for 03B at point of use	0.1MPa (15psi) at point of use
Temperature	5 °C (41 °F) ~Room temperature	Room temperature
Quality	Air without moisture, oil mist and dust; Dew point 10 °C.	No particles Electric Conductivity = 0.07~10 micro-S/cm (Resistance 14~0.1 M ohm / cm)

# Other Ancillary Devices

## Humidity Controller (RHC-D\*\*A)



- Digital display of present humidity and target humidity
- Measurement accuracy:  $\pm 3\%$
- Supply voltage: 100V~110V or 200V~240V
- Using a single controller, up to 4 zones spread over a wide area can be controlled individually.

## Humidity Controller Digital type (RHC-031D)



- Digital display of present humidity and target humidity
- Compact size to fit any place
- Measurement accuracy:  $\pm 2\%$  (over the range 20~80%RH)
- Supply voltage: 100V~240V
- Range of operation 0~95%RH

## Humidity Controller Analog type (RHC-011)



- Low cost analog type
- Compact size to fit tight spaces
- Measurement accuracy:  $\pm 5\%$
- Supply voltage: 100V~240V
- Range of operation 20~90%RH

## Solenoid Valve Unit



A solenoid valve and reducing valve are bundled together as a unit for pressure relief. When the humidifier stops spraying, the remaining air pressure in the piping is instantly relieved, so that only fine mist is sprayed.

## Air Filter

- For removal of oil mist, dust and moisture contents over  $0.03 \mu\text{m}$  from the compressed air with micro-fiber.
- Available in a variety of sizes
- Air ancillary device sets include air filters and oil filters with a manual and automatic discharging drain and nipples.



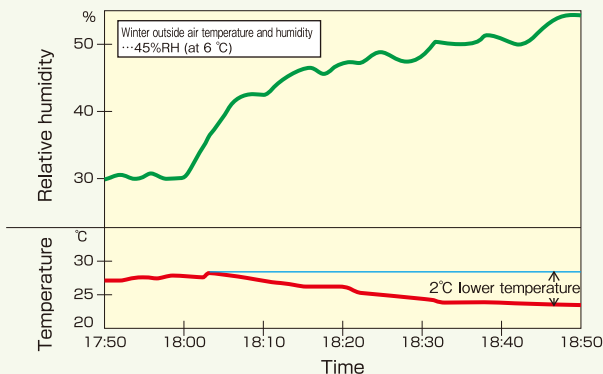
## Water Filter

- For removal of foreign particles over  $5 \mu\text{m}$ .
- Available in a variety of sizes
- Water ancillary device sets include a water filter, a pressure regulator and nipples.



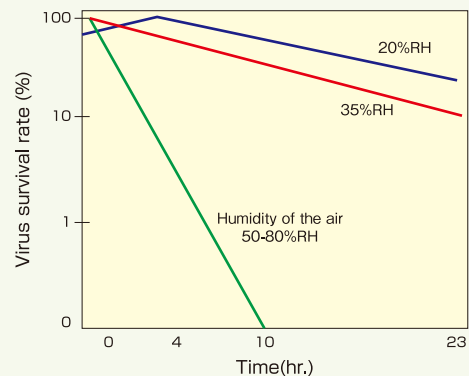
# Other Benefits of Humidification

## ● Humidification and Cooling Effects



AKIMist® reduces the air temperature while humidifying. There is approximately a 2°C reduction in temperature.

## ● Maintaining Operators' Health



In an ambient of over 50% humidity, the influenza virus dies off within approximately 10 hours.

# Customer Case Studies



## 1. Printing

### Web Offset Printing Process

**Humidity control suited to each printing press type and process has a big impact.**

- AKIMist® has quickly gained acceptance as nozzle-type humidification systems are becoming popular in the printing industry.
- AKIMist® has the best track record in the Japanese printing industry, with over 15 years of strong experience.
- For sheet-fed printing, UV printing, Flexo printing and others, we have the best-suited solutions for all kinds of printing presses.

**Improved productivity and quality, reduced waste paper**

*Paper jams, poor folds, etc.* ➔ *Solved by controlling humidity to around 50%RH*



## 2. Electronics

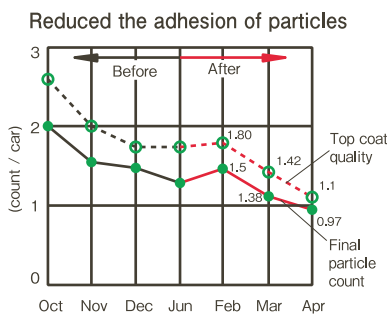
### SMT Process

**A humidification method that can be counted on to save energy has become the strongest focus of attention.**

- By maintaining humidity at an appropriate level, it is possible to prevent the various problems from static electricity.
- The dry fog cooling effect reduces the building cooling load.
- With the No. 1 track record as well as 15 years of remarkably good results, we have optimal solutions for a wide range of processes and environments.
- It is also well-suited for clean room humidification.

**Adhesion error rate reduced 60%  
Cooling load reduced 20%**

*Internal part damage* ➔ *Solved by controlling humidity to around 45%RH*



## 3. Painting

### Painting Process for Cars

**Control ambient humidity to eliminate static electricity and limit airborne waste.**

- By keeping appropriate humidity, dust is suppressed and static electricity is reduced.
- Humidification is the first step to reduce the adhesion of dust to products.
- Starting with the car industry, AKIMist® is now used in many kinds of industry as the solution for dust problems.
- We can find solutions to meet the needs of your factory.

**Reduced the adhesion of dust by 20%  
Maintaining Operators' health**

*Defective painting by adhesion of dust etc.* ➔ *Solved by controlling humidity to about 50% RH*

# Other Installations

Field

Goal

Concrete examples of results

**Textiles**

Improved productivity

- Thread breakage is prevented and productivity improved.
- Prevented pass weft from sticking.
- Prevented defects due to static electricity.

**Chemicals**

Safety precautions

- Reduced the risk of ignition in paint and ink mixing processes.
- Allowed humidification for processes where it had been previously thought impossible.
- Reduced risk of fire, which could lead to loss of life and loss of public trust.

**We have numerous proven solutions for industries beyond the above cases.** \*These effects depend on factory conditions.

Accurate and easy

AKIMist® "E" KIT

# Dry Fog Humidifier KIT AE-KIT

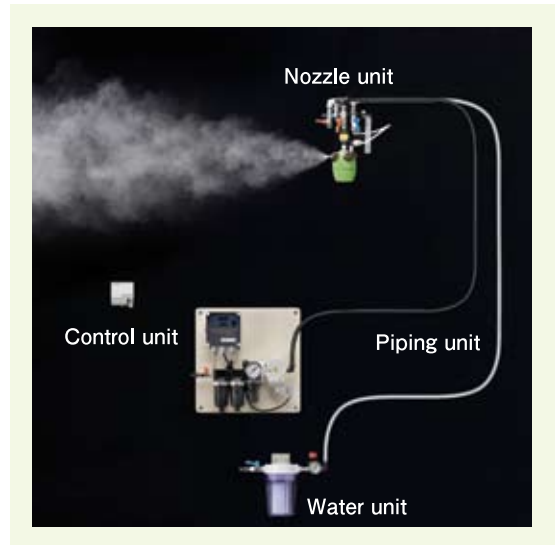
All the components for an efficient humidification system in an easy DIY kit. Just supply the electricity and compressed air.

- You can chose the contents of AE-KIT freely to suit your factory size and layout.
- Includes piping and connectors for tap water and air, you can install them easily, and keep humidity comfortable. (AKIMist® "E" is installed on a wall)
- One AE-KIT is good for spaces of up to 800m<sup>3</sup>

\*Please contact us for an inquiry sheet.

<Includes>

Nozzle unit (AKIMist® "E"), Control unit, Water (filter) unit, and Piping unit. You can install AE-KIT easily, and be controlling humidity soon.



No piping work!

## AKIMist® "E" Portable Dry Fog Humidifier Set AE-T set

No piping work necessary. Easy, convenient humidification. Portable humidifier set for immediate usage in any place with an air supply.

- AKIMist® "E" portable humidifier set with a stand unit and pressure tank.
- No installation work required.
- Easy automatic control with a humidity controller (optional).

### Main Applications

- Spot humidification around machinery and electrostatic prevention.
- Humidification in factories such as electronics, printing, textile, paper mills, etc.

### A Ranges of Options

- ① Choose your fog — two types of spray nozzles are available; 03C-type for high quality fog (2.4ℓ/hr or 0.63GPH)\* and 03B-type for large volume fog (3.3ℓ/hr or 0.87GPH)\*.  
\*Spray volume per nozzle at air pressure of 0.3MPa.
- ② Up to 4 nozzles can be mounted. A humidifier with 4 nozzles has large spraying capacity, maximum 13.2ℓ/hr (3.48GPH) at air pressure of 0.3MPa (44psi). (Air compressor shown in the photo is only for operating 1 nozzle.)
- ③ Easy automatic control by humidity controller (optional).



### < Pressure Tank >

Capacity of tank	Material	Max. pressure	Mass
18ℓ (4.8gal)	SUS304 etc.	0.7MPa (100psi)	5kg (loaded: 23kg) 11lb (loaded: 50.7lb)

Note: Safety valve is set at 0.4MPa.

<Includes>

AKIMist® "E", Stand, Telescopic pole, Pressure tank, Gauge-mounted air pressure regulators, Mounting unit

<Options>

Stand with wheels, Compact humidity controller set



"The Mist Engineers"

H. IKEUCHI & CO., LTD.

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