


Wide Range of Nozzles for Optimal Ionization

- From pin-point to wide-area ionization, the optimal ionization for the application is now possible.
- High-frequency AC method with excellent ion balance.

 Be sure to read *Safety Precautions* on page 1287.

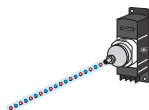


Features

Select the Nozzle for the Application

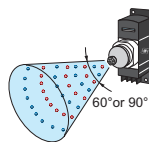
Standard Nozzle

- An application example of the basic standard nozzle.



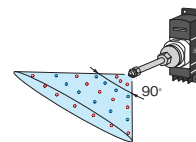
Shower Nozzle

- Injects ionized air over an angle of 60° or 90°.



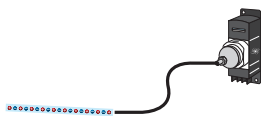
Flat Nozzle

- Injects ionized air over an angle of 90° to enable ionization of comparatively wide objects.



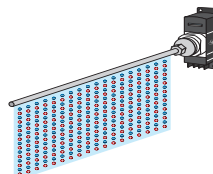
Combination of Standard Nozzle and Optional Tube

- Attach the Optional Tube to the Standard Nozzle to blow ionized air close to the workpiece for pin-point ionization.



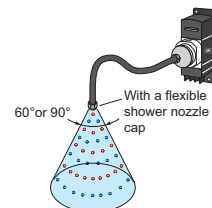
Straight Bar Nozzle

- Neutralizes static electricity over a wide area.
- Five ionization areas from 100 to 500 mm.



Combination of Flexible Tube Nozzle and Optional Cap

- Combine the nozzle with the optional cap at the tip of the nozzle to enable many ionization applications.

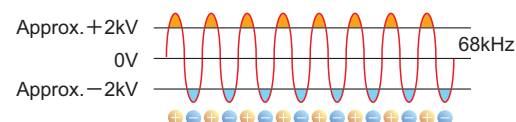


Efficient Pin-point Ionization

High-speed ionization of the target spot is possible by using a tube or metal pipe to get closer to the workpiece. The ionizer can be brought as close as 1 mm to the workpiece.

High-frequency AC Method with Excellent Ion Balance

Uses more compact high-frequency AC method with excellent ion balance and stability.



Driven by 24-VDC power supply with no high-voltage wiring required.



24-VDC Power Supply with No High-voltage Wiring Required

Only the 24-VDC power supply for the Ionizer is needed. No dangerous high-voltage wiring is required.

Compact Type with Built-in Controller

Controller section built in. Simple all-in-one Unit that installs easily just about anywhere.

The Ionizer oscillates at a much higher frequency (68 kHz) than the previous AC method to generate high-density ions. Noise generation is also reduced by a $\pm 2kV$ low-voltage corona discharge.

- With standard nozzle



Safe because the high voltage parts are covered by the nozzle.

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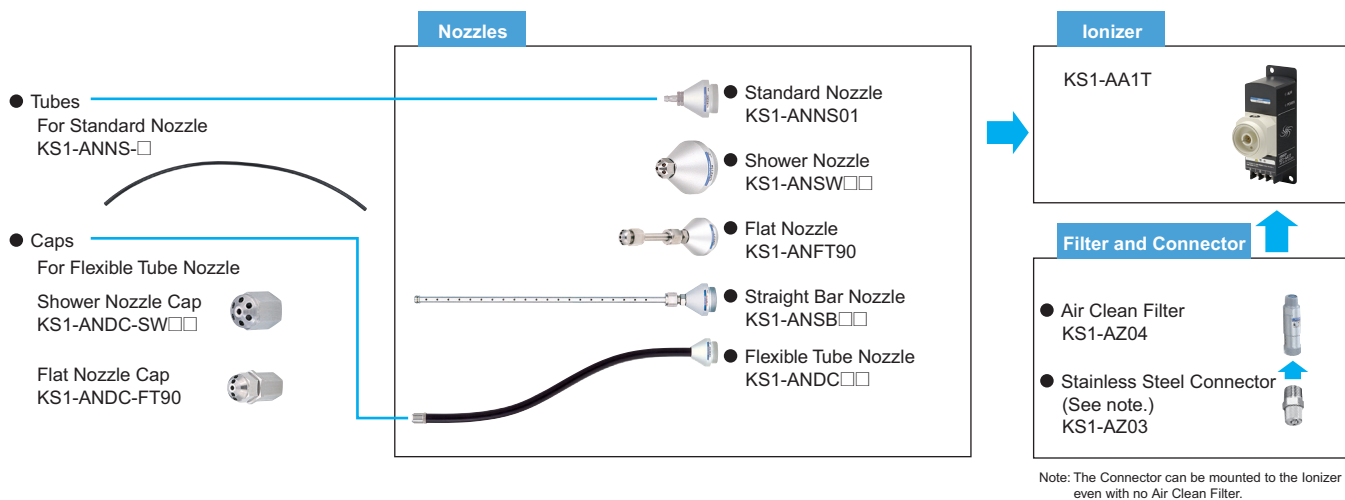
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Product Configuration



Ordering Information

Ionizer

Model
KS1-AA1T

Accessories

Nozzles

Product	Model	
Standard Nozzle	KS1-ANNS01	
Shower Nozzle	60°	KS1-ANSW60
	90°	KS1-ANSW90
90° Flat Nozzle	KS1-ANFT90	
Straight Bar Nozzle	100 mm	KS1-ANSB10
	200 mm	KS1-ANSB20
	300 mm	KS1-ANSB30
	400 mm	KS1-ANSB40
	500 mm	KS1-ANSB50
Flexible Tube Nozzle	100 mm	KS1-ANDC10
	200 mm	KS1-ANDC20
	300 mm	KS1-ANDC30
	400 mm	KS1-ANDC40
	500 mm	KS1-ANDC50

Tubes

Product	Model
500-mm Conductive Urethane Tube	KS1-ANNS-U
500-mm Fluororesin Tube	KS1-ANNS-F
500-mm Silicone Tube	KS1-ANNS-S

Caps

Product	Model
60° Flexible Shower Nozzle Cap	KS1-ANDC-SW60
90° Flexible Shower Nozzle Cap	KS1-ANDC-SW90
90° Flexible Flat Nozzle Cap	KS1-ANDC-FT90

Optional Products

Product	Model
Replacement Dischargers (set of 5)	KS1-AZ01T
Tool for Replacing Dischargers	KS1-AZ02
Stainless Steel Connector	KS1-AZ03
Air Clean Filter	KS1-AZ04

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Ratings and Specifications

Ionizer

Item	Model	KS1-AA1T
Power supply voltage		24 VDC \pm 5%
Current consumption		Approx. 100 mA
Discharge method		High-frequency AC (approx. 68 kHz)
Output voltage		\pm 2kV
Safety circuit		Output alarms for ionization errors
Discharge time		0.8 s max. (at a distance of 50 mm from air outlet)
Ion balance		\pm 15V or less (at a distance of 50 mm from air outlet)
Fluid used		Air (refer to Applicable Air)
Amount of generated ozone		0.04 ppm or less (when standard nozzle used, at a distance of 300 mm from air outlet and primary side voltage of 0.25 Mpa)
Supplied airflow		Approx. 100 L/min (ANR) (when standard nozzle used, at primary side voltage of 0.15 Mpa)
Indicators		Green POWER indicator lit while Ionizer ON, red ALM indicator lit for ionizing errors
Air pressure range		When Standard Nozzle or Flexible Tube Nozzle is used: 0.02 to 0.25 MPa
		When Standard Nozzle Tube is attached: 0.02 to 0.12 MPa
		When Shower Nozzle, Flat Nozzle, or Straight Bar Nozzle is used: 0.05 to 0.40 MPa
Ambient temperature		0 to 40°C (with no condensation or icing)
Ambient humidity		35% to 65% (with no condensation)
Weight		Approx. 235 g (Ionizer only)
Accessories		One ground lead (2 m)

Air Clean Filter

Item	Model	KS1-AZ04
Fluid used		Air
Connection aperture		R(Rc)1/8
Collected particle size		0.1 μ m
Collection efficiency		99.9%
Volume of air processed		40 l/min (ANR) *
Film area		29.9cm ²
Maximum voltage used		0.97 MPa
Withstanding pressure		1.47 MPa
Operating temperature range		5 to 45°C
Weight		11 g
Recommended tightening torque		400 to 600 N•cm
Unit material		Aluminum alloy (alumite treated)
Element material		Porous, hollow thread membrane

* At 0.7 MPa (pressure drop of 0.03 MPa)

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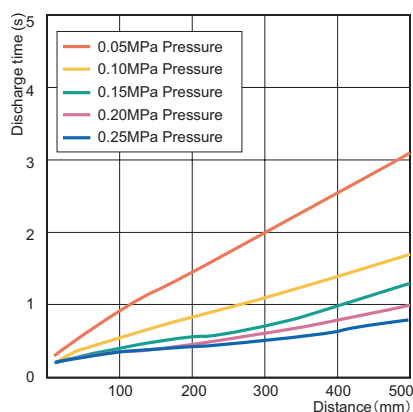
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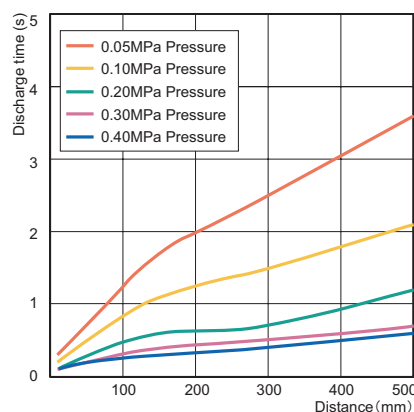
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Discharge Characteristics (Typical)

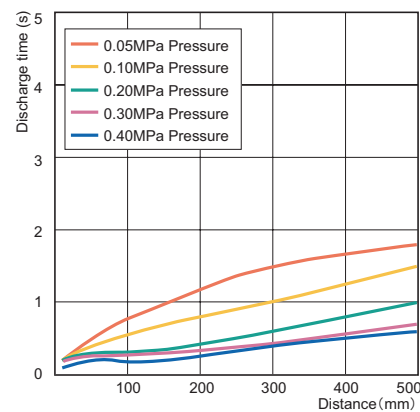
Standard Nozzle
KS1-ANNS01



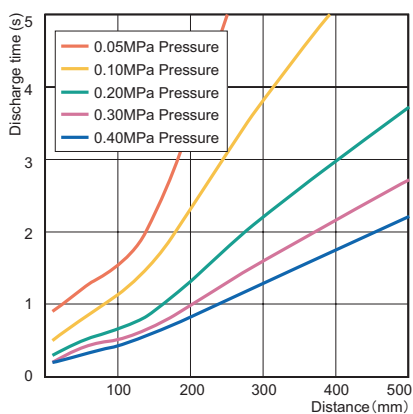
60°C Shower Nozzle
KS1-ANSW60



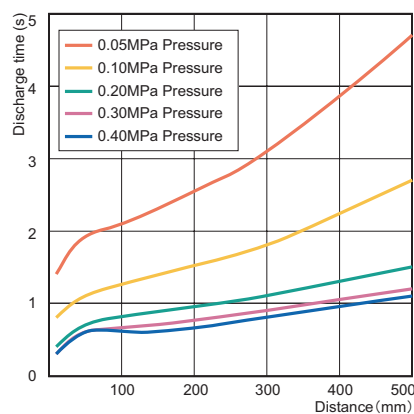
90°C Shower Nozzle
KS1-ANSW90



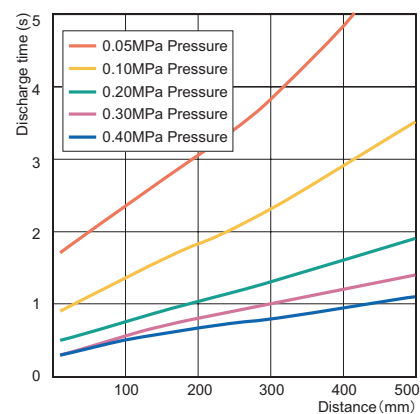
Flat Nozzle
KS1-ANFT90



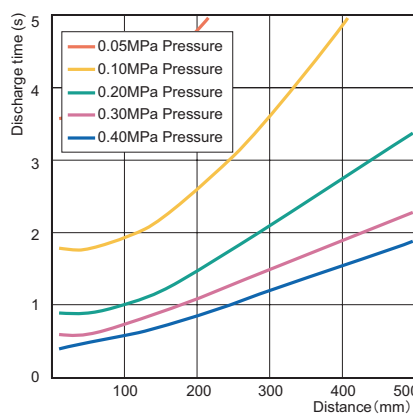
100-mm Straight Bar Nozzle
KS1-ANSB10



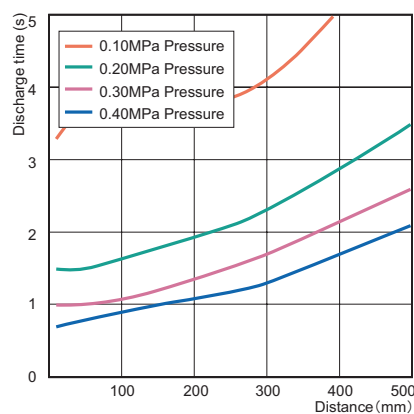
200-mm Straight Bar Nozzle
KS1-ANSB20



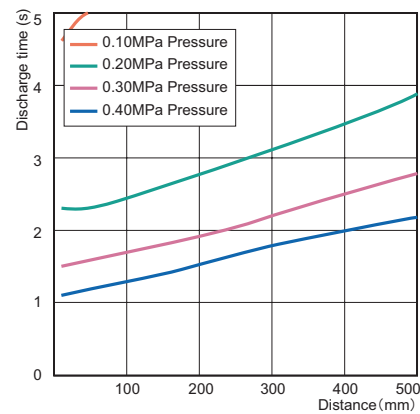
300-mm Straight Bar Nozzle
KS1-ANSB30



400-mm Straight Bar Nozzle
KS1-ANSB40



500-mm Straight Bar Nozzle
KS1-ANSB50



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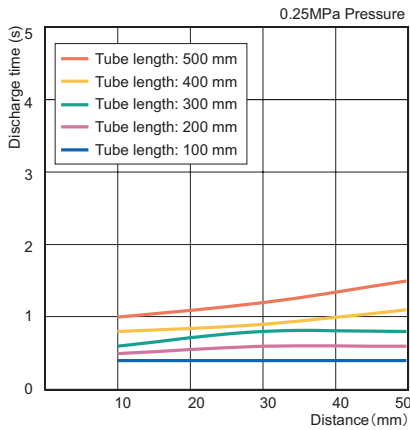
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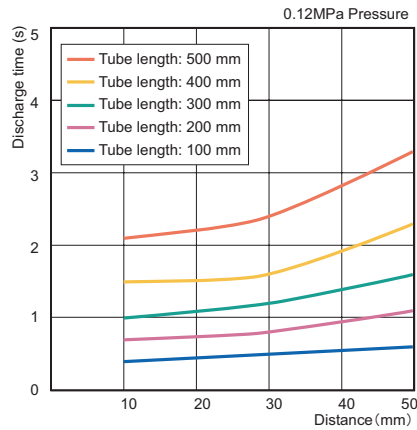
Flexible Tube Nozzle

KS1-ANDC□



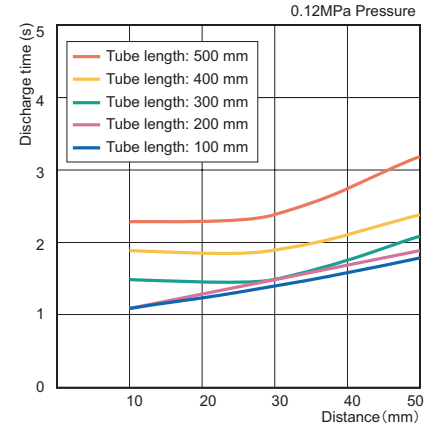
Standard Nozzle with Conductive Urethane Tube

KS1-ANNS-U□ Connected to KS1-ANNS01



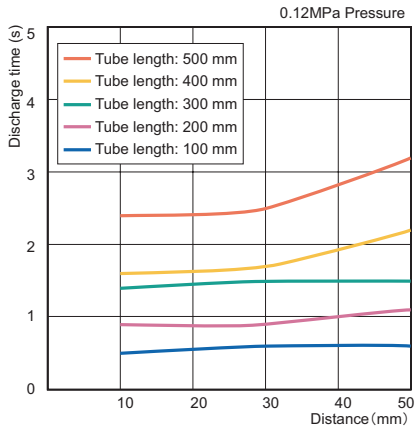
Standard Nozzle with Fluorescein Tube

KS1-ANNS-F□ Connected to KS1-ANNS01



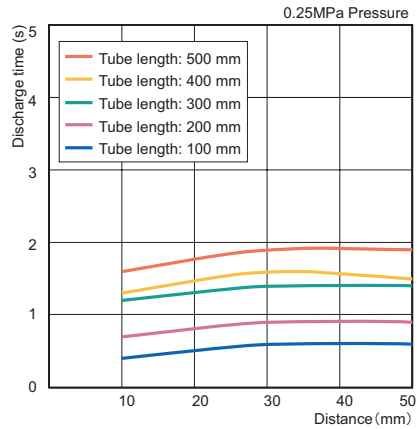
Standard Nozzle with Silicon Tube

KS1-ANNS-S□ Connected to KS1-ANNS01



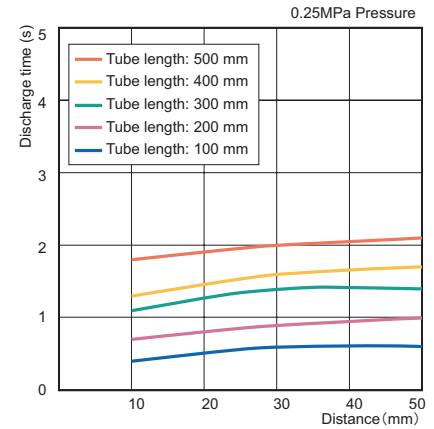
Flexible Tube and 60° Shower Nozzle Cap

KS1-ANDC-SW60 Connected to KS1-ANDC□



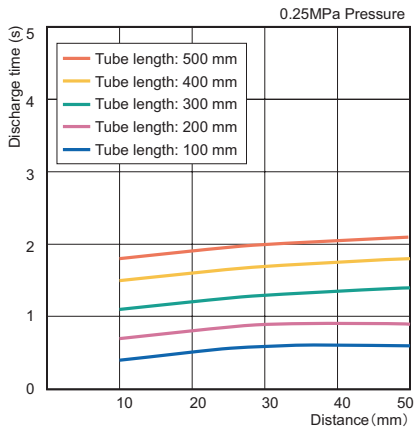
Flexible Tube and 90° Shower Nozzle Tube

KS1-ANDC-SW90 Connected to KS1-ANDC□



Flexible Tube and Flat Nozzle Cap

KS1-ANDC-FT90 Connected to KS1-ANDC□



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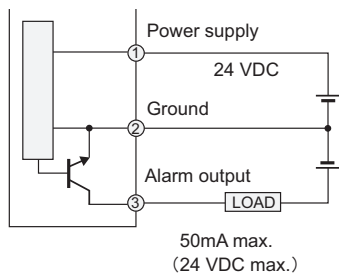
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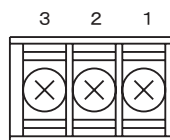
Connection Diagrams

Wiring Diagram



Note: Alarm outputs are NC.

Terminal Block Diagram



- 1 : 24-VDC input power supply
- 2 : Ground (power supply and output)
- 3 : Output terminal

Safety Precautions

Refer to *Warranty and Limitations of Liability* on page F-2.

WARNING

This product is not designed or rated for ensuring safety of persons. Do not use it for such purpose.



Precautions for Correct Use

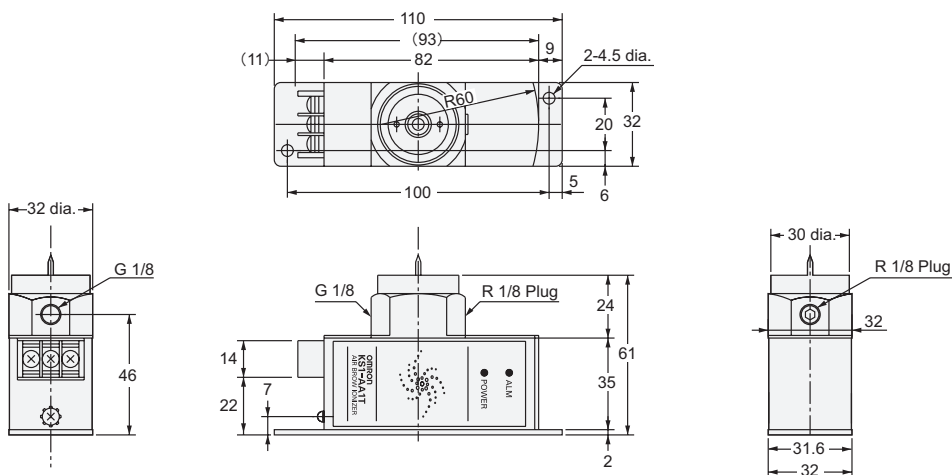
Do not use the product in atmospheres or environments that exceed product ratings.

Dimensions

(Unit: mm)

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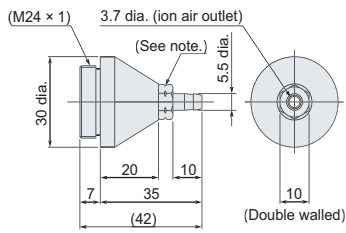
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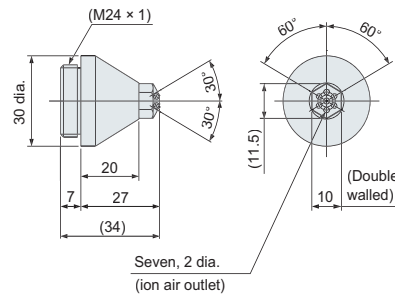
Nozzles and Optional Products Used with the Ionizer

Nozzles

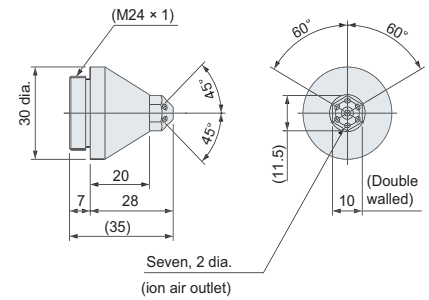
Standard Nozzle KS1-ANNS01



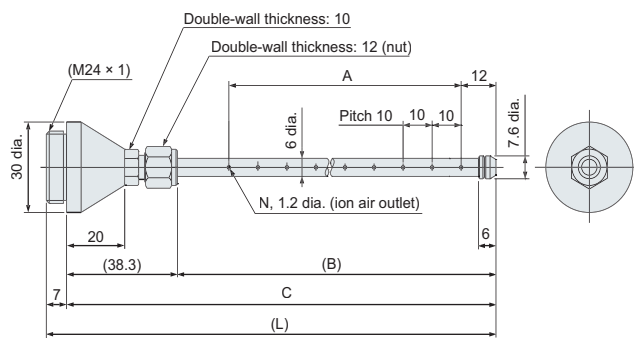
60° Shower Nozzle KS1-ANSW60



90° Shower Nozzle KS1-ANSW90

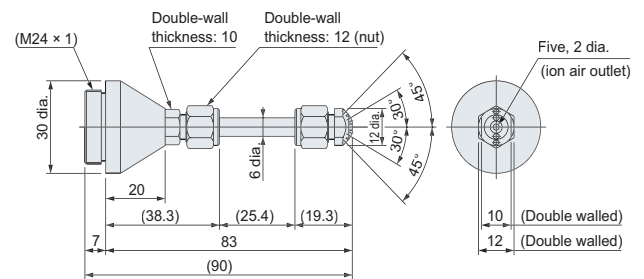


Straight Bar Nozzles KS1-ANSB□

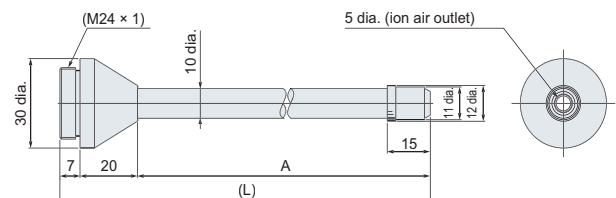


Model	A	B	C	L	N
KS1-ANSB10	100	129.7	168	175	11
KS1-ANSB20	200	229.7	268	275	21
KS1-ANSB30	300	329.7	368	375	31
KS1-ANSB40	400	429.7	468	475	41
KS1-ANSB50	500	529.7	568	575	51

Flat Nozzle KS1-ANFT90



Flexible Tube Nozzles KS1-ANDC□



Model	A	L
KS1-ANDC10	102	129
KS1-ANDC20	202	229
KS1-ANDC30	302	329
KS1-ANDC40	402	429
KS1-ANDC50	502	529

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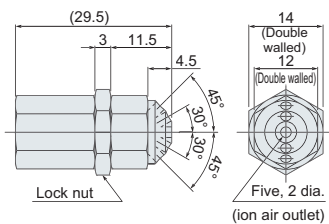
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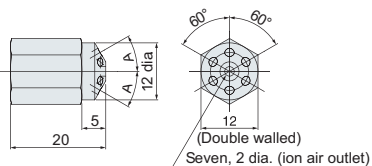
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Caps

Flexible Flat Nozzle Cap KS1-ANDC-FT90



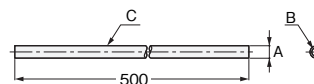
Flexible Shower Nozzle Caps KS1-ANDC-SW□



Model	Type	A
KS1-ANDC-SW60	60°	30°
KS1-ANDC-SW90	90°	45°

Optional Tubes

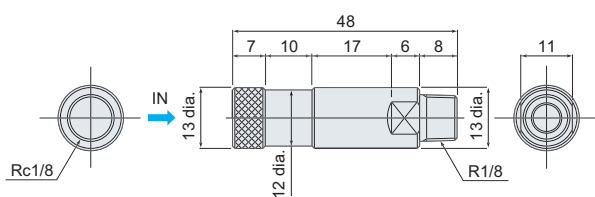
Optional Tubes for Standard Nozzles KS1-ANNS-□



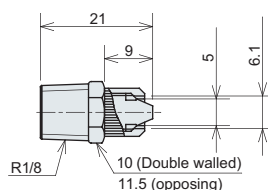
Model	A	B	C
KS1-ANNS-U	6 dia.	4 dia.	Conductive Urethane Tube
KS1-ANNS-F	7 dia.	5 dia.	Fluororesin Tube
KS1-ANNS-S	7 dia.	4 dia.	Silicon Tube

Optional Products

Optional Air Clean Filter KS1-AZ04



Stainless Steel Connector KS1-AZ03



- Attached to the ionizer for air tube connection.
- If using products from other manufacturers, consider using stainless steel products for less impact on the ozone layer.

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