KOGANEI

Catalog No.BK-R0001

NEW Products

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ISO9001
ISO14001

TÜV CERT ISO 9001 / ISO 14001

Creceed

Static Electricity Removing Unit

IONIZER

Static Electricity Removing Unit
IONIZER

Environmentally friendly **RoHS** compliant product!

Static electricity is generated by triboelectric, peeling or induction charging.
Especially within the electronics industry, static electricity causes damage to semiconductor or electronic devices. It can also cause electronic malfunction due to particles on liquid crystal, wafer or disks, having detrimental effects on both productivity and quality control.
Koganei Static Electricity Removing Unit Ionizers meet the need of pinpoint to wide-area static charge removal by releasing positive and negative ions alternately using the high frequency AC method.
The Blow type Ionizer enables static charge removal for numerous applications using a variety of nozzles, the Fan type Ionizer does not require supplying air, and the Air Gun type Ionizer makes the full use of its capabilities for dust removal.
We provide wide range of products for a variety of workpieces.

Caution Read "Safety Precautions" on page ❸ before use.

Products line up

BLOW TYPE page 5

Supplied air releases positive and negative ions from the nozzle. The good ion balance removes static charges from pinpoint to wide area steadily and quickly. Various nozzles enable static charge removal for a broader range of workpieces.

1-HEAD TYPE

2-HEAD TYPE

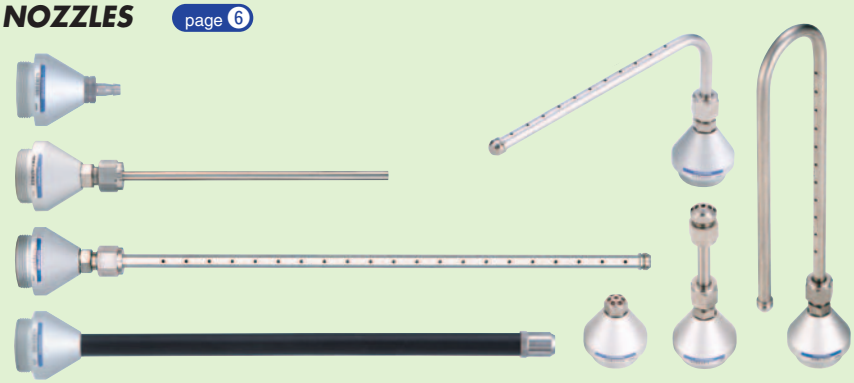
COMPACT BLOW TYPE

MINI LINE FILTER

Offers clean and economical air. Use of a porous hollow fiber membrane achieves a lightweight and compact filter with simple construction.
Can be mounted directly to the static electricity removing unit IONIZER.

page 44

NOZZLES page 6



LC SERIES BLOW TYPE

Low particle generation type page 30

The LC series blow type is a low particle generation type Ionizer, minimizing particle generation during discharging. Smaller size and weight. Suitable for clean environments.

LC SERIES BLOW TYPE

STEADY FLOW FAN TYPE page 35

Removing static charge steadily and quickly with good ion balance. Available in three models in accordance with where to install, and type of applications, thanks to no air supply requirement. Changeable louver enables selection of static charge removal area.

STEADY FLOW FAN TYPE

DTRY-ELF02

DTRY-ELF03

DTRY-ELF04

AIR GUN TYPE

page 42

Light force operating electric switch for operation. Main body is very light, weighing only 140 g. It can remove static electricity and blow off dust instantaneously.

CONTENTS

Safety Precautions (Static Electricity Removing Unit IONIZER) Always read these precautions carefully before use.

Before selecting and using products, please read all the Safety Precautions carefully to ensure proper product use.
The Safety Precautions shown below are to help you use the product safely and correctly, and to prevent injury or damage to assets beforehand.
Follow the Safety Precautions for: ISO4414 (Pneumatic fluid power--Recommendations for the application of equipment to transmission and control systems), JIS B 8370 (Pneumatic system regulations)

The directions are ranked according to degree of potential danger or damage: "DANGER!" "WARNING!" "CAUTION!" and "ATTENTION!"

⚠ DANGER	Expresses situations that can be clearly predicted as dangerous. If the noted danger is not avoided, it could result in death or serious injury. It could also result in damage or destruction of assets.
⚠ WARNING	Expresses situations that, while not immediately dangerous, could become dangerous. If the noted danger is not avoided, it could result in death or serious injury. It could also result in damage or destruction of assets.
⚠ CAUTION	Expresses situations that, while not immediately dangerous, could become dangerous. If the noted danger is not avoided, it could result in light or semi-serious injury. It could also result in damage or destruction of assets.
⚠ ATTENTION	While there is little chance of injury, this content refers to points that should be observed for appropriate use of the product.

■ This product was designed and manufactured as parts for use in General Industrial Machinery.
■ In the selection and handling of the equipment, a system designer or other person with fully adequate knowledge and experience should always read the Safety Precautions, Catalog, Instraction Manual and other literature before commencing operation. Making mistakes in handling is dangerous.
■ After reading the Instruction Manual, etc., always place the Manual where it can be easily available for reference to users of this product.
■ If transferring or lending the product to an another person, always attach the Instruction Manual, etc., to the product where it is easily visible, to ensure that the new user can use the product safely and properly.
■ The danger, warning, and caution items listed under these "Safety Precautions" do not cover all possible cases. Read the catalog and user's manual carefully, and always keep safety first.

⚠ DANGER

- Do not use for the purposes listed below:
  1. Medical equipment related to maintenance or management of human lives or bodies.
  2. Mechanical devices or equipment designed for the purpose of moving or transporting people.
  3. Critical safety components in mechanical devices.
     This product has not been planned or designed for purposes that require advanced stages of safety. It could cause injury to human life.
- Do not use in locations with or near dangerous substances such as flammable or ignitable substances. This product is not explosion-proof. It could ignite or burst into flames.
- When attaching the product, always ensure that it is securely fixed in place. Dropping or falling the products, or improper operation could result in injury.
- The Ionizer generates high voltages. Do not disassemble, adjust, or remodel the device, because it can be very dangerous. Such action could result in a malfunction, injury, electric shock, fire, etc.
- Do not splash water on the product. Spraying it with water, washing it, or using it underwater could result in malfunction of the product leading to injury, electric shock, fire, etc.
- Always shut off power when inspecting, cleaning and performing maintenance. Leaving the power ON could resurt in electric shocks.
- Never touch the discharging needle while the device is plugged in. You may receive electrical shock as a high voltage is applied to the discharging needle.
- Never remodel the product, otherwise you could be injured by such as abnormal operations.

⚠ WARNING

- Do not use this product in excess of its specification range. Such use could result in product breakdowns, cessation of function, shutdown or damage. It could as well result in a significant reduction of its service life.
- Before supplying air or electricity to the device and before starting operation, always conduct a safety check of the area of machine operation. Careless supply of air or electricity could possibly result in electric shocks, or in injury caused by contact with moving parts.
- Do not touch the discharging needles, the terminals and/or the miscellaneous switches, etc., while the device is plugged in. There is the possibility of electric shock and abnormal operation.
- Do not allow the product to be thrown into fire. The product could explode and release toxic gases.
- Do not sit on the product, place your foot on it, or place other objects on it. Accidents such as falling and tripping over could result in injury. Dropping the product may damage or break the product resulting in abnormal, improper or erratic operation.
- Handle the discharging needle with caution, since it has a sharp-pointed tip. Wrong handling of it could result in body injury.
- Before performing product maintenance/inspection, piping connection/disconnection or replacement of products using compressed air, be sure to isolate the air supply completely and make sure that the pressure inside the product and the piping to which the product is connected are exhausted.
  Especially note that the air compressor and the air storage tank will have air residue.
- Always shut off power when performing wiring work. Leaving the power ON could result in electric shocks.
- Avoid scratching the cords of the sensor switch lead wires, etc. Letting the cords be subject to scratching, excessive bending, pulling, rolling up, or being placed under heavy objects or squeezed between two objects, may result in current leaks or defective continuity that lead to fires, electric shocks, or abnormal operation.
- Do not pull out the connectors while the power is ON. Also, do not apply unnecessary stress on the connector. It could result in erratic equipment operation that could lead to personal injury, equipment breakdown, or electrical shocks, etc.
- Always check the Instruction Manual to ensure that the product wiring and piping are done correctly. Errors in wiring and piping could lead to abnormal operation of the product, etc.
- After wiring work, always check to ensure that no wiring connection errors exist before turning on the power. When the + side and the - side of the power supply wiring are connected in reverse, a failure will occur.
- Media used for the Blow Type is air, never use other than the air.
- Always supply the power of the blow type Ionizer with applying air. Otherwise, bad effects on the main unit and its surroundings may occur.
- Do not use the supplied cable for AC adapter or power and signal cables included in the products for a moving section. Otherwise, they may break down.

⚠ CAUTION

- When mounting the product, leave room for adequate working space around it. Failure to assure adequate working space will make it more difficult to perform daily inspections or maintenance, which could eventually lead to system shutdown or damage to the product.
- The Ionizer emits ozone into an atmosphere. If a single unit is operated, ozone will reach the saturation point and will not increase beyond the certain level. However, if several units are operated simultaneously and if you smell ozone, pay attention to the ventilation of the ambient. Do not attempt to check the smell of ozone by directly bringing your face close to the outlet of ionized air flow, since you might get your nose and throat hurt.

⚠ ATTENTION

- When considering the possibility of using this product in situations or environments not specifically noted in the Catalog or Instruction Manual, or in applications where safety is an important requirement, such as in an airplane facility, combustion equipment, leisure equipment, safety equipment and other places where human life or assets may be greatly affected, take adequate safety precautions such as applications with enough margins or fail-safe measures for ratings and performance. Please consult KOGANEI with any questions.
- Always check the Instruction Manual and other reference materials for product's wiring and piping.
- When handling the product, wear protective gloves, safety glasses, safety shoes, etc., to ensure safety.
- When the product can no longer be used, or is no longer necessary, dispose of it appropriately as industrial waste.
- Do not use the Ionizer for any other purpose than the static electricity removal.

⚠ OTHER

- Always observe the following items.
  1. When using this product in pneumatic systems, always use genuine KOGANEI parts or compatible parts (recommended parts). When conducting maintenance and repairs, always use genuine KOGANEI parts or compatible parts (recommended parts). Always observe the required procedures.
  2. Do not attempt inappropriate disassembly or assembly of the product relating to basic configurations, or its performance or functions.

KOGANEI cannot be responsible if these items are not properly observed.

General precautions

1. Before plumbing, thoroughly flush the pipe's inside with compressed air. Metal chips, sealant tape and rust generated during plumbing could cause clogging and/or malfunction.
2. Use clean air. No vapor and oil are allowed.
3. The Ionizer cannot be used when the media or ambient atmosphere contains the following: organic solvents, phosphate ester type hydraulic oil, sulphur dioxide, chlorine gas or acid.
4. Do not apply excessive external force to the device.
5. Do not disassemble or remodel the product.
6. Do not expose the product to ultraviolet light or weathering.

Installation

1. Install the unit on a flat surface. If the unit is installed with distortion or bending, a malfunction may occur.
2. For installation of the unit, pay attention to the contamination by oil/water, high temperatures or high humidity. Especially, avoid a place subject to dew condensation.
3. Even when blowing the ionized air onto a charged object while it is getting close to or getting contact with the others, you could not expect the desired effect of removing static charges.
   When installing the Ionizer, pay particular attention to ambient conditions of an object from which to remove static charges.
4. If the Ionizer is not grounded properly, static charge removal level will be reduced.

Precautions on Use

1. Before inspections, cleaning, or maintenance, be sure to switch off power supply.
2. In the case of a failure, always consult Koganei for adjustment or repair of the product.
3. Periodic maintenance is required to maintain performance. Perform periodic maintenance according to the Instruction Manual of the product.
4. The service life of the discharging needle varies depending on the environmental conditions where it is used. A poor operating environment (e.g., very humid conditions) or failure to clean the discharging needle will lead to degraded performance of the discharging needle. Hence, periodic maintenance is required.
5. Care should be taken to wire correctly. When the + side and the – side of the power supply wiring are connected in reverse to the main unit of the Ionizer, a failure will occur.
6. Do not use the product at a moving section of a device under shock and vibration.
7. Do not use the cable for AC adapter or power supply and signal cables provided with the products, for a moving section. Otherwise, they may break down.

BLOW TYPE / COMPACT BLOW TYPE

The Blow type version can remove static charges with pinpoint accuracy.
As distinct from current AC type Ionizers, these units can be used with a low voltage DC power supply due to the use of a compact high voltage transformer, which eliminates high voltage wiring.
These units are high frequency AC type with superior ion balance.
A variety of nozzles allow for static charge removal in pinpoint area or for use on wide workpieces.
The compact blow type DTRY-ELL01 has achieved smaller size and weight with a 30% volume reduction and 35% weight reduction compared to DTRY-ELB01.

1-HEAD TYPE

※When using a standard nozzle

2-HEAD TYPE

※When using a standard nozzle

COMPACT BLOW TYPE

※When using a standard nozzle

BLOW TYPE

IONIZER body
(In combination with a nozzle.)

COMPACT BLOW TYPE

■Enables carrying ion through a tube or metal pipe, which was considered to be impossible up until now.
- Allows static charge removal where there is limited space to install the Ionizer body.

■These unit can be used with a low voltage DC power suppy due to an in-built compact high voltage transformer.
- This eliminates high voltage wiring and power supply, leading to trouble free use caused by power supply and wiring section.

■Enables static charge removal with pinpoint accuracy.
- By using a tube or metal piping, the Blow type enables quick static charge removal on a targeted point due to the ability to move the nozzle closer to the point.
- Minimum distance between the nozzle and the targeted object is 1mm.

■Due to good ion balance, removal of static charge is always possible.
- Decay time from 1000 V to 100 V at 100 mm distance is within a second. (when using a standard nozzle, and applying 0.1 MPa air pressure)

■There is no electric field concentration at ionized air flow outlet, therefore there is no detriment to the device.
- A strong electric field is generated at the high voltage applying section in current ionizers. This can cause breakage of the device when bringing the Ionizer close. However, the Koganei Ionizer causes no damage to the device even when bringing it close.

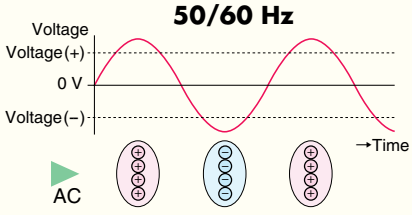
■Very low generation of electrical noise due to low voltage output.
- Meets the requirements for EN55011: 1998 Group1 Class A

■Alarm output when abnormality occurs in high voltage section where generating ion.
- Ensures prevention of producing defective products caused by faulty removal of static charges. Switchable contact points between N/O (a-contact) and N/C (b-contact).

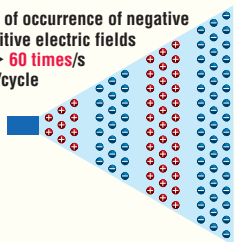
■CE marking compliant products

■Controller is available
- The controller includes an in-line filter **PLF100** and a regulator. The former removes particles and the latter adjusts pressure, enabling control of both power and air supply for the Blow type. Note: Ensure removal of oil and water in the air beforehand.

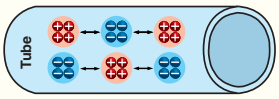
Conventional method (commercial frequency)



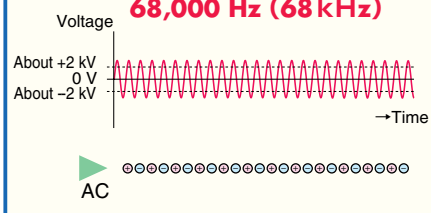
●Number of occurrence of negative and positive electric fields
60 Hz → 60 times/s
0.016 s/cycle



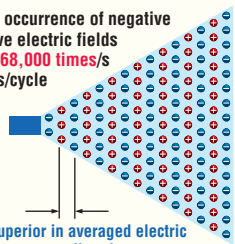
Ions inside a tube and nozzle
Easily neutralized



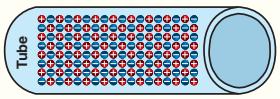
High frequency method



●Number of occurrence of negative and positive electric fields
68 kHz → 68,000 times/s
0.000015 s/cycle



Ions inside a tube and nozzle
Hardly neutralized



It is superior in averaged electric charges per small surface area.

Nozzles for Blow Type

● Standard nozzle Note
DTRY-NZR01NS

■ Options for standard nozzle
(same as the compact blow type)

・ Conductive urethane tube (500 mm)
DTRY-ADN-U

・ Teflon tube (500 mm)
DTRY-ADN-F

・ Silicone tube (500 mm)
DTRY-ADN-S

● Shower nozzles
DTRY-NZR20SW (60° type)
DTRY-NZR21SW (90° type)

● Flat nozzle
DTRY-NZR01FT

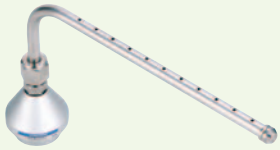
● Stainless steel pipe nozzle (120 mm)
DTRY-NZR02S

● Straight bar nozzles
(Nominal size: 100～500 mm)
DTRY-NZR100B～500B

● Spiral bar nozzle
DTRY-NZR200SP

● U-shaped bar nozzle
DTRY-NZR100U

● L-shaped bar nozzles
DTRY-NZR100L(Nominal size: 100 mm)
DTRY-NZR200L(Nominal size: 200 mm)



● Free-mounting L-shaped bar nozzles
DTRY-NZR100FMT(Nominal size: 100 mm)
DTRY-NZR200FMT(Nominal size: 200 mm)

※The direction of the ionized air flow outlet is adjustable.

● Bender nozzle (100～500 mm)
DTRY-NZR100ND～500ND

■ Optional nozzle units for bender nozzle
(same as the compact blow type)

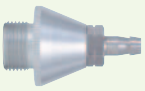
・ Bender shower nozzle units
DTRY-ADN-SW60 (60° type)
DTRY-ADN-SW90 (90° type)

・ Bender flat nozzle unit
DTRY-ADN-FT01

・ Bender bar nozzle units
DTRY-ADN-100B(Nominal size: 100 mm)
DTRY-ADN-200B(Nominal size: 200 mm)

Nozzles for Compact Blow Type

● Standard nozzle Note
DTRY-NZL01NS



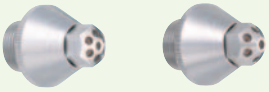
■ Options for standard nozzle
(same as the blow type)

・ Conductive urethane tube (500 mm)
DTRY-ADN-U

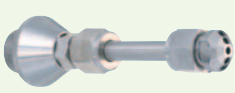
・ Teflon tube (500 mm)
DTRY-ADN-F

・ Silicone tube (500 mm)
DTRY-ADN-S

● Shower nozzles
DTRY-NZL20SW (60° type)
DTRY-NZL21SW (90° type)



● Flat nozzle
DTRY-NZL01FT



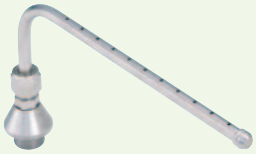
● Stainless steel pipe nozzle (120 mm)
DTRY-NZL02S

● Straight bar nozzles
(Nominal size: 100～500 mm)
DTRY-NZL100B～500B

● Spiral bar nozzle
DTRY-NZL200SP

● U-shaped bar nozzle
DTRY-NZL100U

● L-shaped bar nozzle
DTRY-NZL100L(Nominal size: 100 mm)



● Free-mounting L-shaped bar nozzles
DTRY-NZL100FMT(Nominal size: 100 mm)
DTRY-NZL200FMT(Nominal size: 200 mm)

※The direction of the ionized air flow outlet is adjustable.

● Bender nozzle (100～500 mm)
DTRY-NZL100ND～500ND

■ Optional nozzle units for bender nozzle
(same as the blow type)

・ Bender shower nozzle units
DTRY-ADN-SW60 (60° type)
DTRY-ADN-SW90 (90° type)

・ Bender flat nozzle unit
DTRY-ADN-FT01

・ Bender bar nozzle units
DTRY-ADN-100B(Nominal size: 100 mm)
DTRY-ADN-200B(Nominal size: 200 mm)

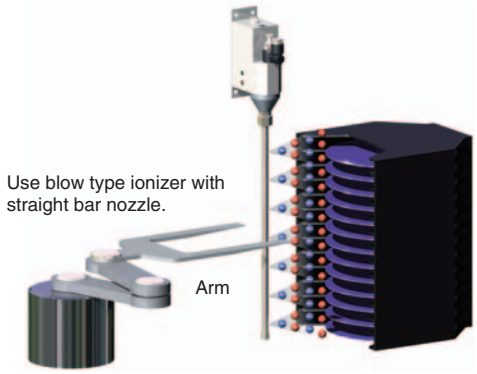
Note: The standard nozzles, **DTRY-NZR01NS** and **DTRY-NZL01NS** have a groove on the hexagonal portion, to be distinguished from **DTRY-NZR01S** (earlier model) and **DTRY-NZL01S** (earlier model), respectively.

Remarks: Nozzle connecting sections to the Ionizer body (cone-shaped part) and tips of nozzles are made of aluminum alloy and stainless steel respectively.
The bender nozzle consists of inner tube made of Teflon, tube interior made of aluminum alloy, tube outer jacket of polyethylene and stainless steel made tip.

Blow Type Application Examples

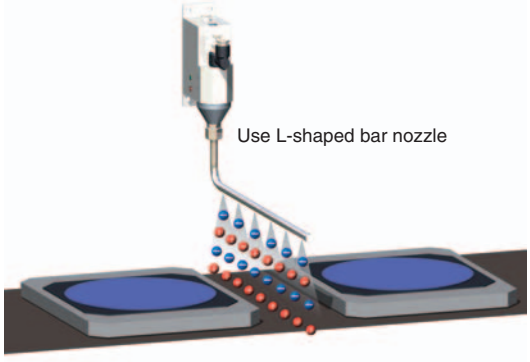
Removal of static charges when taking out or storing wafers

Avoids electrostatic discharging when taking wafers out of their cassettes, and prevents the stored wafers from being attracted to the transfer arm.



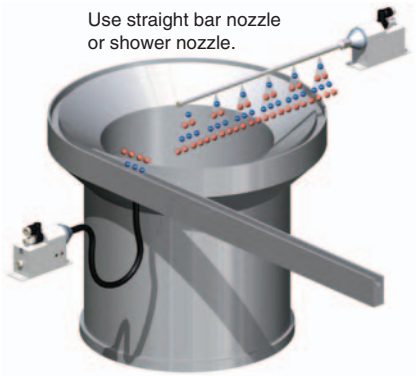
Removal of static charges when conveying wafers

Prevents dust from being attracted to the surface of wafers.
Prevents the internal patterns from being damaged.



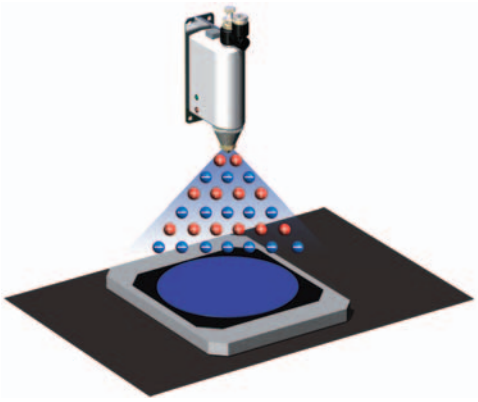
Removal of static charges on parts when carried by a parts feeder

Static electricity is generated due to friction of parts while the parts feeder conveys them, and the parts stick to feeder's surface.
Use the blow type ionizer to prevent parts from being sticked caused by static electricity. Also, simultaneous use with a fan type is effective against the static electricity removal.



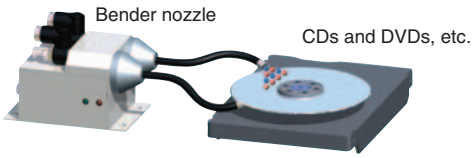
Removal of static charges on wafers

Use blow type ionizers with shower nozzles that provides Ionized air flow with a wide angle to remove static charges on wafers.



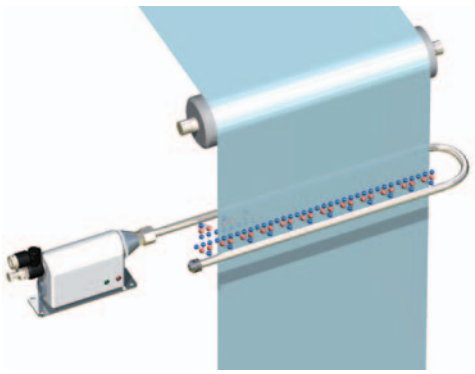
Removal of static charges and particles on CDs and DVDs

Use 2-head types with bender nozzles to remove static charges and particles on CDs and DVDs from both sides.



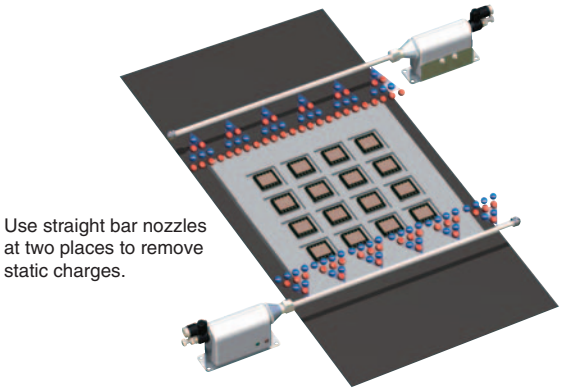
Removal of static charges on wrap film

Use blow type Ionizers with U-shaped bar nozzles in confined space to remove static charges on both sides of the wrap film.



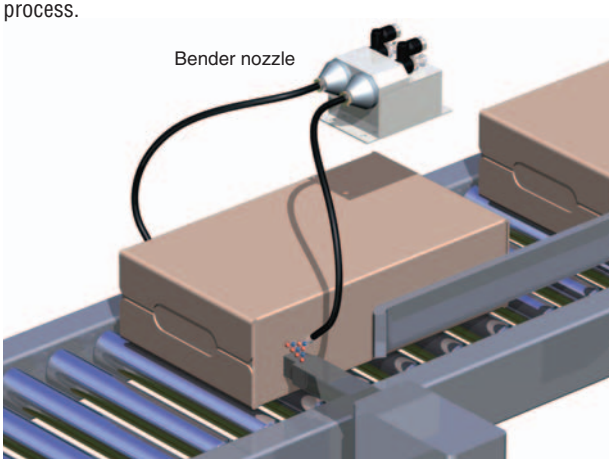
Removal of static charges on devices carried by pallets

Use blow type Ionizers with straight bar nozzles to remove static charges on a wide carrying pallet.



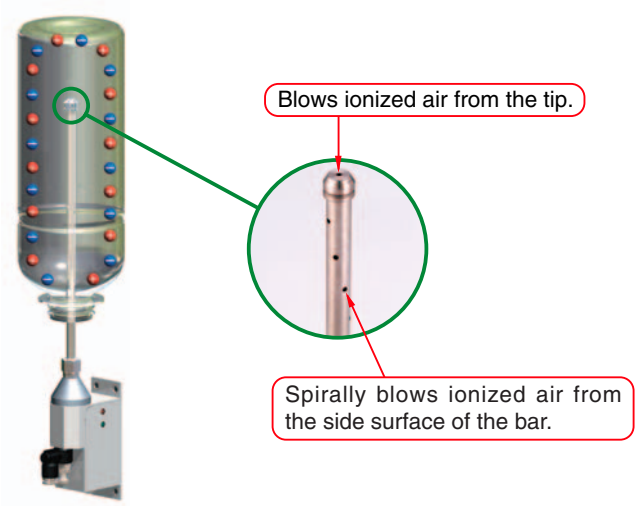
Removal of static charges in printing process

Use 2-head type Ionizers with bender nozzles.
Prevents faulty printing caused by static charges in ink jet printing process.



Removal of static charges in bottles (Removal of dust)

Use a spiral bar nozzle to remove static charges inside a bottle.

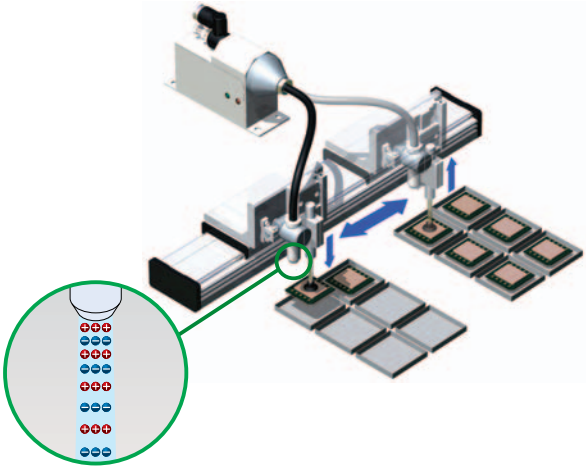


Removal of static charges on electronic parts

Very low generation of electrical noise

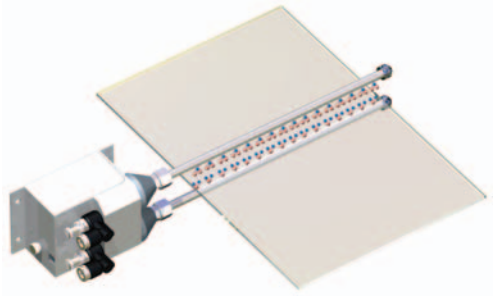
- No damage to a device caused by induction electric field by the discharging needle.
- Removal of static charges with pin point accuracy
  (It is possible to place the nozzle close to a device by using the tube.)

Note: Select a tube in accordance with the degree of tube flexibility.



Removal of static charges on glass substrate

Use 2-head type Ionizers with two straight bar nozzles to remove static charges on FPD glass.



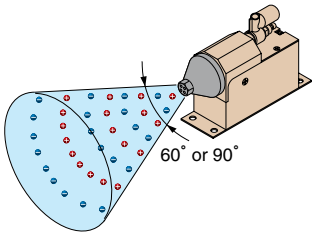
Removal of static charges in pipes (ϕ50 or less)

By inserting the tube inside a pipe enables removal of static charges.

Select the nozzle for your application

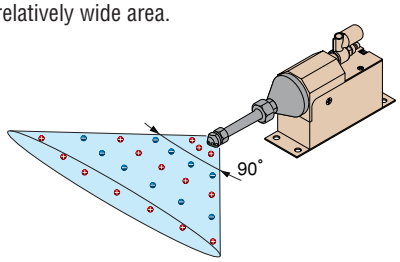
Shower nozzle

- Blows ionized air at 60˚ or 90˚ angles



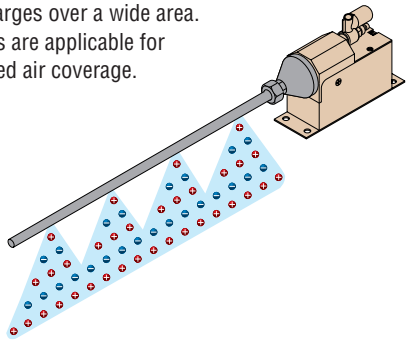
Flat nozzle

- Blows ionized air at 90˚ angle, suitable for removal of static charges over relatively wide area.



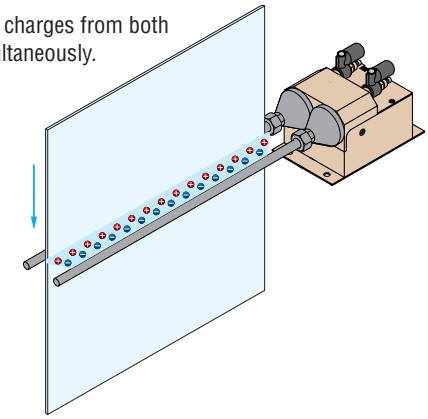
Straight bar nozzle

- Removal of static charges over a wide area.
- 5 types of bar nozzles are applicable for 100 to 500 mm ionized air coverage.



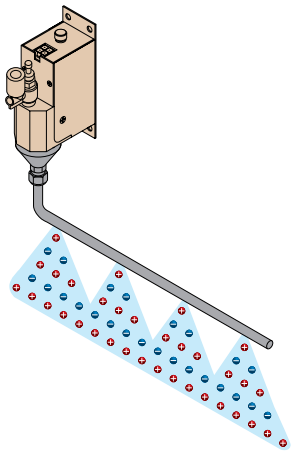
Use of two straight bar nozzles

- Removal of static charges from both sides of film simultaneously.



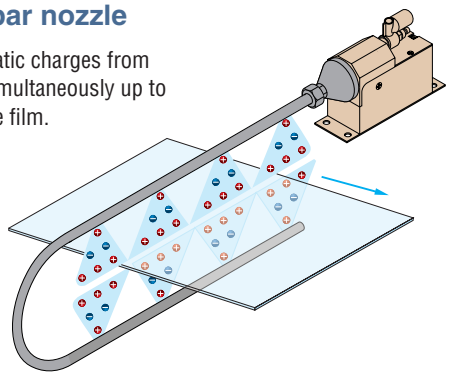
L-shaped bar nozzle

- Space saving and suitable for locations where straight bar nozzles can't reach.
- 2 types of L-shaped bar nozzles are applicable for 100 and 200 mm ionized air coverage.



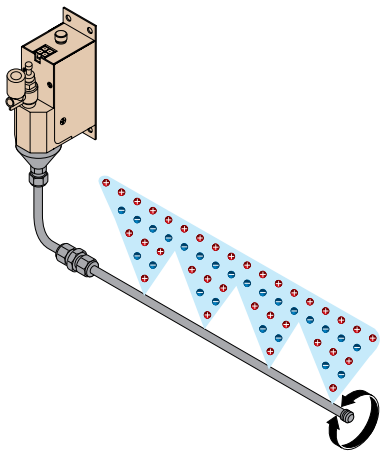
U-shaped bar nozzle

- Removal of static charges from both sides simultaneously up to 100 mm wide film.



Free-mounting L-shaped bar nozzle

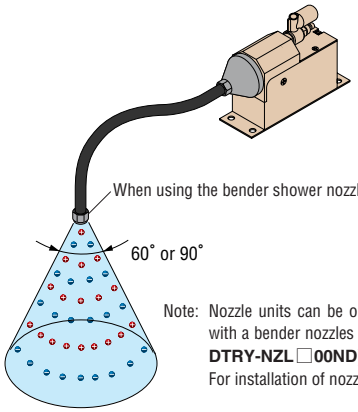
- Enables the bar rotation to change the direction of the ionized air flow outlet.
- It is applicable for 100 and 200 mm ionized air coverage.



Rotate the bar in the desired direction.

Combining various nozzle units with bender nozzles

- Combining various nozzle units with the flexible tube enables static charge removal for various applications.



Note: Nozzle units can be only attached to the nozzles with a bender nozzles (**DTRY-NZR□00ND** and **DTRY-NZL□00ND**)
For installation of nozzle unit, see page ㉙.

Specifications

Blow Type and Compact Blow Type

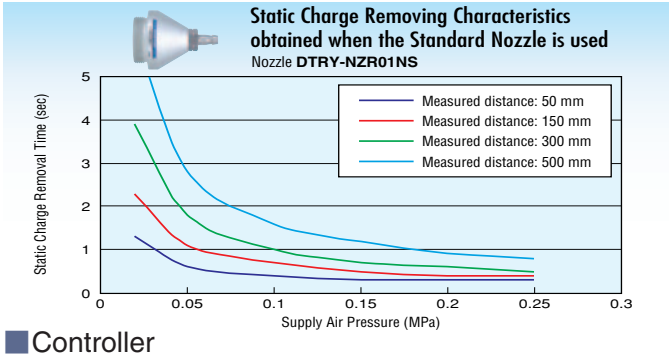
Item \ Model		DTRY-ELB01 (Main Unit for 1-head Type)	DTRY-ELB02 (Main Unit for 2-head Type)	DTRY-ELL01 (Main Unit for 1-head Type)
Power supply		24 VDC ± 5%		
Consumption current	mA	Approx. 100		
Output voltage	kV	Approx. 2 (High frequency type)		
Indicator LED	Power supply	While power is supplied, power indicator LED (Green) turns on.		
	Abnormality	When an abnormal discharge occurs, the abnormality indicator LED (Red) turns on.		
Power safety circuit		The contact point output NO/NC is selectable when an abnormal discharge occurs.[Note 1] (24 DVC 50 mA Max.)		The contact point output NO/NC is selectable when an abnormal discharge occurs.[Note 1] (24 DVC 50 mA Max.)
Outer dimensions	mm	92(L)×30(W)×54(H) (Main unit only)	92(L)×62(W)×54(H) (Main unit only)	65(L)×25(W)×47(H) (Main unit only)
Mass	g[oz.]	190 [6.70] (Main unit only)	300 [10.58] (Main unit only)	122 [4.30] (Main unit only)
Ion balance [Note 2]	V	±15		
Ozone generation amount	ppm	0.037 or less (When measured at 300 mm apart from the nozzle outlet with a standard nozzle and 0.25 MPa air at primary side.)		
Media [Note 3]		Air (vapor- and oil-removed clean air)		
Supply air flow rate	ℓ/min(ANR)	Approx. 100 (with **DTRY-NZR01NS** nozzle and 0.15 MPa air at primary side, per head.)		Approx. 50 (with **DTRY-NZL01NS** nozzle and 0.1 MPa air at primary side)
Operating air pressure range	MPa[psi.]	0.02～0.25 [3～36] (with **DTRY-NZR01NS** nozzle) 0.02～0.12 [3～17] (with **DTRY-NZR02S** nozzle) 0.02～0.12 [3～17] (with conductive urethane, Teflon or silicone tube) 0.05～0.25 [7～36] (with **DTRY-NZR100ND**～**500ND** nozzles) 0.05～0.40 [7～58] (with **DTRY-NZR20SW** nozzle) 0.05～0.40 [7～58] (with **DTRY-NZR21SW** nozzle) 0.05～0.40 [7～58] (with **DTRY-NZR01FT** nozzle) 0.05～0.40 [7～58] (with **DTRY-NZR200SP** nozzle) 0.05～0.40 [7～58] (with **DTRY-NZR100B**～**500B** nozzles) 0.05～0.40 [7～58] (with **DTRY-NZR100L**～**200L** nozzles) 0.05～0.40 [7～58] (with **DTRY-NZR100U** nozzle) 0.05～0.40 [7～58] (with **DTRY-NZR100FMT**～**200FMT** nozzles)		0.05～0.5 [7～73]
Operating ambient temperature	°C[°F]	0～40 [32～104] indoor (avoid a place subject to dew condensation)		
Accessories		1 pc. power and signal cable (2 m), 1 pc. ground wire (2 m), and 1 pc. contact point selector protection sticker		1 pc. power and signal cable (2 m), 1 pc. bracket, and 1 pc. contact point selector protection sticker

Notes 1: For output of abnormality output contact point, see page ㉙.
2: The ion balance value of the **DTRY-ELL01** is the value when the air flow rate is 150 ℓ/min(ANR).
3: Always turn on the power supply with supplying air.
Remarks 1: When using two or more Ionizers, mount them at least 10 mm apart. Closer mounting may cause a detrimental effect or detrimental ion balance.
2: Ion balance is measured by in-house test standard. Consult us for details.

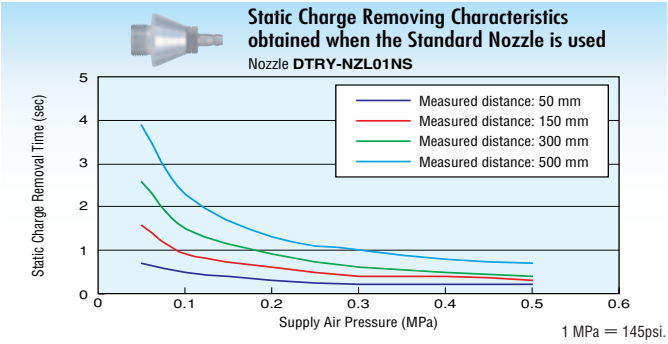
Graphs of Static Charge Removing Characteristics

(when using the standard nozzle) ※See pages ㉓～㉘ for Graphs of Static Charge Removing Characteristics when using the other nozzles.

Blow Type **DTRY-ELB01**



Compact Blow Type **DTRY-ELL01**



1 MPa = 145psi.

Controller

Item \ Model		DTRY-ELC11
Power supply		24 VDC ± 5%
Consumption current	mA	410
Outer dimensions	mm	222 (L) × 60 (W) × 135 (H) (Main unit only)
Mass	g[oz.]	830 [29.28] (Main unit only)
Media		Air
Max. flow rate	ℓ/min(ANR)	150 (0.7 MPa at primary-side pressure and 0.5 MPa at secondary-side pressure)
Operating pressure adjusting range	MPa[psi.]	0.02～0.5 [3～73]
Proof pressure	MPa[psi.]	1.5 [218]
Filter capacity	Filtering particle diameter μm	0.01
	Filtering efficiency %	99.99
Operating ambient temperature	°C[°F]	5～45 [41～113] indoor (avoid a place subject to dew condensation)
Accessories		1 pc. connection cable between controller and Ionizer (1.5 m)

Note: Pay attention to the maximum flow rate and operating pressure adjusting range when using the controller. It may cause a shortage of the flow rate compared to the one obtained not using the controller.
Remark: The Ionizer is a stand-alone unit. However, the use with the controller enables control of both power supply and air.

Order code

BLOW TYPE

■Main Unit

●1-head type
DTRY-ELB01

●2-head type
DTRY-ELB02

Caution The main unit cannot be operated alone.
Always use it with a nozzle.

Caution The discharging needles are covered with cover caps for protection. Remove the cap before installing the nozzle.

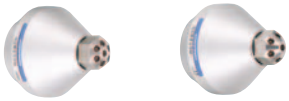
■Nozzles for Blow Type

●Standard nozzle
DTRY-NZR01NS

●Bender nozzles
DTRY-NZR100ND (100 mm)
DTRY-NZR200ND (200 mm)
DTRY-NZR300ND (300 mm)
DTRY-NZR400ND (400 mm)
DTRY-NZR500ND (500 mm)

●Stainless steel pipe nozzle (120 mm)
DTRY-NZR02S

●Shower nozzles
DTRY-NZR20SW (60° type)
DTRY-NZR21SW (90° type)



●Flat nozzle
DTRY-NZR01FT

●Straight bar nozzles
DTRY-NZR100B (Nominal size: 100 mm)
DTRY-NZR200B (Nominal size: 200 mm)
DTRY-NZR300B (Nominal size: 300 mm)
DTRY-NZR400B (Nominal size: 400 mm)
DTRY-NZR500B (Nominal size: 500 mm)

●L-shaped bar nozzles
DTRY-NZR100L (Nominal size: 100 mm)
DTRY-NZR200L (Nominal size: 200 mm)

●Free-mounting L-shaped bar nozzles
DTRY-NZR100FMT
(Nominal size: 100 mm)
DTRY-NZR200FMT
(Nominal size: 200 mm)

●U-shaped bar nozzle
DTRY-NZR100U

●Spiral bar nozzle
DTRY-NZR200SP

■Option

●Bracket
(For straight bar nozzle)
DTRY-ELQ02

Caution: Dedicated for the blow type

■Common Options for Blow Type and Compact Blow Type

●Bender shower nozzle units
DTRY-ADN-SW60 (60° type)
DTRY-ADN-SW90 (90° type)

●Bender flat nozzle unit
DTRY-ADN-FT01

●Bender bar nozzle units
DTRY-ADN-100B (Nominal size: 100 mm)
DTRY-ADN-200B (Nominal size: 200 mm)

●Conductive urethane tube (500 mm)
DTRY-ADN-U

Outer diameter: ϕ6
Inner diameter: ϕ4

●Teflon tube (500 mm)
DTRY-ADN-F

Outer diameter: ϕ7
Inner diameter: ϕ5

●Silicone tube (500 mm)
DTRY-ADN-S

Outer diameter: ϕ7
Inner diameter: ϕ4

Note 1: The tube is a consumable item; periodic replacement is required.
: The **DTRY-ADN-S** and **DTRY-ADN-F** cannot be used for the earlier type standard nozzles **DTRY-NZR01S** and **DTRY-NZL01S**.
Remarks 1: Use Teflon tube for endurance-oriented, and silicon tube for flexibility-oriented.
2: 20 m or 100 m roll of conductive urethane tubes is available.
Order code: **U6A-B** (20 m)
U6A-B-100 (100 m)

COMPACT BLOW TYPE

Main Unit

●1-head type
DTRY-ELL01

Caution The main unit cannot be operated alone.
Always use it with a nozzle.

Caution The discharging needle is covered with the cover cap for protection.
Remove the cap before installing the nozzle.

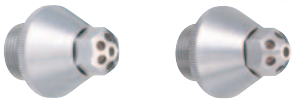
Nozzles for Compact Blow Type

●Standard nozzle
DTRY-NZL01NS

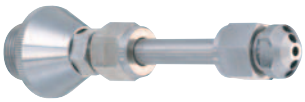
●Bender nozzles
DTRY-NZL100ND (100 mm)
DTRY-NZL200ND (200 mm)
DTRY-NZL300ND (300 mm)
DTRY-NZL400ND (400 mm)
DTRY-NZL500ND (500 mm)

●Stainless steel pipe nozzle (120 mm)
DTRY-NZL02S

●Shower nozzles
DTRY-NZL20SW (60° type)
DTRY-NZL21SW (90° type)

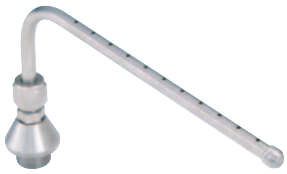


●Flat nozzle
DTRY-NZL01FT



●Straight bar nozzles
DTRY-NZL100B (Nominal size: 100 mm)
DTRY-NZL200B (Nominal size: 200 mm)
DTRY-NZL300B (Nominal size: 300 mm)
DTRY-NZL400B (Nominal size: 400 mm)
DTRY-NZL500B (Nominal size: 500 mm)

●L-shaped bar nozzle
DTRY-NZL100L (Nominal size: 100 mm)



●Free-mounting L-shaped bar nozzles
DTRY-NZL100FMT
(Nominal size: 100 mm)
DTRY-NZL200FMT
(Nominal size: 200 mm)

●U-shaped bar nozzle
DTRY-NZL100U

●Spiral bar nozzle
DTRY-NZL200SP

Caution Dedicated use for **DTRY-ELL01**.
These nozzles cannot be used for **DTRY-LCE**.

●Conductive urethane tube holder
DTRY-NZR31

For application examples,
refer to page 8

Caution: Dedicated use for
conductive urethane tube

●AC adapter
DTRY-ELC04

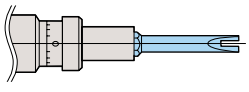
Rating
Input : 100 VAC to 240 VAC
50/60 Hz, 0.6A
Output: 24 VDC, 750mA

●Controller
DTRY-ELC11

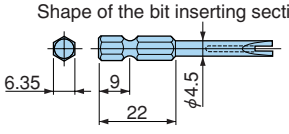
●Tungsten discharging needle for replacement (supplied by a set of 5 needles)
DTRY-ELB11

Caution Dedicated for **DTRY-ELL01, DTRY-ELB01 & 02.**

●Dedicated tool for replacing the discharging needle
Note: Bit alone is available.
DTRY-ELB21



Shape of the bit inserting section



BLOW TYPE Dimensions (mm)

BLOW TYPE

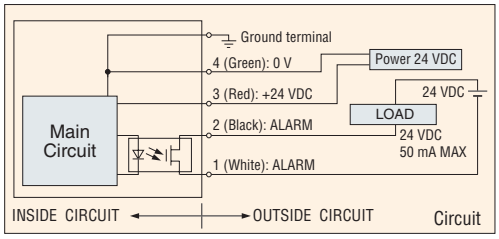
Main Unit

Power and signal cable (Accessory)
- Input power: +24 VDC
- Connector pin location and lead wire colors:

#3 #4 / #1 #2
#1 [White] & #2 [Black]: Contact point output
#3 [Red] : Input power +24 VDC
#4 [Green] : Ground for power

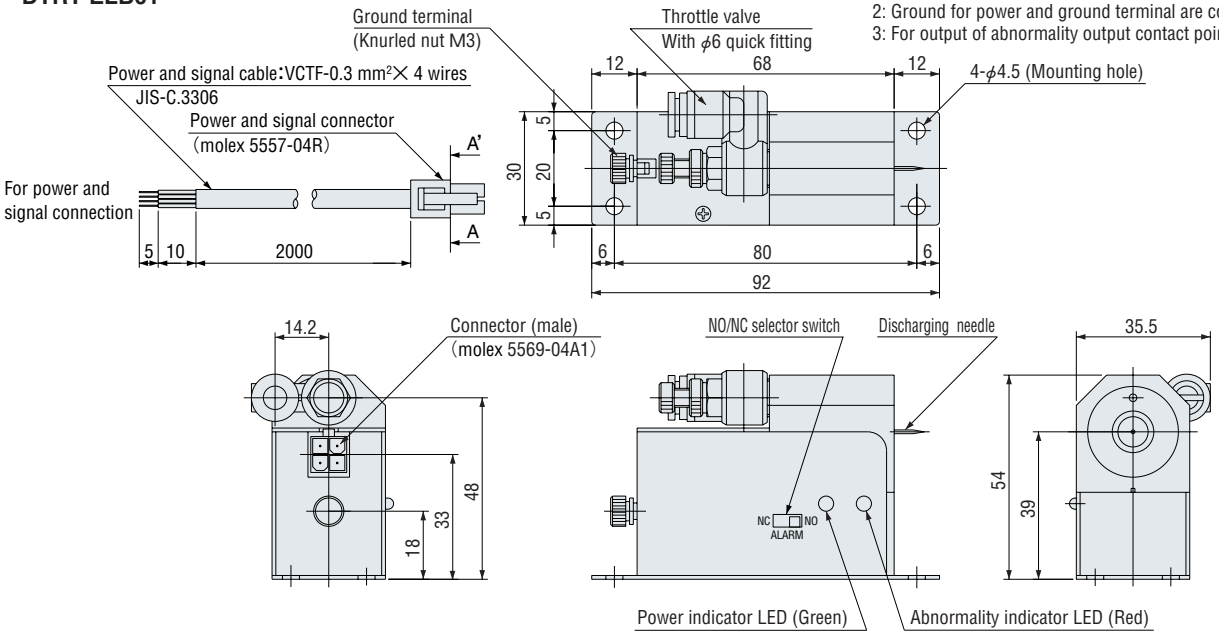
Viewed from A-A'

Pin location of molex 5557-04R (female)



Notes 1: ON/OFF of the power to the Ionizer should be done at the input side (+24 VDC side).
2: Ground for power and ground terminal are connected inside.
3: For output of abnormality output contact point, see page ㉙.

●1-head type
DTRY-ELB01



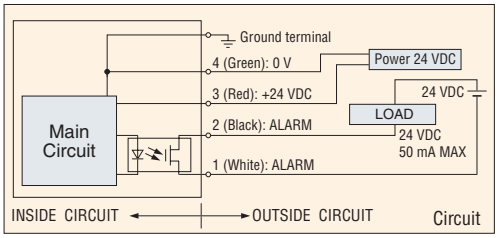
●2-head type
DTRY-ELB02

Power and signal cable (Accessory)
- Input power: +24 VDC
- Connector pin location and lead wire colors:

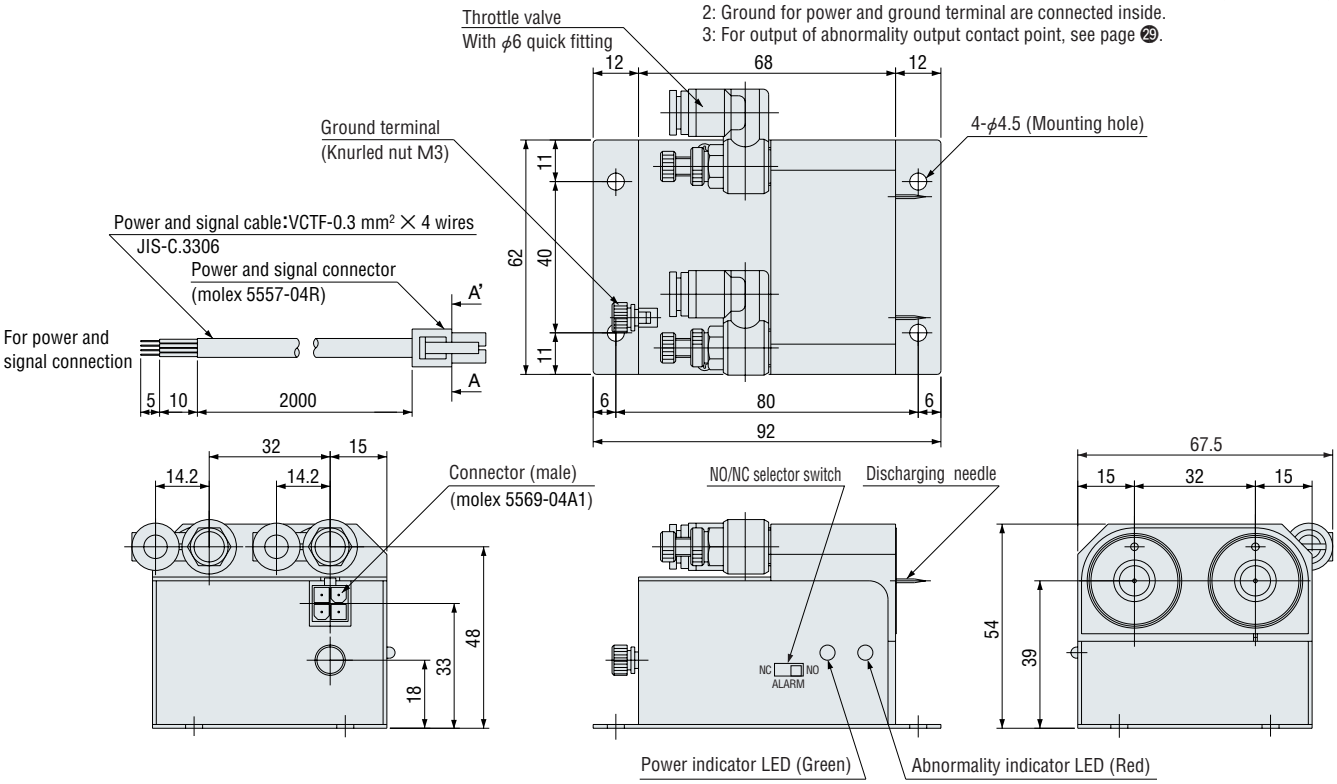
#3 #4 / #1 #2
#1 [White] & #2 [Black]: Contact point output
#3 [Red] : Input power +24 VDC
#4 [Green] : Ground for power

Viewed from A-A'

Pin location of molex 5557-04R (female)



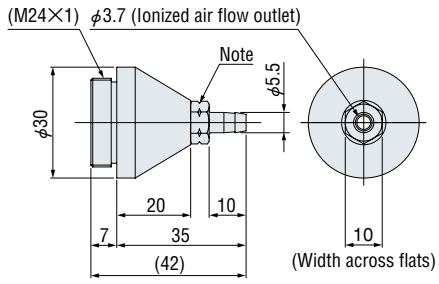
Notes 1: ON/OFF of the power to the Ionizer should be done at the input side (+24 VDC side).
2: Ground for power and ground terminal are connected inside.
3: For output of abnormality output contact point, see page ㉙.



BLOW TYPE

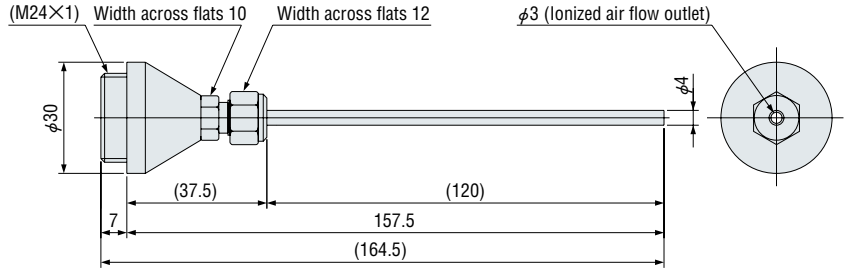
■Nozzles

●Standard nozzle **DTRY-NZR01NS**

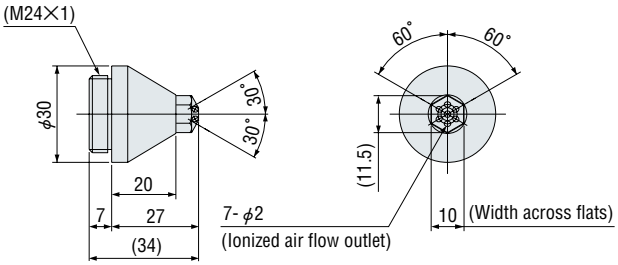


Note: The standard nozzle **DTRY-NZR01NS** has a groove in the hexagonal section, to be distinguished from **DTRY-NZR01S** (earlier model).

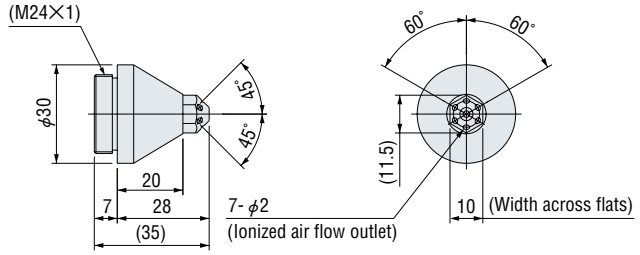
●Stainless steel pipe nozzle **DTRY-NZR02S**



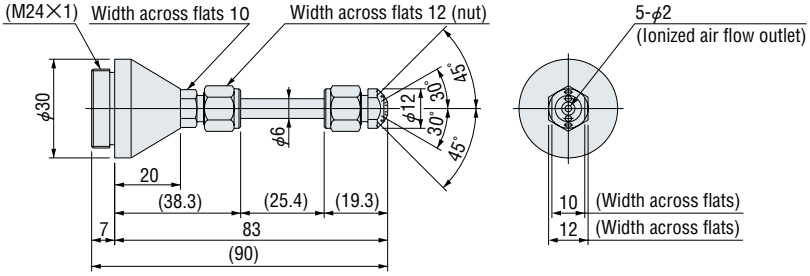
●Shower nozzle (60° type) **DTRY-NZR20SW**



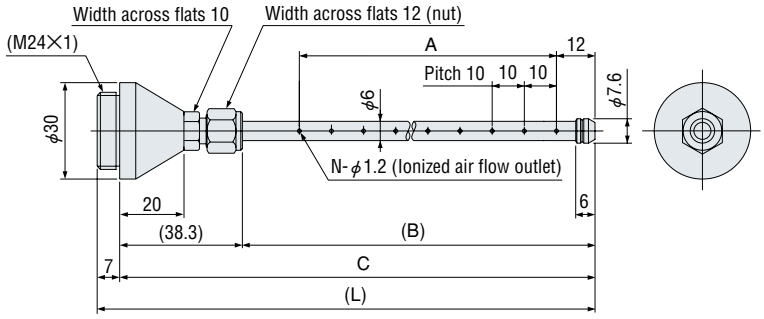
●Shower nozzle (90° type) **DTRY-NZR21SW**



●Flat nozzle **DTRY-NZR01FT**



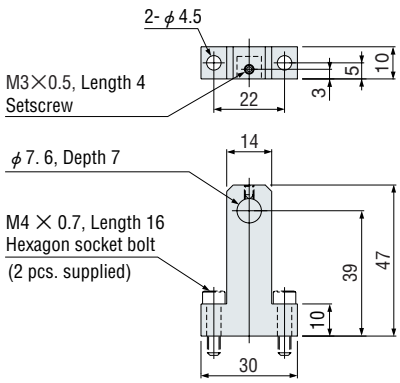
●Straight bar nozzle **DTRY-NZR□00B**



Model	A	B	C	L	N
DTRY-NZR100B	100	129.7	168	175	11
DTRY-NZR200B	200	229.7	268	275	21
DTRY-NZR300B	300	329.7	368	375	31
DTRY-NZR400B	400	429.7	468	475	41
DTRY-NZR500B	500	529.7	568	575	51

■Bracket for straight bar nozzle **DTRY-ELQ02**

●Supports the tip of straight bar nozzle

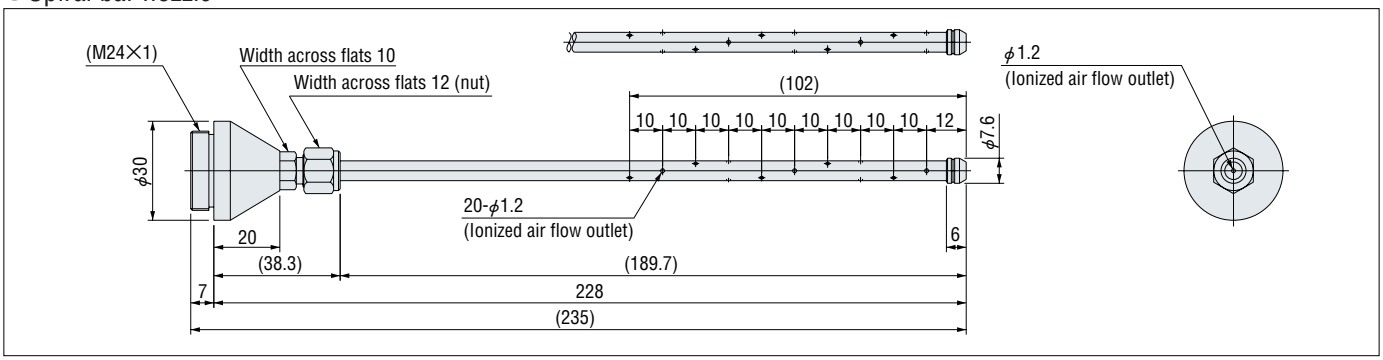


Remark: Loosen the nut to adjust the direction of the Ionized air flow outlet.
Note: Do not contact the nozzle with a grounded conductive object.
The abnormality indicator LED may turn on.

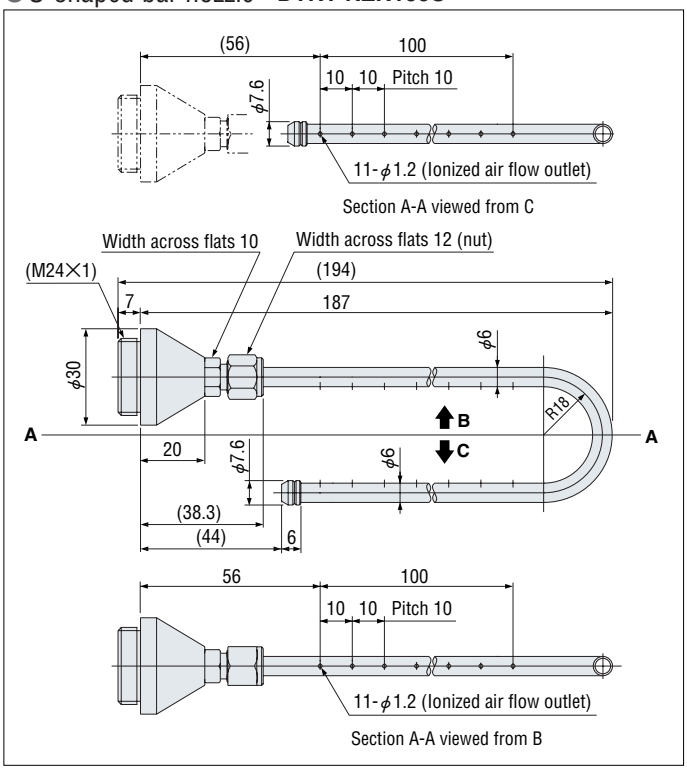
BLOW TYPE

■Nozzles

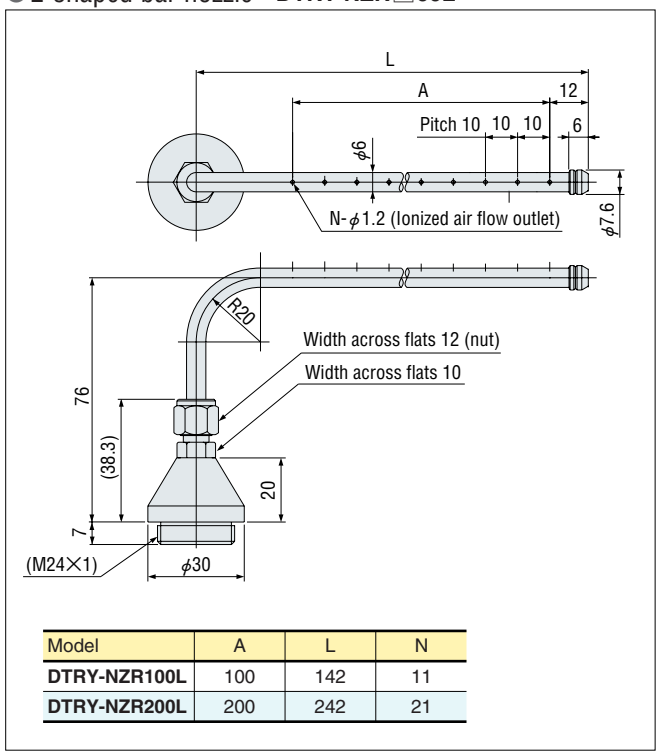
●Spiral bar nozzle **DTRY-NZR200SP**



●U-shaped bar nozzle **DTRY-NZR100U**

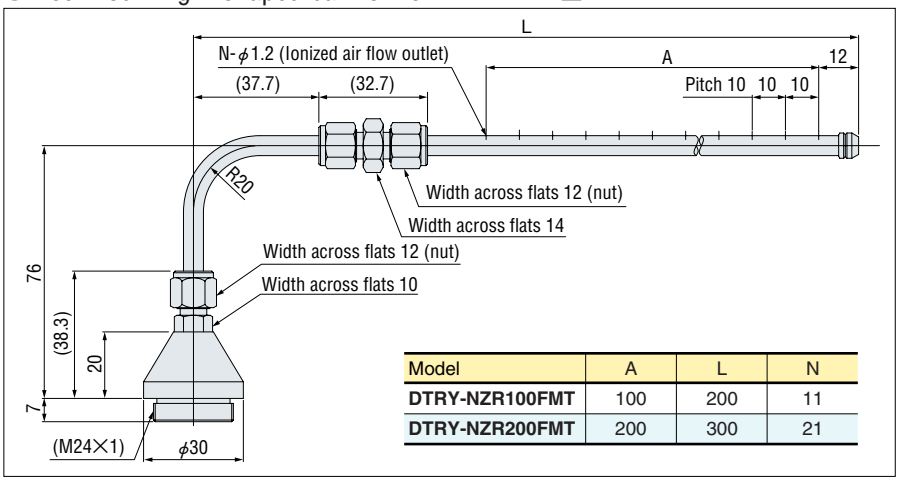


●L-shaped bar nozzle **DTRY-NZR□00L**



Model	A	L	N
DTRY-NZR100L	100	142	11
DTRY-NZR200L	200	242	21

●Free-mounting L-shaped bar nozzle **DTRY-NZR□00FMT**



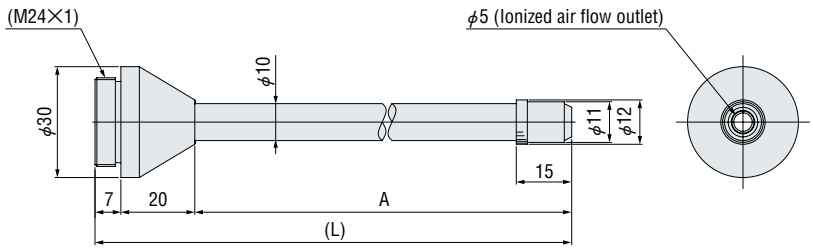
Model	A	L	N
DTRY-NZR100FMT	100	200	11
DTRY-NZR200FMT	200	300	21

Remark: Loosen the nut to adjust the direction of the Ionized air flow outlet.
Note: Do not contact the nozzle with a grounded conductive object.
The abnormality indicator LED may turn on.

BLOW TYPE

■Nozzles

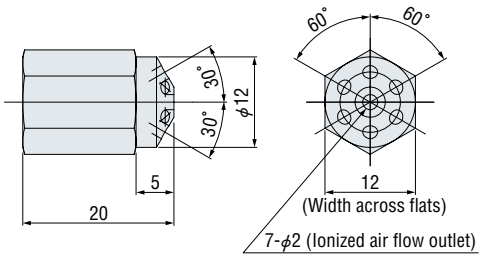
●Bender nozzle **DTRY-NZR□00ND**



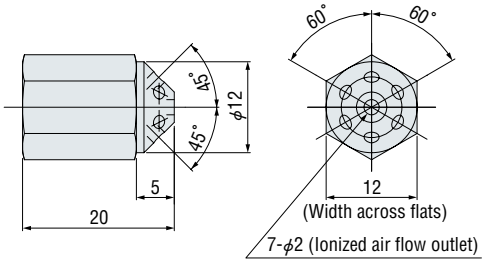
Model	A	L
DTRY-NZR100ND	102	129
DTRY-NZR200ND	202	229
DTRY-NZR300ND	302	329
DTRY-NZR400ND	402	429
DTRY-NZR500ND	502	529

■Optional nozzle units for bender nozzles. (use the unit at the tip of a flexible tube for changing a nozzle)

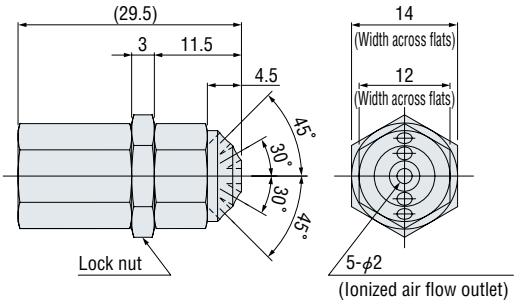
●Bender shower nozzle unit (60° type) **DTRY-ADN-SW60**



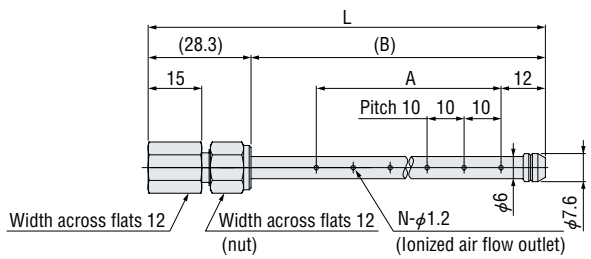
●Bender shower nozzle unit (90° type) **DTRY-ADN-SW90**



●Bender flat nozzle unit **DTRY-ADN-FT01**



●Bender bar nozzle unit **DTRY-ADN-□00B**



Model	A	B	L	N
DTRY-ADN-100B	100	129.7	158	11
DTRY-ADN-200B	200	229.7	258	21

Remark: Loosen the nut to adjust the direction of the Ionized air flow outlet.
Note: Do not contact the nozzle with a grounded conductive object.
The abnormality indicator LED may turn on.

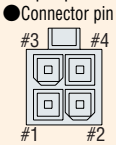
COMPACT BLOW TYPE Dimensions (mm)

COMPACT BLOW TYPE

Main Unit

● 1-head type
DTRY-ELL01

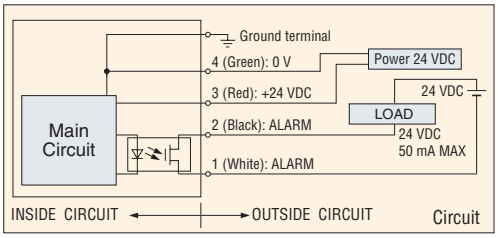
Power and signal cable (Accessory)
● Input power: +24 VDC
● Connector pin location and lead wire colors:



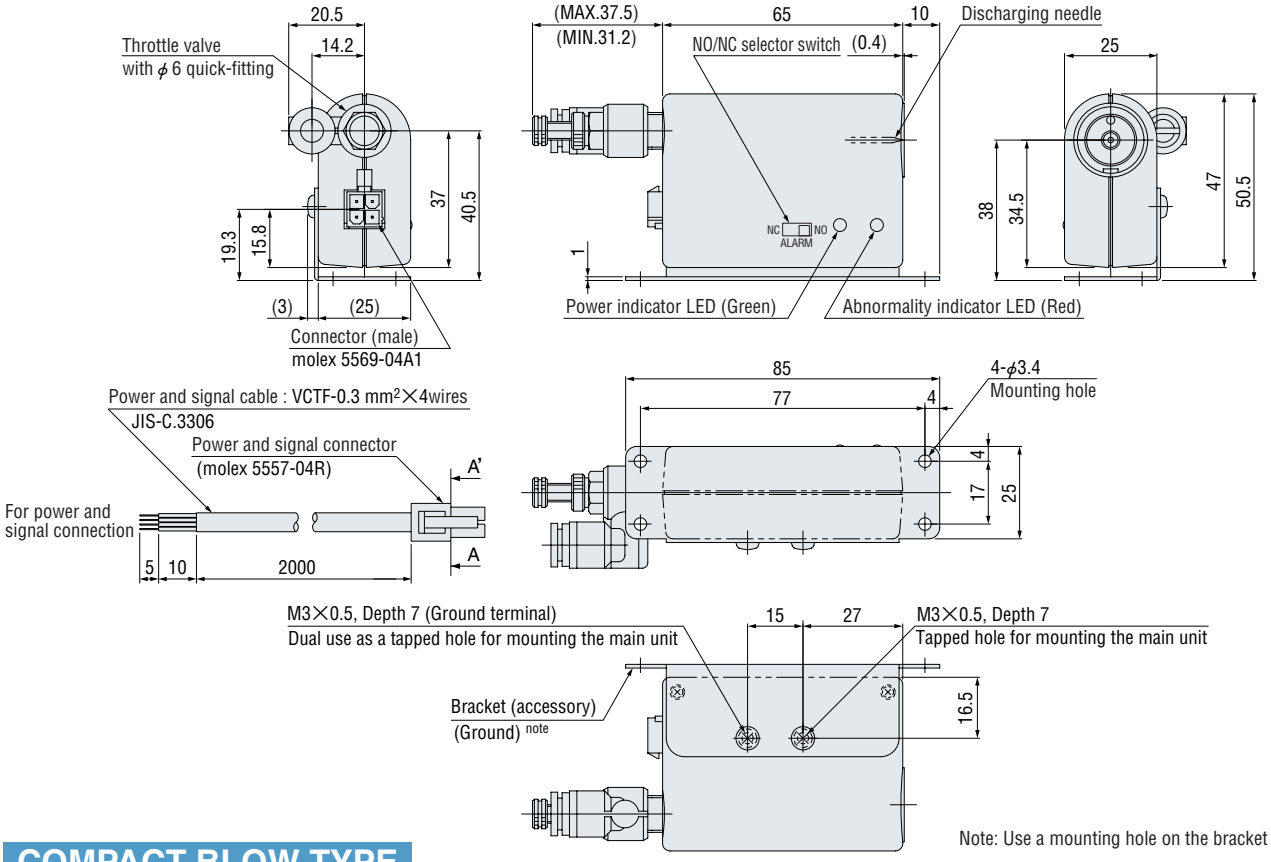
#1 [White] & #2 [Black] : Contact point output
#3 [Red] : Input power +24 VDC
#4 [Green] : Ground for power

Viewed from A-A'

Pin location of molex 5557-04R (female)



Notes 1: ON/OFF of the power to the Ionizer should be done at the input side (+24 VDC side).
2: Ground for power and ground terminal are connected inside.
3: For output of abnormality output contact point, see page 29.

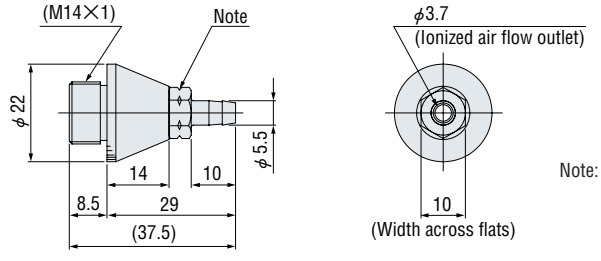


Note: Use a mounting hole on the bracket for grounding.

COMPACT BLOW TYPE

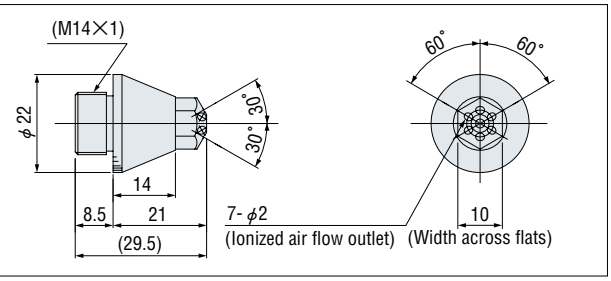
Nozzles

● Standard nozzle **DTRY-NZL01NS**

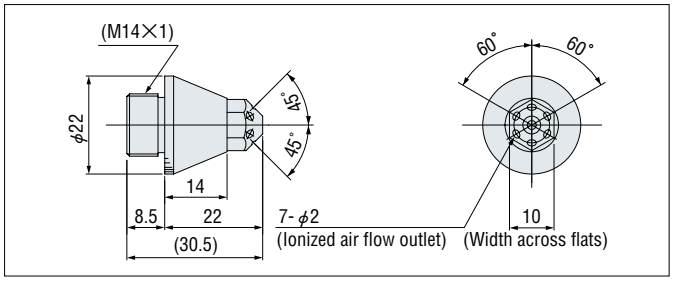


Note: The standard nozzle **DTRY-NZL01NS** has a groove in the hexagonal section, to be distinguished from **DTRY-NZL01S** (earlier model).

● Shower nozzle (60° type) **DTRY-NZL20SW**



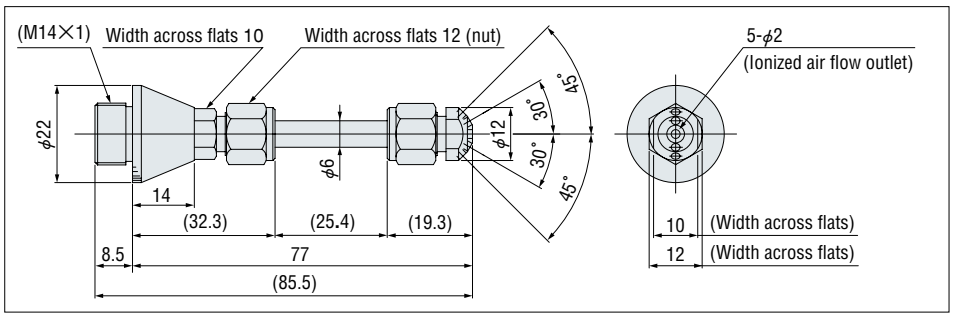
● Shower nozzle (90° type) **DTRY-NZL21SW**



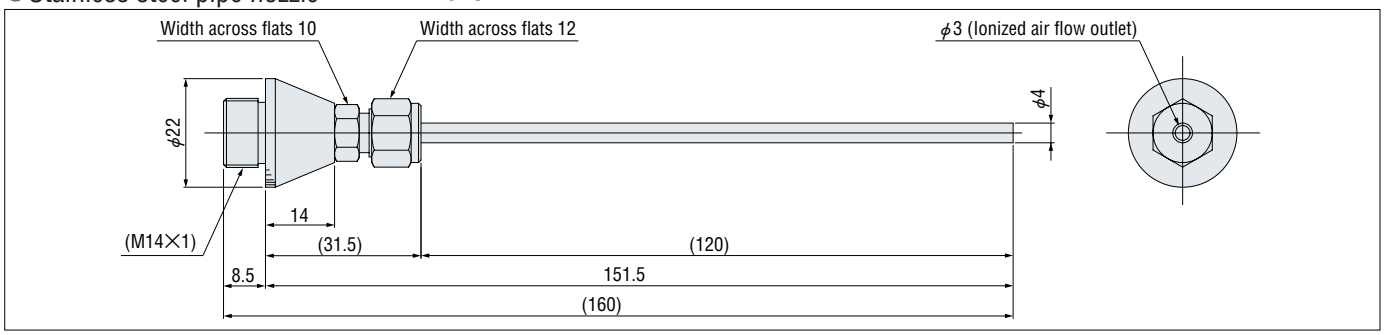
COMPACT BLOW TYPE

■Nozzles

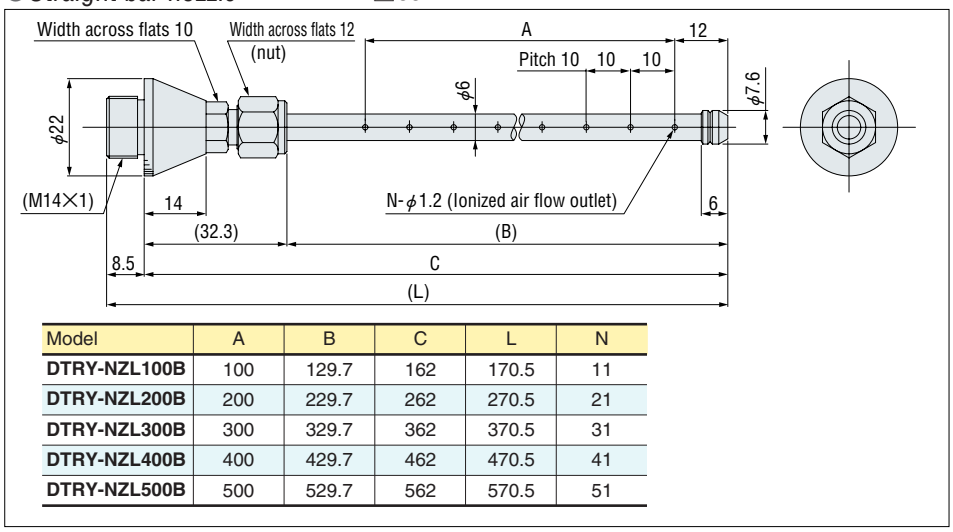
●Flat nozzle **DTRY-NZL01FT**



●Stainless steel pipe nozzle **DTRY-NZL02S**

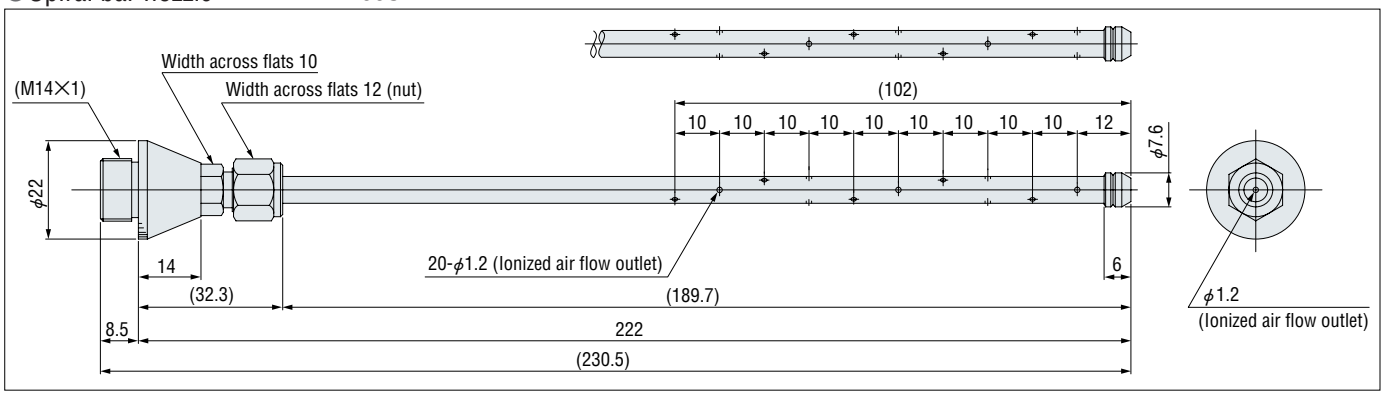


●Straight bar nozzle **DTRY-NZL□00B**



Model	A	B	C	L	N
DTRY-NZL100B	100	129.7	162	170.5	11
DTRY-NZL200B	200	229.7	262	270.5	21
DTRY-NZL300B	300	329.7	362	370.5	31
DTRY-NZL400B	400	429.7	462	470.5	41
DTRY-NZL500B	500	529.7	562	570.5	51

●Spiral bar nozzle **DTRY-NZL200SP**

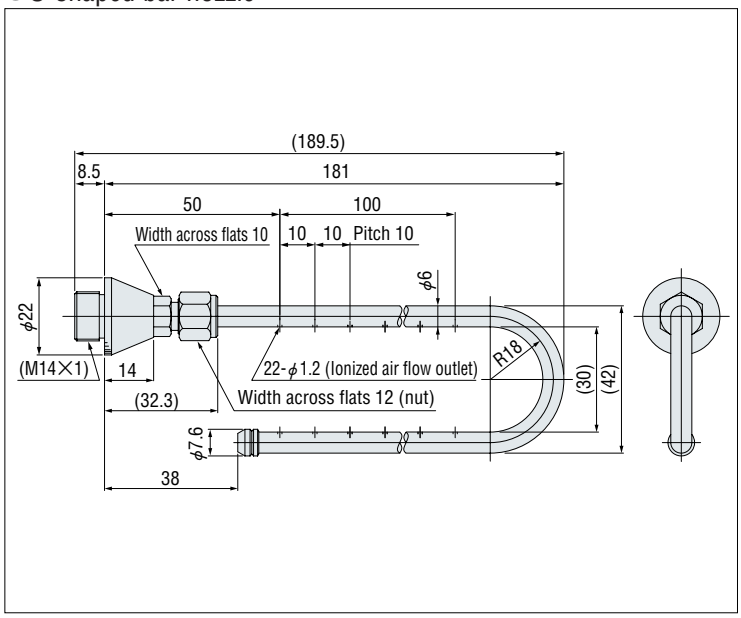


Remark: Loosen the nut to adjust the direction of the Ionized air flow outlet.
Note: Do not contact the nozzle with a grounded conductive object.
The abnormality indicator LED may turn on.

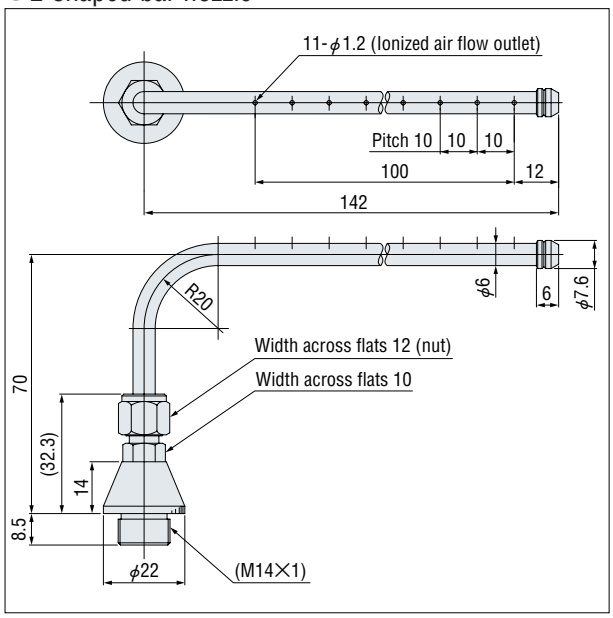
COMPACT BLOW TYPE

■Nozzles

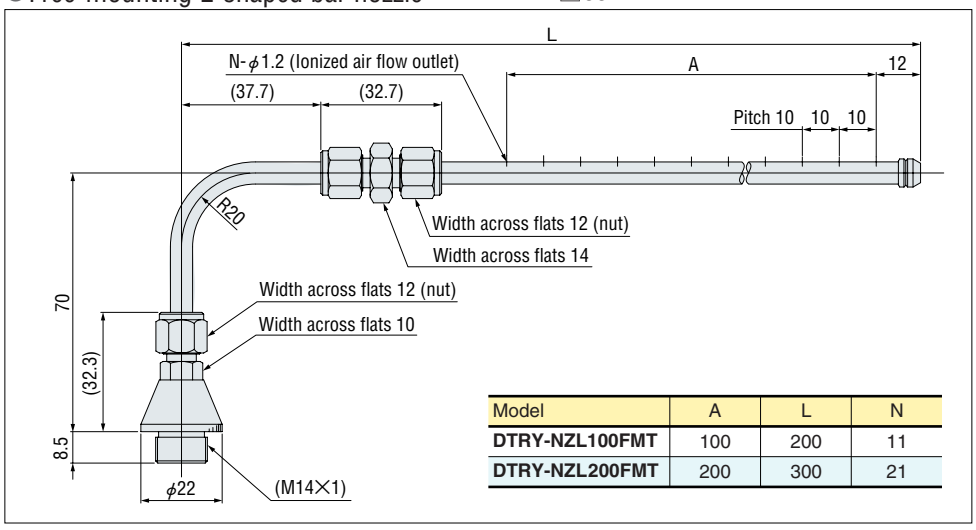
●U-shaped bar nozzle **DTRY-NZL100U**



●L-shaped bar nozzle **DTRY-NZL100L**

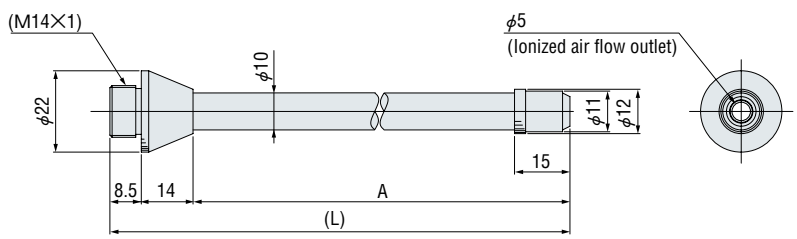


●Free-mounting L-shaped bar nozzle **DTRY-NZL□00FMT**



Model	A	L	N
DTRY-NZL100FMT	100	200	11
DTRY-NZL200FMT	200	300	21

●Bender nozzle **DTRY-NZL□00ND**



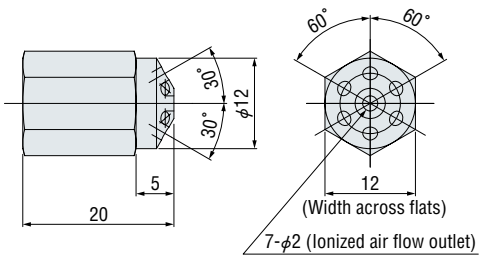
Model	A	L
DTRY-NZL100ND	102	124.5
DTRY-NZL200ND	202	224.5
DTRY-NZL300ND	302	324.5
DTRY-NZL400ND	402	424.5
DTRY-NZL500ND	502	524.5

Remark: Loosen the nut to adjust the direction of the Ionized air flow outlet.
Note: Do not contact the nozzle with a grounded conductive object.
The abnormality indicator LED may turn on.

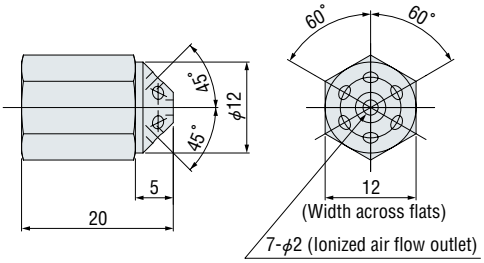
COMPACT BLOW TYPE

■Optional nozzle units for bender nozzle (use the unit at the tip of a flexible tube for changing a nozzle)

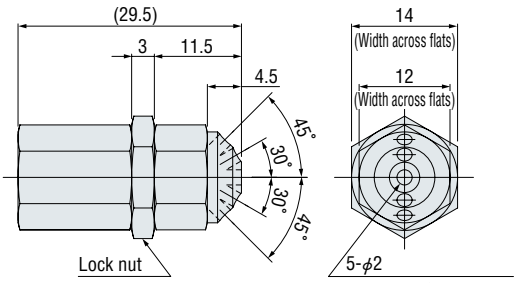
●Bender shower nozzle unit (60° type) **DTRY-ADN-SW60**



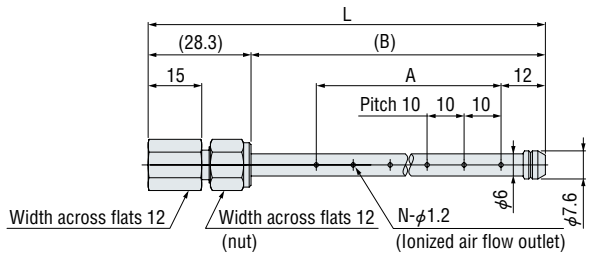
●Bender shower nozzle unit (90° type) **DTRY-ADN-SW90**



●Bender flat nozzle unit **DTRY-ADN-FT01**



●Bender bar nozzle unit **DTRY-ADN-□00B**



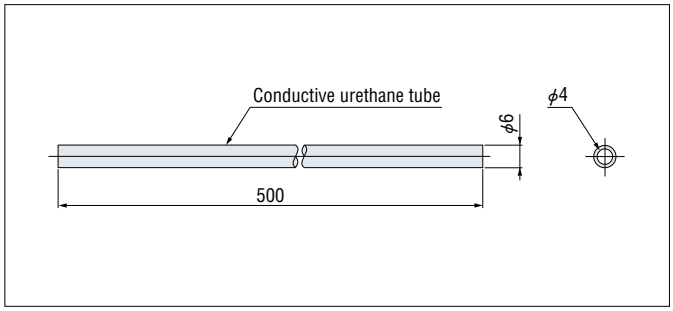
Model	A	B	L	N
DTRY-ADN-100B	100	129.7	158	11
DTRY-ADN-200B	200	229.7	258	21

Remark: Loosen the nut to adjust the direction of the Ionized air flow outlet.
Note: Do not contact the nozzle with a grounded conductive object.
The abnormality indicator LED may turn on.

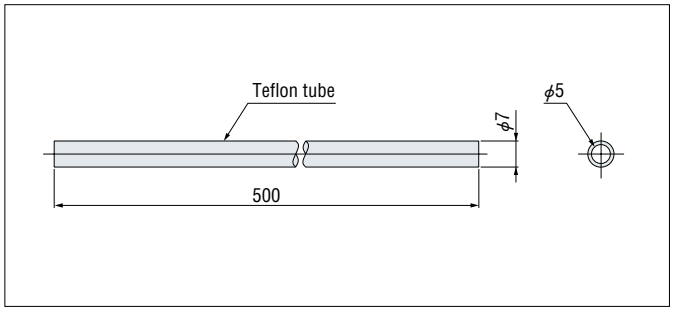
Dimensions of Common Options for BLOW TYPE and COMPACT BLOW TYPE (mm)

TUBES

●Conductive urethane tube **DTRY-ADN-U**

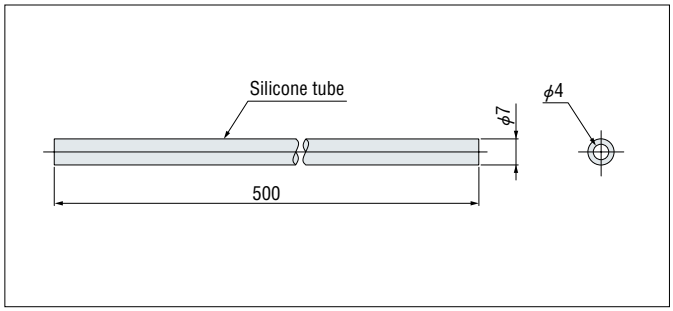


●Teflon tube **DTRY-ADN-F**



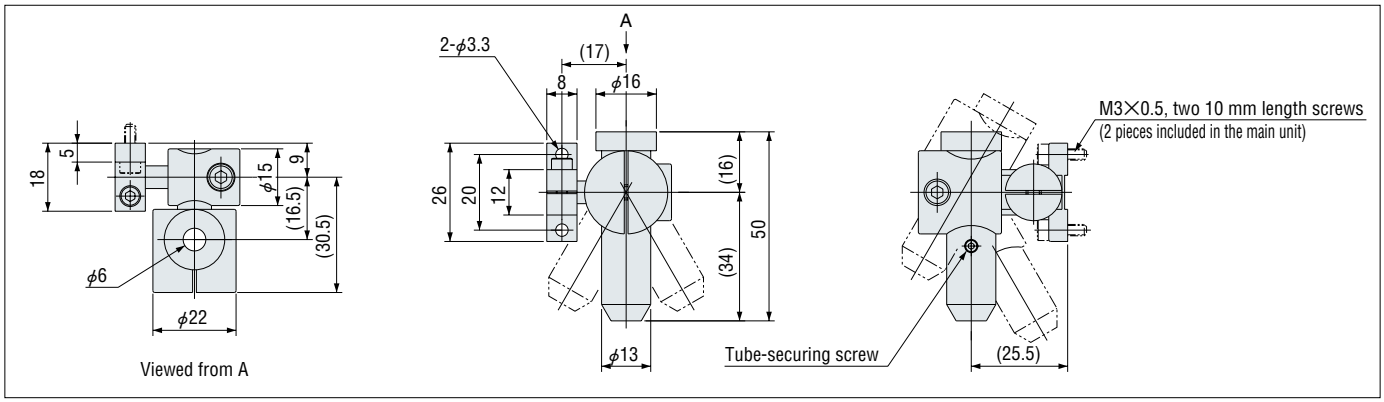
Note: The **DTRY-ADN-F** cannot be used for the earlier standard nozzles **DTRY-NZR01S** and **DTRY-NZL01S**.

●Silicone tube **DTRY-ADN-S**



Note: The **DTRY-ADN-S** cannot be used for the earlier standard nozzles **DTRY-NZR01S** and **DTRY-NZL01S**.

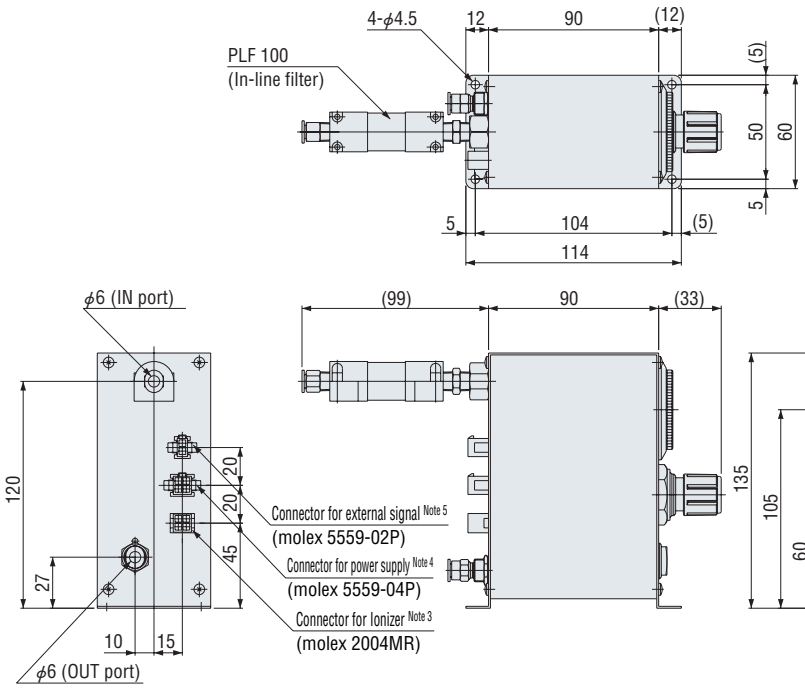
■Conductive urethane tube holder **DTRY-NZR31**

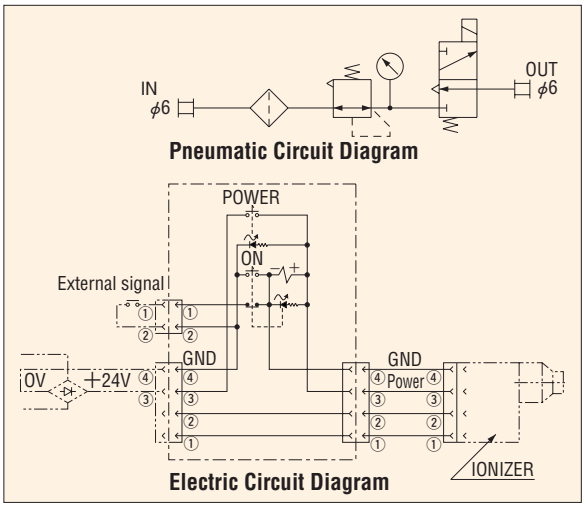


Note: The tube holder is the dedicated model for the conductive urethane tube **DTRY-ADN-U**. It cannot be used with the Teflon tube **DTRY-ADN-F** and the silicone tube **DTRY-ADN-S**.

CONTROLLER (For Blow Type and Compact Blow Type)

● **DTRY-ELC11**





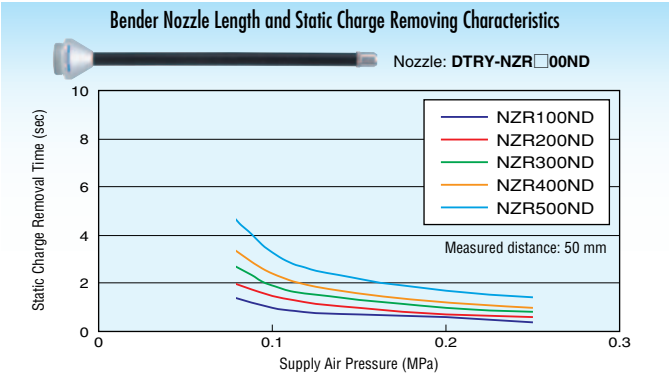
Notes:
1. The Controller is for the Blow Type Ionizer.
2. Provide 24 VDC power with 410 mA or larger. For an AC adapter, use the **DTRY-ELC04**.
3. The cable used to connect the controller and the Ionizer is included in the product.
4. For a power supply cable, use the power and signal cable in the Ionizer accessories.
5. Separately purchase a cable for external signals.
6. Ground the controller power supply and the Ionizer separately.

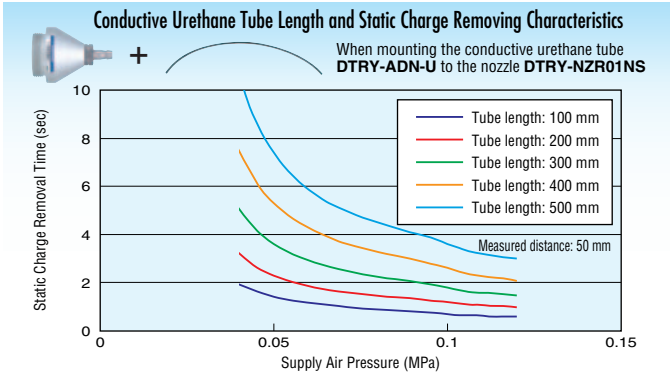
Graphs of Static charge Removing Characteristics (Blow Type)

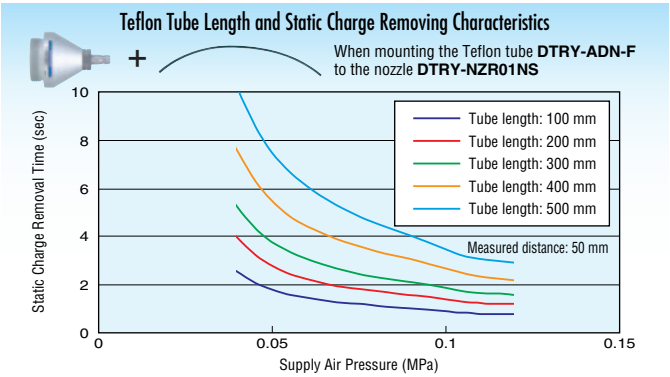
The following graphs show static charge removing characteristics obtained when using the blow type Ionizer, DTRY-ELB01 (1-head type) with typical nozzles. Using the proper item to the proper place enables static charge removal with superior ion balance.

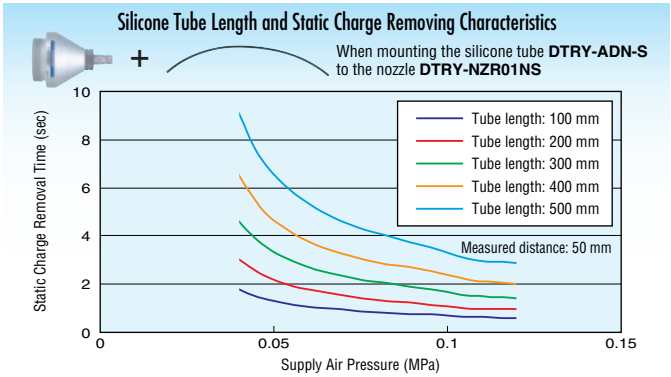
Notes 1: The static charge removing characteristics are measured by in-house test standard using the charged plate monitor of 20 pF, □150 mm.
2: The static charge removal time means decaying time from ±1000 V to ±100 V.

※For the graph of static charge removing characteristics obtained when using the standard nozzle **DTRY-NZR01NS**, see page ⑩.





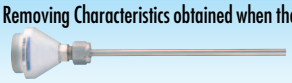




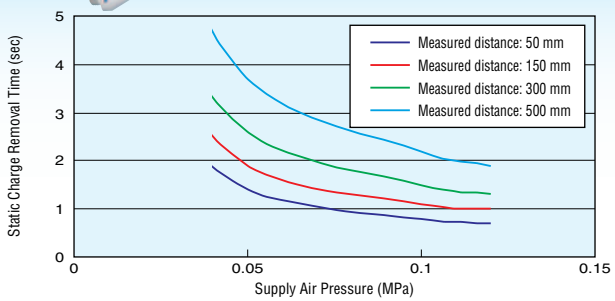
1 MPa = 145psi.

Graphs of Static charge Removing Characteristics

Static Charge Removing Characteristics obtained when the Nozzle with Stainless Steel Pipe is used

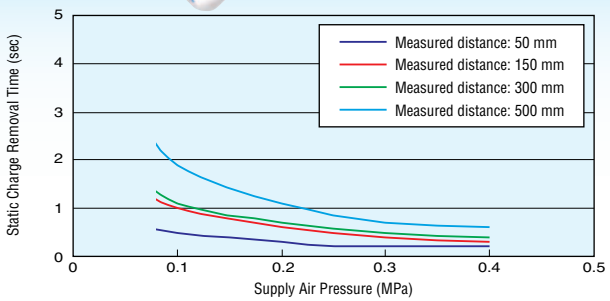


Nozzle : **DTRY-NZR02S**



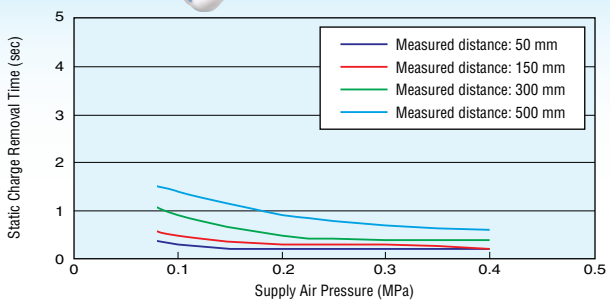
Static Charge Removing Characteristics obtained when Shower Nozzle (60° type) is used

Nozzle : **DTRY-NZR20SW**



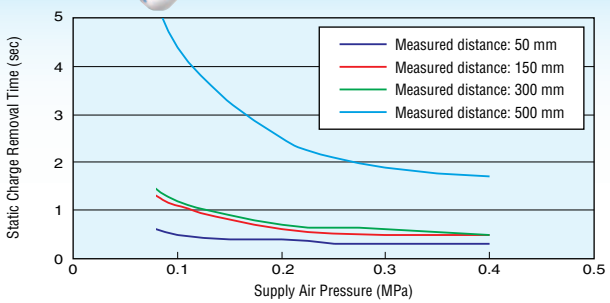
Static Charge Removing Characteristics obtained when Shower Nozzle (90° type) is used

Nozzle : **DTRY-NZR21SW**



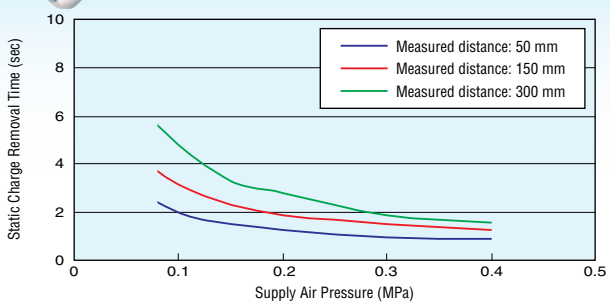
Static Charge Removing Characteristics obtained when the Flat Nozzle is used

Nozzle : **DTRY-NZR01FT**



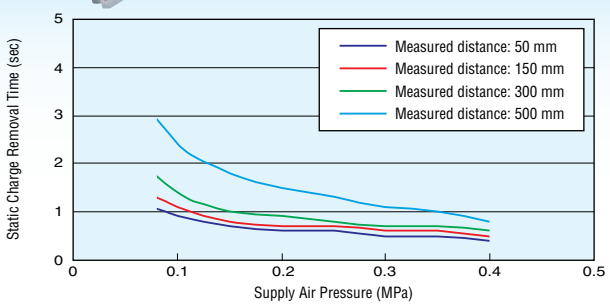
Static Charge Removing Characteristics obtained when the Spiral Bar Nozzle is used

Nozzle : **DTRY-NZR200SP**



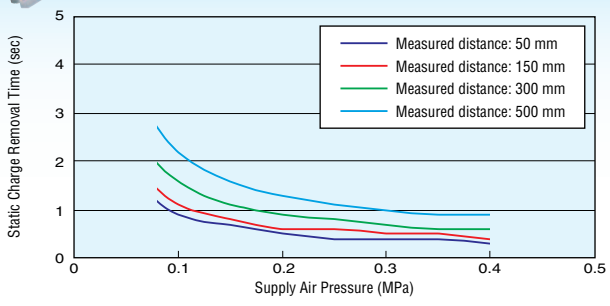
Static Charge Removing Characteristics obtained when the Straight Bar Nozzle (100 mm) is used

Nozzle : **DTRY-NZR100B**



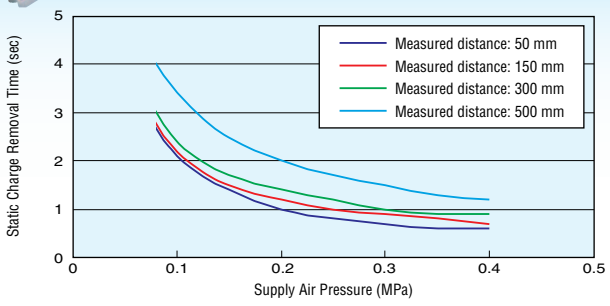
Static Charge Removimg Characteristics obtained when the Straight Bar Nozzle (200 mm) is used

Nozzle : **DTRY-NZR200B**



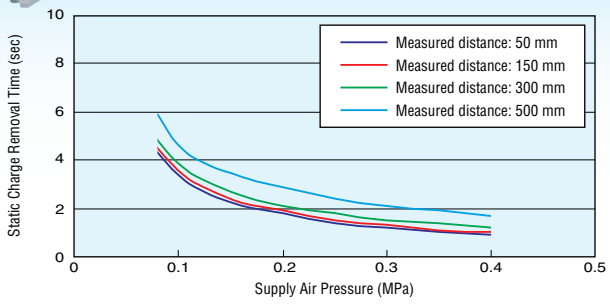
Static Charge Removing Characteristics obtained when the Straight Bar Nozzle (300 mm) is used

Nozzle : **DTRY-NZR300B**

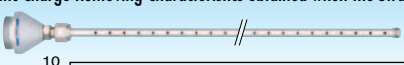


Static Charge Removing Characteristics obtained when the Straight Bar Nozzle (400 mm) is used

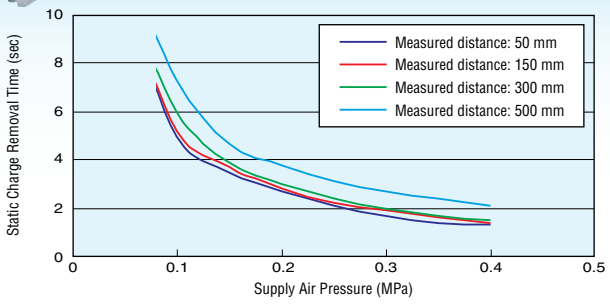
Nozzle : **DTRY-NZR400B**



Static Charge Removing Characteristics obtained when the Straight Bar Nozzle (500 mm) is used



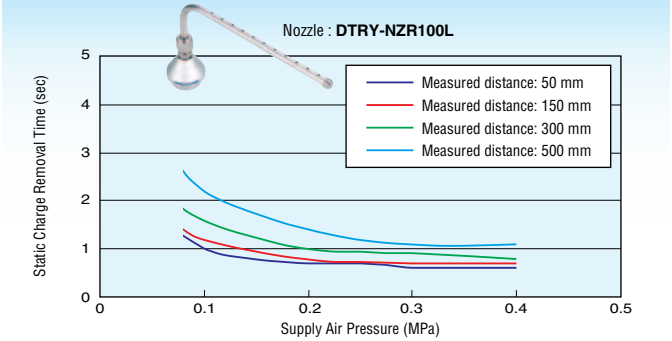
Nozzle : **DTRY-NZR500B**



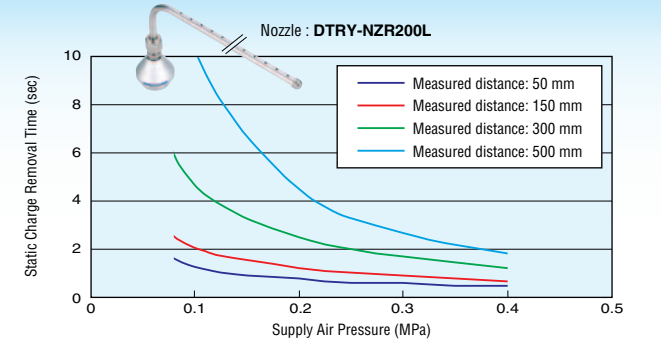
1 MPa = 145psi.

Graphs of Static charge Removing Characteristics

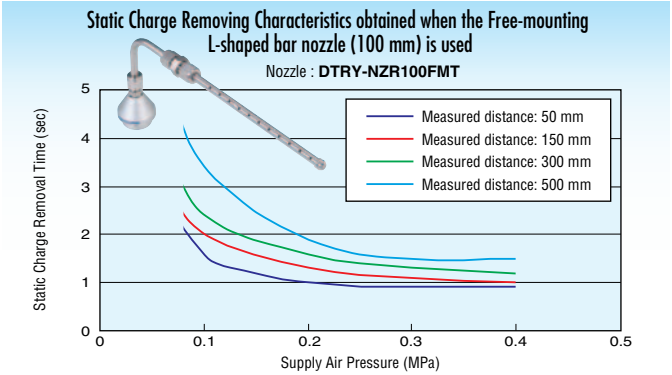
Static Charge Removing Characteristics obtained when the L-shaped Bar Nozzle (100 mm) is used



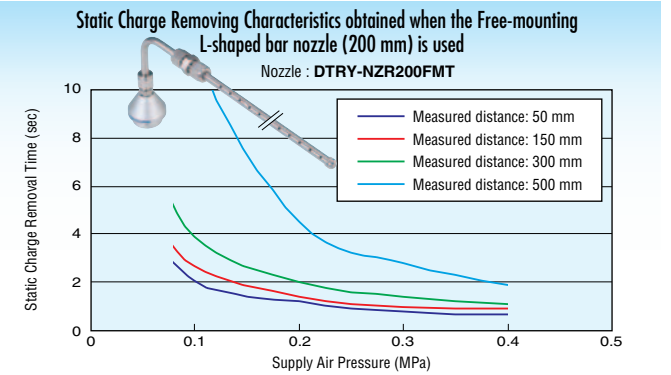
Static Charge Removing Characteristics obtained when the L-shaped Bar Nozzle (200 mm) is used



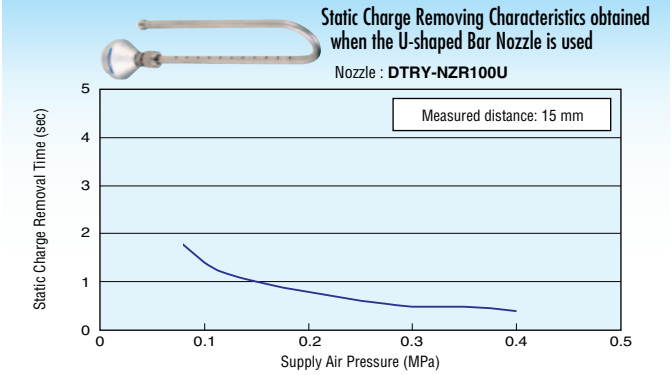
Static Charge Removing Characteristics obtained when the Free-mounting L-shaped bar nozzle (100 mm) is used



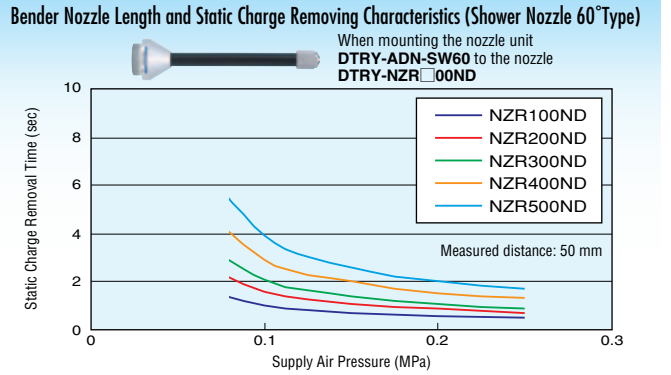
Static Charge Removing Characteristics obtained when the Free-mounting L-shaped bar nozzle (200 mm) is used



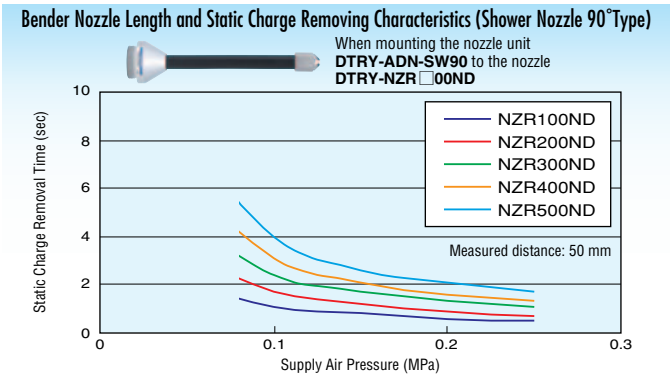
Static Charge Removing Characteristics obtained when the U-shaped Bar Nozzle is used



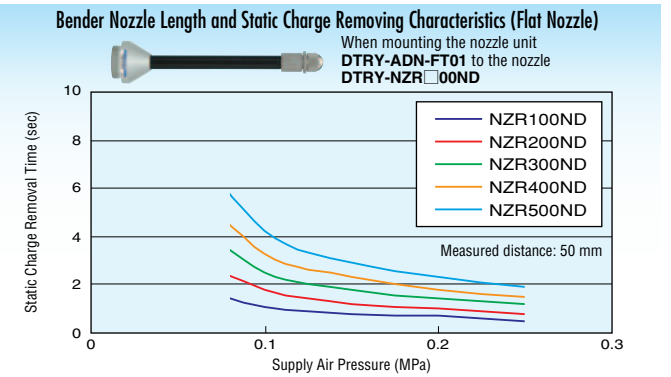
Bender Nozzle Length and Static Charge Removing Characteristics (Shower Nozzle 60°Type)



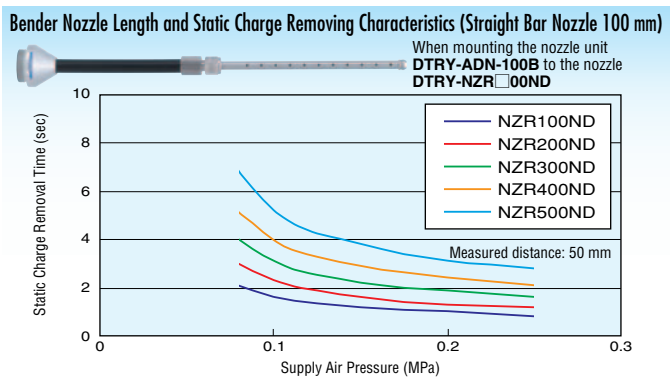
Bender Nozzle Length and Static Charge Removing Characteristics (Shower Nozzle 90°Type)



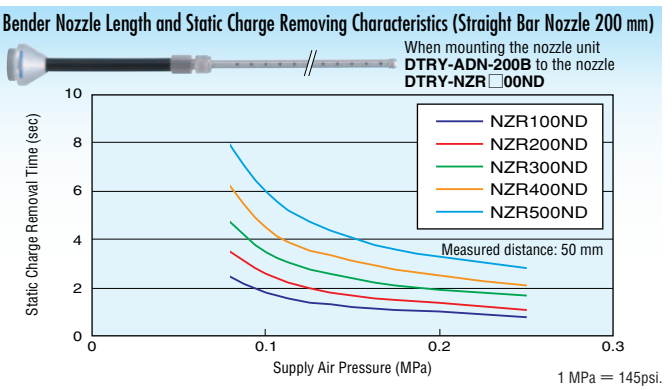
Bender Nozzle Length and Static Charge Removing Characteristics (Flat Nozzle)



Bender Nozzle Length and Static Charge Removing Characteristics (Straight Bar Nozzle 100 mm)



Bender Nozzle Length and Static Charge Removing Characteristics (Straight Bar Nozzle 200 mm)



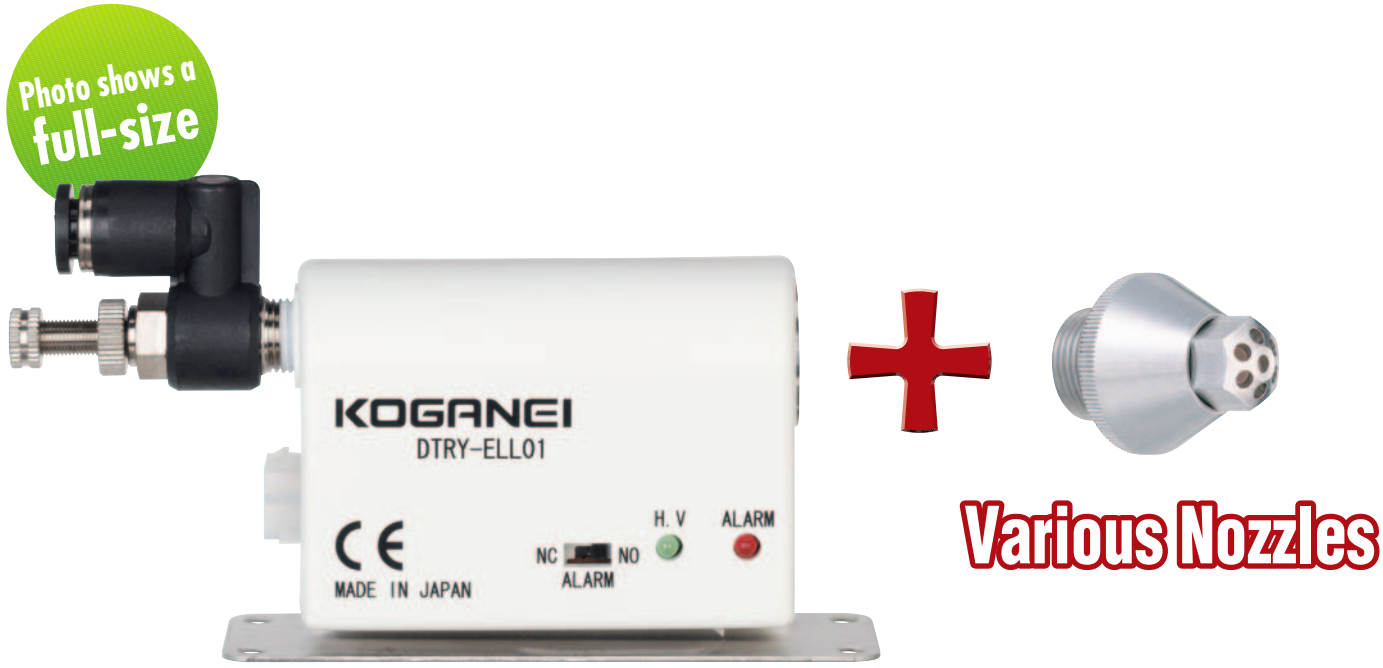
1 MPa = 145psi.

Note: The static charge removing characteristics are measured by in-house test standard.

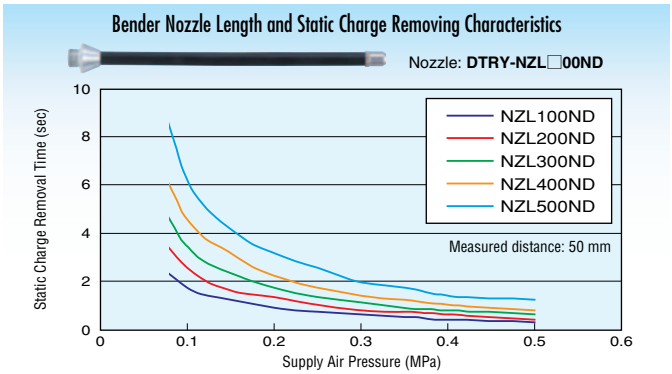
Graphs of Static charge Removing Characteristics (Compact Blow Type)

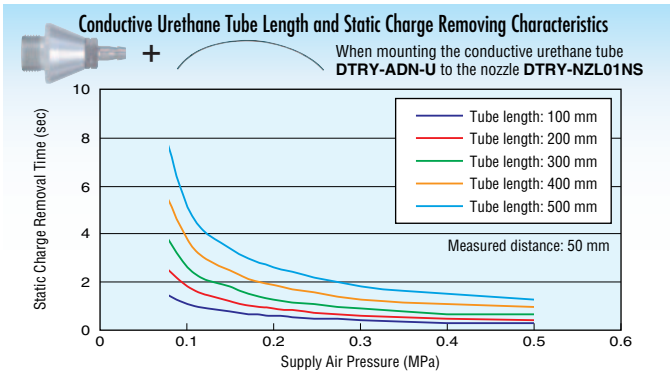
The following graphs show static charge removing characteristics obtained when using the compact blow type Ionizer, DTRY-ELL01 with typical nozzles. Advantages of the compact type in installation enable static charge removal with pinpoint accuracy.

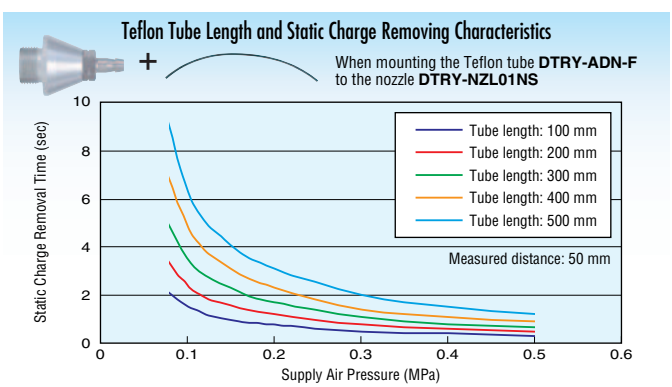
Notes 1: The static charge removing characteristics are measured by in-house test standard using the charged plate monitor of 20 pF, □150 mm.
2: The static charge removal time means decaying time from ±1000 V to ±100 V.

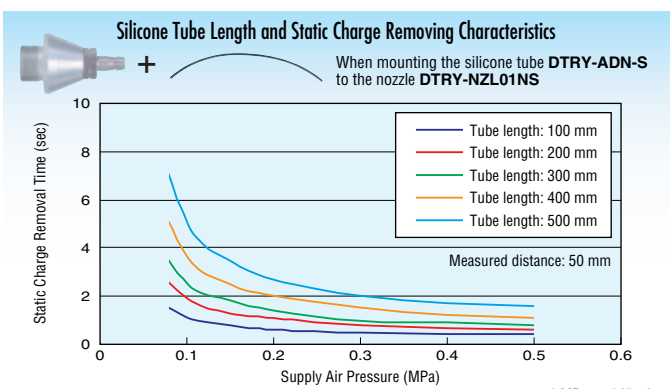


※For the graph of static charge removing characteristics obtained when using the standard nozzle **DTRY-NZL01NS**, see page ⑩.







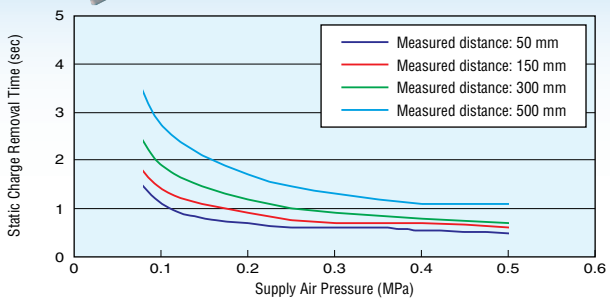


1 MPa = 145psi.

Graphs of Static charge Removing Characteristics

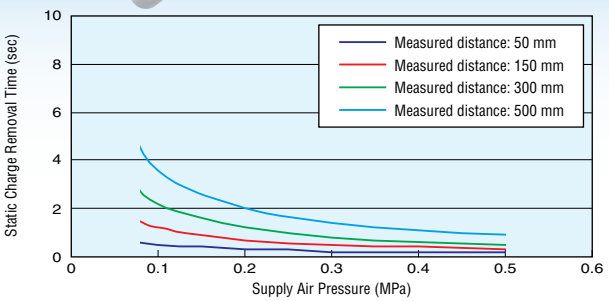
Static Charge Removing Characteristics obtained when the Nozzle with Stainless Steel Pipe is used

Nozzle : **DTRY-NZL02S**



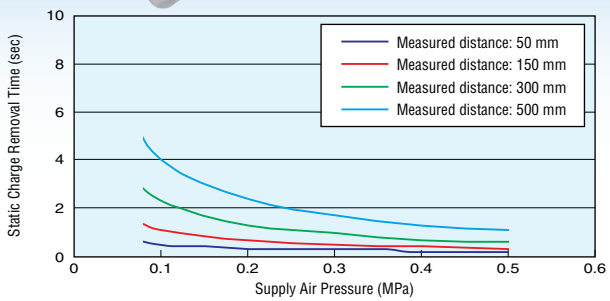
Static Charge Removing Characteristics obtained when Shower Nozzle (60° type) is used

Nozzle : **DTRY-NZL20SW**



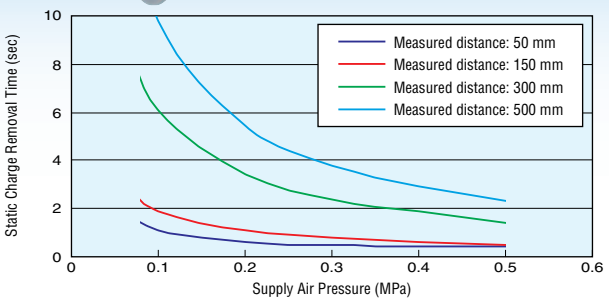
Static Charge Removing Characteristics obtained when Shower Nozzle (90° type) is used

Nozzle : **DTRY-NZL21SW**



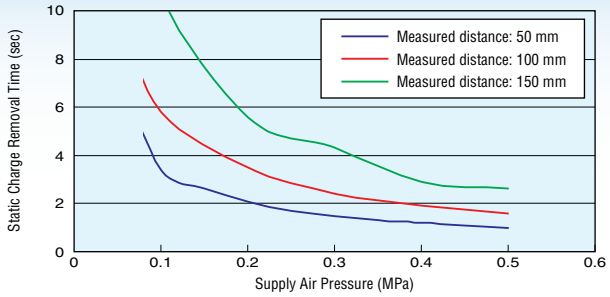
Static Charge Removing Characteristics obtained when the Flat Nozzle is used

Nozzle : **DTRY-NZL01FT**



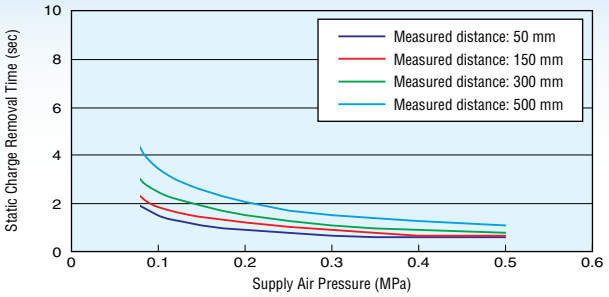
Static Charge Removimg Characteristics obtained when the Spiral Bar Nozzle is used

Nozzle : **DTRY-NZL200SP**



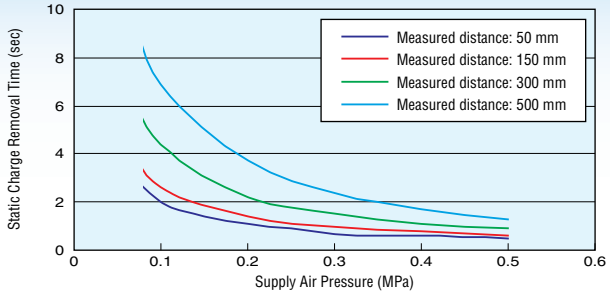
Static Charge Removing Characteristics obtained when the Straight Bar Nozzle (100 mm) is used

Nozzle : **DTRY-NZL100B**



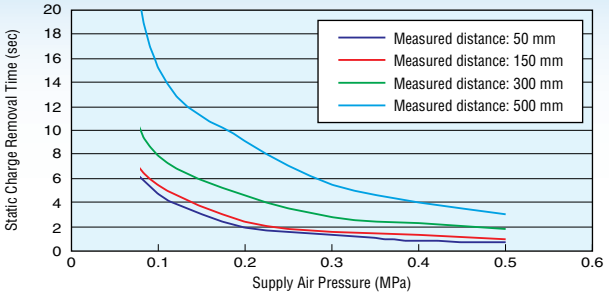
Static Charge Removing Characteristics obtained when the Straight Bar Nozzle (200 mm) is used

Nozzle : **DTRY-NZL200B**



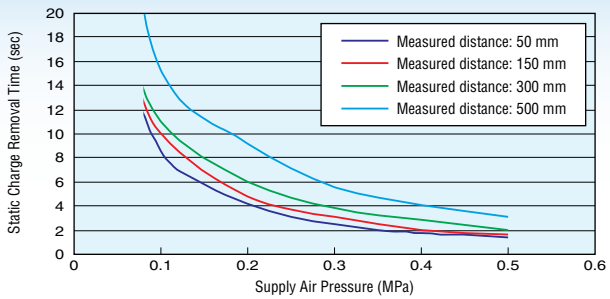
Static Charge Removing Characteristics obtained when the Straight Bar Nozzle (300 mm) is used

Nozzle : **DTRY-NZL300B**



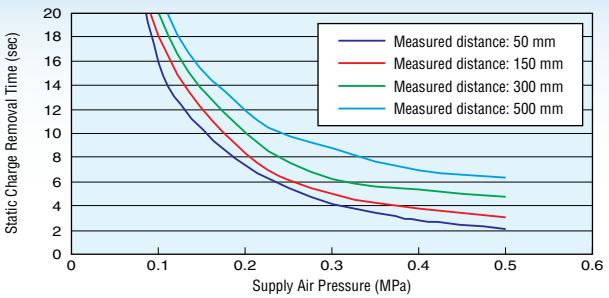
Static Charge Removing Characteristics obtained when the Straight Bar Nozzle (400 mm) is used

Nozzle : **DTRY-NZL400B**



Static Charge Removing Characteristics obtained when the Straight Bar Nozzle (500 mm) is used

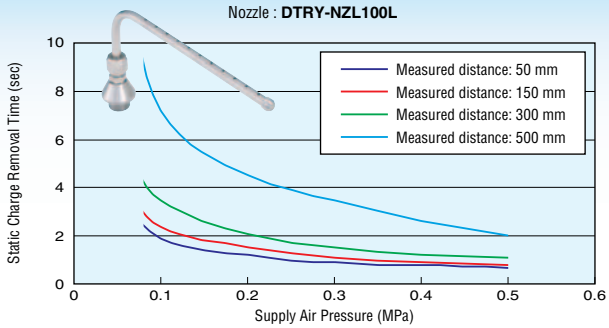
Nozzle : **DTRY-NZL500B**



1 MPa = 145psi.

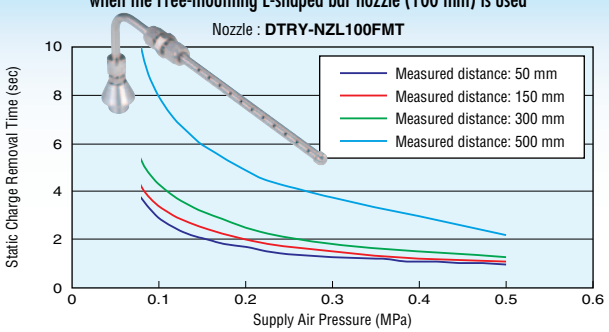
Static Charge Removing Characteristics obtained when the L-shaped Bar Nozzle (100 mm) is used

Nozzle : **DTRY-NZL100L**



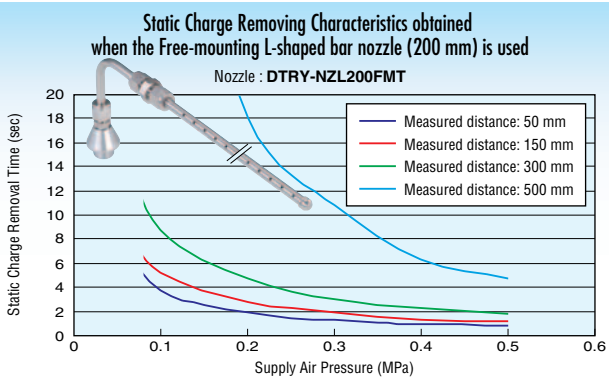
Static Charge Removing Characteristics obtained when the Free-mounting L-shaped bar nozzle (100 mm) is used

Nozzle : **DTRY-NZL100FMT**



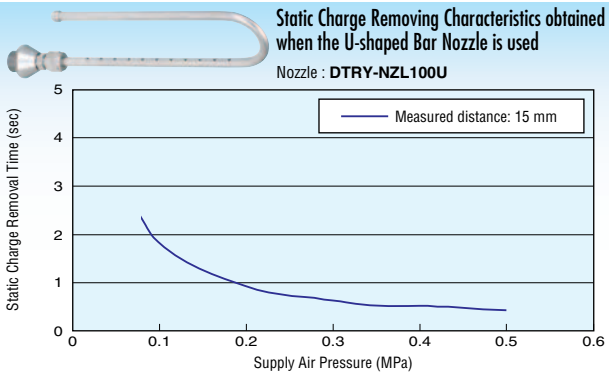
Static Charge Removing Characteristics obtained when the Free-mounting L-shaped bar nozzle (200 mm) is used

Nozzle : **DTRY-NZL200FMT**



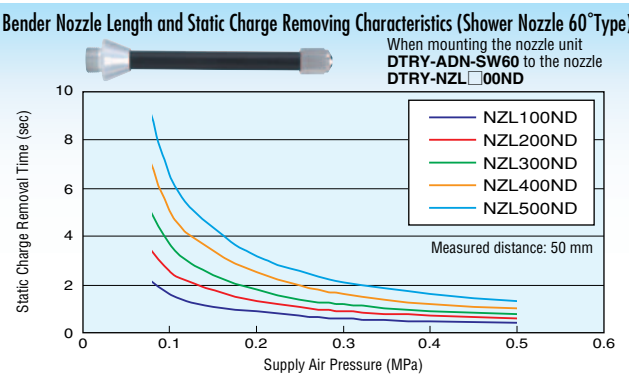
Static Charge Removing Characteristics obtained when the U-shaped Bar Nozzle is used

Nozzle : **DTRY-NZL100U**



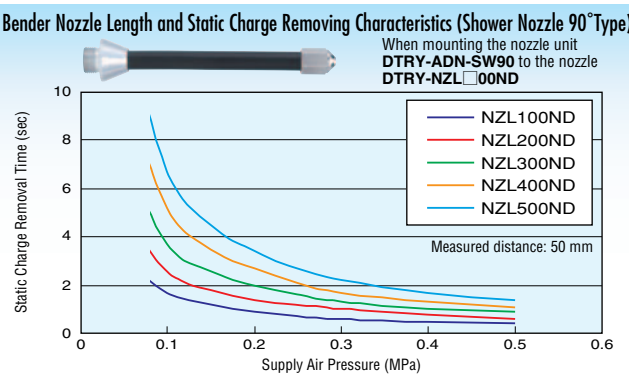
Bender Nozzle Length and Static Charge Removing Characteristics (Shower Nozzle 60°Type)

When mounting the nozzle unit **DTRY-ADN-SW60** to the nozzle **DTRY-NZL□00ND**



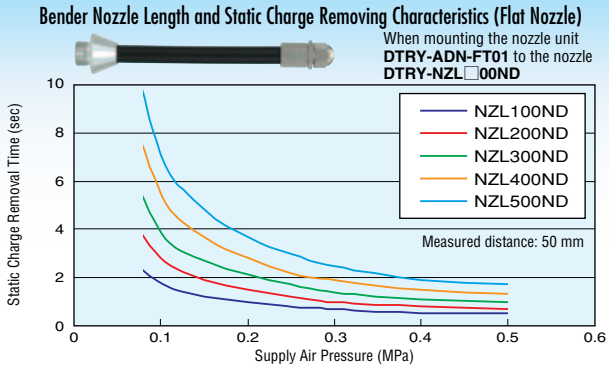
Bender Nozzle Length and Static Charge Removing Characteristics (Shower Nozzle 90°Type)

When mounting the nozzle unit **DTRY-ADN-SW90** to the nozzle **DTRY-NZL□00ND**



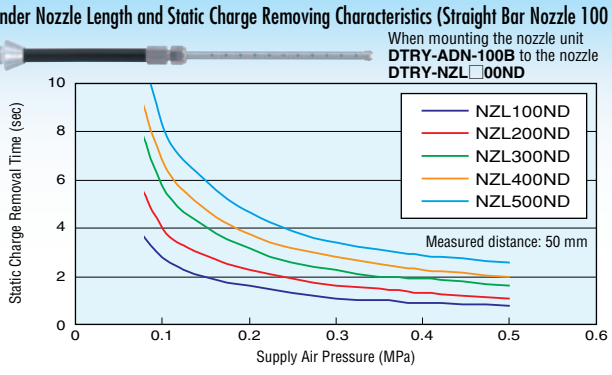
Bender Nozzle Length and Static Charge Removing Characteristics (Flat Nozzle)

When mounting the nozzle unit **DTRY-ADN-FT01** to the nozzle **DTRY-NZL□00ND**



Bender Nozzle Length and Static Charge Removing Characteristics (Straight Bar Nozzle 100 mm)

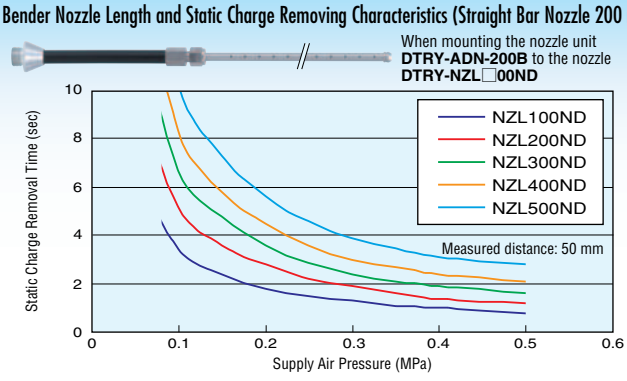
When mounting the nozzle unit **DTRY-ADN-100B** to the nozzle **DTRY-NZL□00ND**



1 MPa = 145psi.

Bender Nozzle Length and Static Charge Removing Characteristics (Straight Bar Nozzle 200 mm)

When mounting the nozzle unit **DTRY-ADN-200B** to the nozzle **DTRY-NZL□00ND**

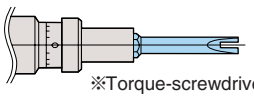


Note: The static charge removing characteristics are measured by in-house test standard.

Handling Instructions and Precautions (for BLOW TYPE)

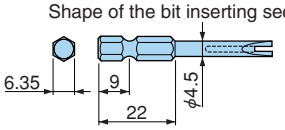
Precautions on Use

1. When grounding a metallic portion of the nozzle in the blow type Ionizer, the abnormality indicator LED could turn on.
2. The discharging needle of the Blow Type is covered with a cover cap for protection. Remove the cap before installing the nozzle.
3. To replace the discharging needle of the Blow Type, a dedicated tool **DTRY-ELB21** has to be used in combination with a torque-screwdriver. The dedicated tool is designed to prevent the discharging needle and thread of the main unit from being broken. Otherwise, the discharging needle/the main unit may be broken. Try to limit the tightening torque from 15 up to 20 N·cm. If the discharging needle or the main unit is damaged because the discharging needle was replaced without using the dedicated tool, it will not be covered under our warranty.



※Torque-screwdriver is sold separately.

Shape of the bit inserting section



4. Always supply the power of the blow type Ionizer with applying air. Otherwise, the ozone concentrations inside the Ionizer would increase due to electric discharge, which may cause detrimental effect on the main unit and its surroundings.
5. To turn on and off the Ionizer power supply, make it the input on +24 VDC side.
6. The tubes for the standard nozzles are consumables, so must be replaced periodically. (Replace tubes when they are softening or deteriorating.)
7. Do not use other nozzles than ours, and not remodel nozzles. Such use or conversion could result in cessation of function, shutdown, or damage.
8. When bending the bender nozzle, hold the bender nozzle at its base. Otherwise, connection portion of the main unit and nozzle pipe could be damaged.

Output of Abnormality Output Contact Point

1. The abnormality output circuit of this product will be active normally about 2 seconds later after being turned on. Sufficient care should be taken to design an error detection circuit at the time of the unit installation on other equipment, etc.
2. When the power to the main unit of the Ionizer is turned on immediately after being turned off, an abnormality output occurs. When performing such an operation, be sure to wait at least 1 second or longer after turning off.
3. Caution should be exercised to design the error detection circuit not to detect the Ionizer's abnormality output for one second after turning off the power to the Ionizer main unit.

Note: Either of the above cases, no problem with the Ionizer performance.

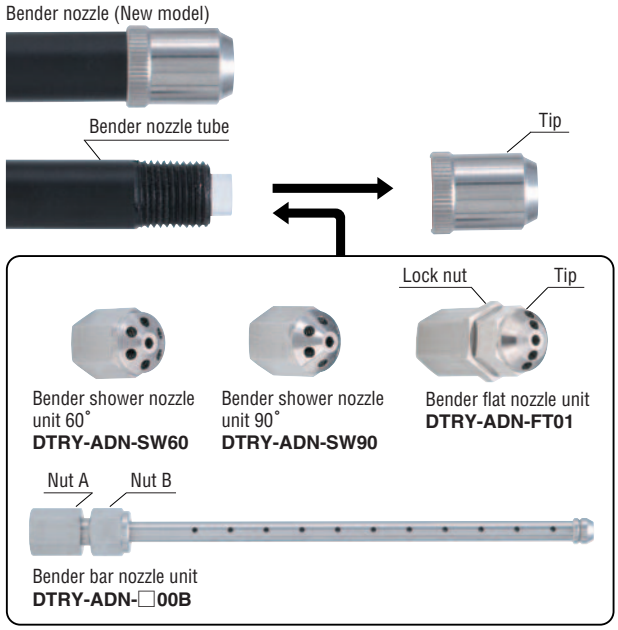
For output at the time of setting each contact point, see the table below.

Setting MODE	Power OFF	Power ON	Abnormality
NO (a-contact)	OPEN	OPEN	CLOSE
NC (b-contact)	OPEN	CLOSE	OPEN

Installation of nozzle unit for bender nozzle

Before mounting a nozzle unit on the tip of the bender nozzle (**DTRY-NZR□00ND** and **DTRY-NZL□00ND**), remove the component at the tip of it. And then screw a nozzle unit into the bender nozzle. When adjusting the direction of the ionized air flow outlet of the bar nozzle unit for bender nozzle (**DTRY-ADN-□00B**), loosen the nut B. At this time, secure the bender nozzle with the nut A to prevent applying force on the tube.
When adjusting the direction of the ionized air flow outlet of the bender flat nozzle unit (**DTRY-ADN-FT01**), make the adjustment at the end of the unit and secure it with the nut.

Caution
1. To replace nozzle or nozzle unit for bender nozzle, always turn off the power supply and shut off the air.
2. The recommended tightening torque of nozzle unit for bender nozzle is 30 N·cm.



Minimum bending radius of bender nozzle / tubes

mm

Model	Minimum bending radius
DTRY-NZR□00ND/DTRY-NZL□00ND	40
DTRY-ADN-U	15
DTRY-ADN-F	50
DTRY-ADN-S	10

Caution When used at the minimum bending radius, static charge removing performance may reduce.

※For the precautions for IONIZER, see page ❹.

⚠ Caution

- **Always supply the power of the blow type Ionizer with applying air. Otherwise, bad effects on the main unit and its surroundings may occur.**
- **Use clean air. No vapor and oil are allowed.**

LC SERIES BLOW TYPE

Low particle generation type

Features

- **Small sized Ionizer suitable for clean environment applications**
- **Low particle generation type. Newly-developed discharging needle (special alloy used) minimizes particle generation from discharging needle.** (Compared to our conventional nozzles)
- **Nozzle made of pure titanium and alumina ceramics minimizes particle generation by discharge.**
  (Compared to our conventional nozzles)
- **Assembled, inspected, and packaged in the clean room, helping to minimize particle adhesion**
  (Compared to our other products)
- **Using a filter on air supplying side prevents particle penetration and contamination of the workpiece.**
- **Smaller size and lightweight, and installable anywhere**
- **High frequency method provides good ion balance, and suitable for static charge removal of devices whose allowable charged voltage are low.**
- **No high voltage wiring is required due to built-in high voltage generation portion.**
- **No adjustment of ion balance is required.**

Particles

Measurement of particles

KOGANEI measures the amount of generated particles using our measurement method unaffected by environment such as the downflow at a clean bench.

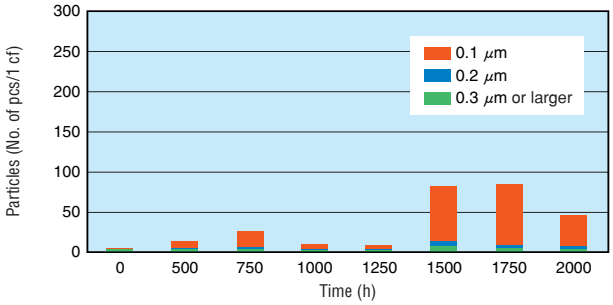
○Method

Flows all air from the Ionizer to the particle counter to measure the amount of particles.
1: Flows only air with the Ionizer turned off and measures the amount of particles. (Background measurement)
2: Turns on the Ionizer and measures the amount of particles.

○Measurement conditions

Applied pressure : 0.1 MPa
Measurement time : 2 hours
Amount of suction : 1 cf/min
Measured particle : 0.1 μm or larger

DTRY-LCE-01 Amount of Particles



Notes 1: Amount of particles is a value obtained by converting the total amount of particles in 2 hours to 1 cf.
2: The values shown in bar graph are actual measurement values obtained from the experiment performed under the above-mentioned conditions, and not guaranteed values.
Amount of particles varies with the surrounding environment and cleanliness level. When using the product, check your environment to use.

Specifications

LC Series Blow Type

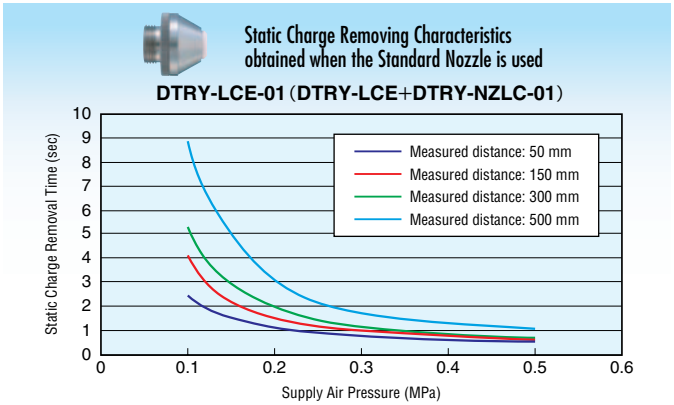
Item \ Model		DTRY-LCE
Power supply		24VDC ±5%
Consumption current	mA	Apprx. 100
Output voltage	kV	Apprx. 2 (high frequency type)
Indicator LED	Power supply	While power is supplied, power indicator LED (green) turns on.
	Abnormality	When an abnormal discharge occurs, abnormality indicator LED (red) turns on.
Power safety circuit		The contact point output NO/NC is selectable when an abnormal discharge occurs.Note 1 (24 DVC, 50 mA Max.)
Outer dimensions	mm	109.4(L) × 25(W) × 47(H)
Mass	g [oz.]	120 [4.23] (Main unit only)
Ion balance	V	±15
Ozone generation amount	ppm	0.037 or less (When measured at 300 mm apart from the nozzle outlet with a standard nozzle and 0.25 Mpa air at primary side.)
Media Note 2		Air (vapor- and oil-removed clean air)
Supply air flow rate	ℓ/min(ANR)	Approx. 30 (with **DTRY-NZLC-01** nozzle and 0.1 MPa air at primary side)
Operating air pressure range	MPa [psi.]	0.05～0.5 [7～73]
Operating ambient temperature	°C [°F]	5～40 [41～104] indoor (avoid a place subject to dew condensation)
Packaging		Single clean package (excluding for accessories)
Accessories		1 pc. power and signal cable (2 m), 1 pc. bracket, and 1 pc. contact point selector protection sticker

Notes 1: For output of abnormality output contact point, see page ㉞.
2: Always turn on the power supply with applying air.
Remarks 1: When using two or more Ionizers, mount them at least 10 mm apart. Closer mounting may cause a detrimental effect or detrimental ion balance.
2: Ion balance is measured by in-house test standard. Consult us for details.

Graphs of Static charge Removing Characteristics

(when using the standard nozzle)

Blow Type **DTRY-LCE-01**



Notes 1: The static charge removing characteristics are measured by in-house test standard using the charged plate monitor of 20 pF, □150 mm.
2: The static charge removal time means decaying time from ±1000 V to ±100 V.

Order code

LC SERIES BLOW TYPE

■Main Unit

●**DTRY-LCE-01** with standard nozzle

●**DTRY-LCE** without standard nozzle
(Main unit of Ionizer for replacement)

Caution The main unit cannot be operated alone.
Always use it with a nozzle for LC series blow type.

■Nozzle for LC Series Blow Type

●Standard nozzle
DTRY-NZLC-01

Caution Dedicated for LC series blow type.
Cannot be used with other main unit.

■Options for LC Series Blow Type Note

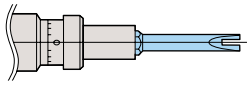
●Discharging needle for replacement
(supplied by a set of 1 needle)
DTRY-LCH-11

Caution Dedicated for LC series blow type.

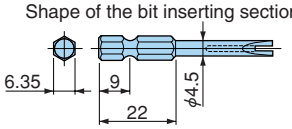
●AC adapter
DTRY-ELC04
Rating
Input : 100 VAC to 240 VAC
50/60 Hz, 0.6 A
Output: 24 VDC, 750 mA

●Filter for replacement (Mini line filter)
DTRY-LF040

●Dedicated tool for replacing the discharging needle
Note: Bit alone is available.
DTRY-ELB21



Shape of the bit inserting section



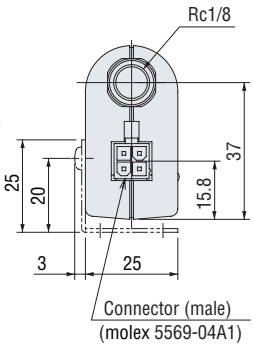
Note: Options are not clean-packaged.

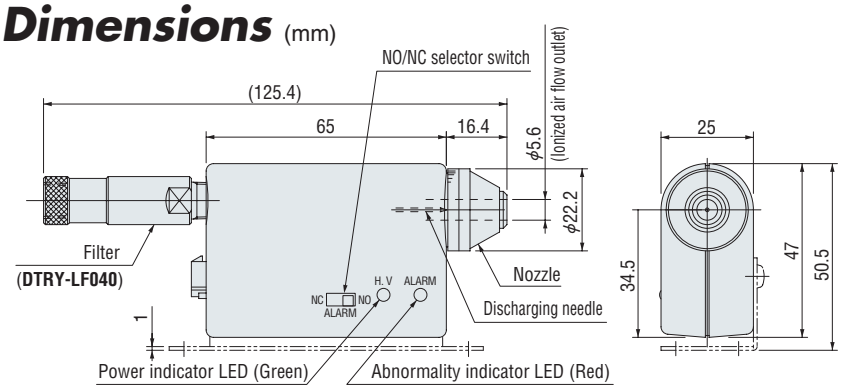
LC SERIES BLOW TYPE Dimensions (mm)

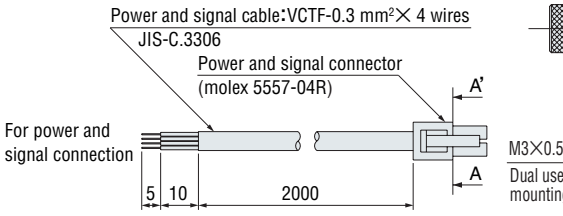
LC SERIES BLOW TYPE

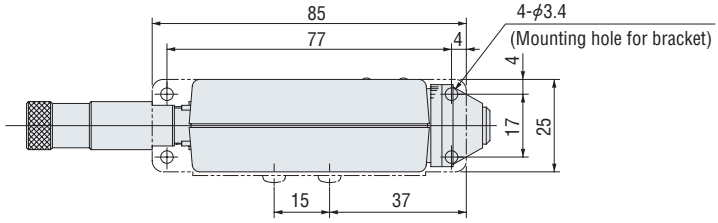
■Main Unit

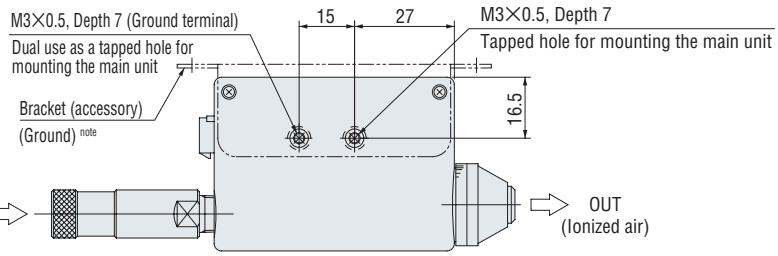
●**DTRY-LCE01**
with standard nozzle









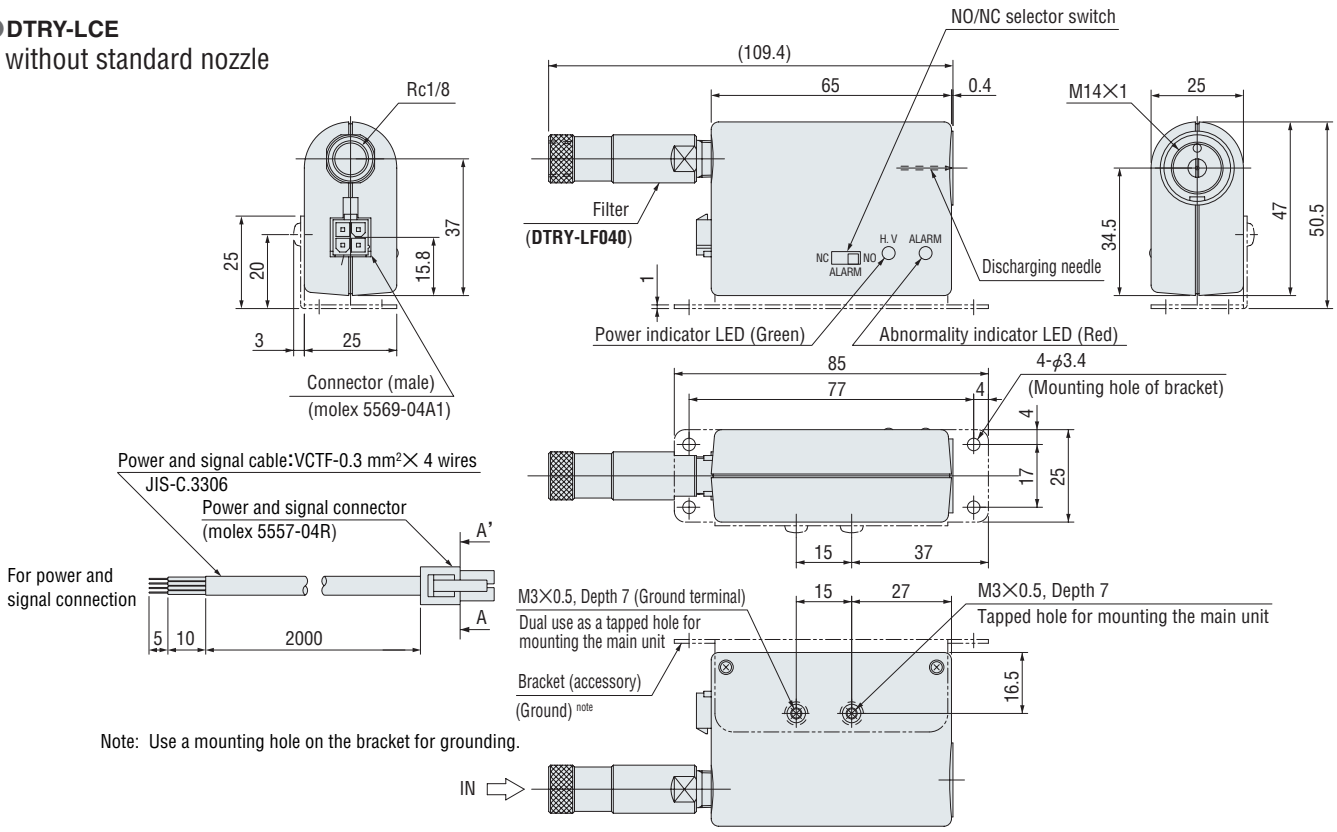


Note: Use a mounting hole on the bracket for grounding.

Dimensions (mm)

LC SERIES BLOW TYPE

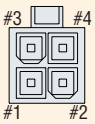
●**DTRY-LCE**
without standard nozzle



Note: Use a mounting hole on the bracket for grounding.

Power and signal cable (Accessory)

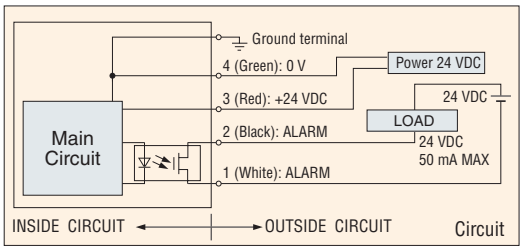
●Input power: +24 VDC
●Connector pin location and lead wire colors:



#1 [White] & #2 [Black]: Contact point output
#3 [Red] : Input power +24 VDC
#4 [Green] : Ground for power

Viewed from A-A'

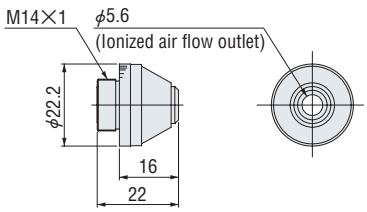
Pin location of molex 5557-04R (female)



Notes 1: ON/OFF of the power to the Ionizer should be done at the input side (+24 VDC side)
2: Ground for power and ground terminal are connected inside
3: For output of abnormality output contact point, see page 34.

■Nozzle

●Standard nozzle **DTRY-NZLC-01**

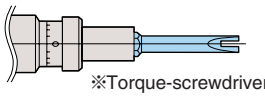


Note: Dedicated for LC series blow type.

Handling Instructions and Precautions (for LC SERIES BLOW TYPE)

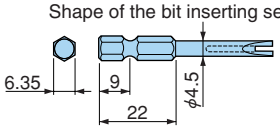
Precautions on Use

1. Abnormality indicator LED may turn on when a metal portion of the nozzle for Blow Type is grounded to the ground.
2. The discharging needle of **DTRY-LCE** is covered with a cover cap for protection. Remove the cap before installing the nozzle.
3. To replace the discharging needle of the Blow Type, a dedicated tool **DTRY-ELB21** has to be used in combination with a torque-screwdriver. The dedicated tool is designed to prevent the discharging needle and thread of the main unit from being broken. Otherwise, the discharging needle/the main unit may be broken. Try to limit the tightening torque from 15 up to 20 N·cm. If the discharging needle or the main unit is damaged because the discharging needle was replaced without using the dedicated tool, it will not be covered under our warranty.



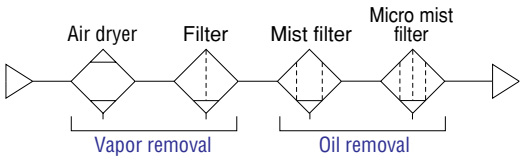
※Torque-screwdriver is sold separately.

Shape of the bit inserting section



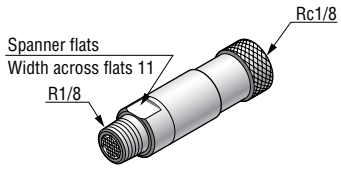
4. Always supply the power of the blow type Ionizer with applying air. Otherwise, the ozone concentrations inside the Ionizer would increase due to electric discharge, which may cause detrimental effect on the main body and its surroundings.
5. To turn on and off the Ionizer power supply, make it the input on +24 VDC side.
6. Do not use other nozzles than ours, and not remodel nozzles.
7. Fine particles may be generated due to vibration and impact during transportation, though the product was cleaned with clean air before shipping. When using this product first, flush the product to clean it.
8. This product can be used for 2,400 hours from first use without maintenance (according to our actual measurement). When performing maintenance, wipe the discharging needle, Ionizer (main unit), the nozzle mounting thread, and the nozzle thread with isopropyl alcohol and cotton-tipped swab.
9. When the nozzle is removed for cleaning or the filter is replaced to clean the discharging needle, flush the nozzle and filter to clean them as well as when used first.
10. The purpose of the product filter is to remove solid particles, consequently ensure the removal of vapor and oil in the pneumatic circuit before they reach the filter. Also, ensure the removal of vapor and oil in the fitting and piping materials used when piping.

●Recommended circuit



●Recommended fitting
CS-BF6U-01 CS-BF6N-01

11. When using the Ionizer with the air flow rate reduced, consult us.
12. When plumbing the filter (Mini Line Filter) for replacement, use the flats on the body as spanner flats as follows.



DTRY-LF040

Caution When mounting the **DTRY-LF040** to the Ionizer, tightening torque should be 60 to 70 N·cm. Excessive tightening could damage the Ionizer.

Output of Abnormality Output Contact Point

1. The adnormality output circuit of this product will be active normally about 2 seconds later after being turned on. Sufficient care should be taken to design an error detection circuit at the time of the unit installation on other equipment, etc.
2. When the power to the main unit of the Ionizer is turned on immediately after being turned off, an abnormality output occurs. When performing such an operation, be sure to wait at least 1 second or longer after turning off.
3. Caution should be exercised to design the error detection circuit not to detect the Ionizer's abnormality output for one second after turning off the power to the Ionizer main unit.

Note: Either of the above cases, no problem with the Ionizer performance.

For output at the time of setting each contact point, see the table below.

Setting MODE	Power OFF	Power ON	Abnormality
NO (a-contact)	OPEN	OPEN	CLOSE
NC (b-contact)	OPEN	CLOSE	OPEN

※For the precautions for IONIZER, see page ❹.

⚠ Caution

- **Always supply the power of the blow type Ionizer with applying air. Otherwise, bad effects on the main unit and its surroundings may occur.**
- **Use clean air. No vapor and oil are allowed.**

Static Electricity Removing Unit IONIZER
STEADY FLOW FAN TYPE

Features

- Available in three models in accordance with where to install, and type of applications, thanks to no air supply requirement.
- Changeable louver enables selection of static charge removal area.
- Improved maintenance by detachable louver and discharging needle unit.
- Flow rate adjusting knob enables you to obtain the required air flow rate.
- High frequency AC method provides good ion balance. (within ±10 V)
- CE marking compliant products

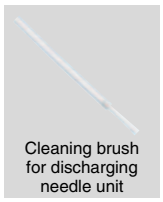
DTRY-ELF02 DTRY-ELF04 DTRY-ELF03

CE

Discharging Needle Unit

During maintenance, the discharging needle unit can be removed for cleaning, eliminating any concern about particles uncovered during cleaning falling onto the interior of the body.
(cleaning brush for discharging needle included)


Discharging needle unit


Cleaning brush for discharging needle unit

Air Flow Rate Adjusting Knob

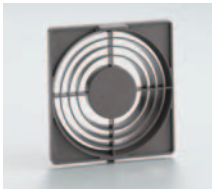
Using the adjusting knob enables stepless air flow rate adjustment.

Straight-flow Louver Note

Ionized straight air flow through the louver removes static charges on the front of the product powerfully and directly. Straight-flow louver and wide-angle louver in the accessory are interchangeable.

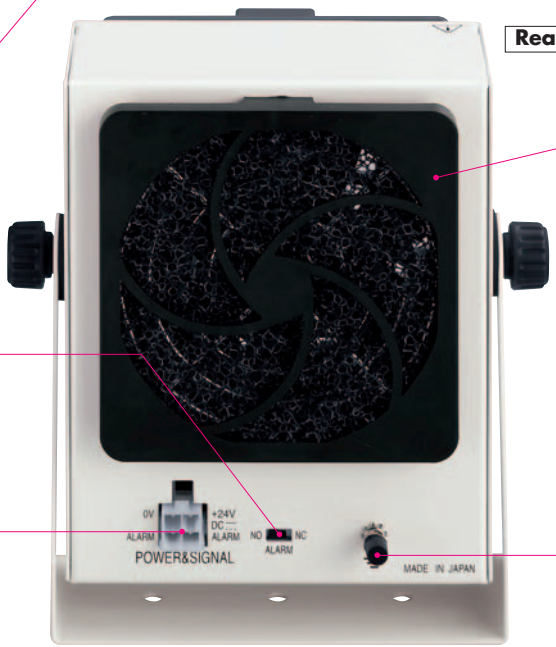
● Wide-angle louver Note

Dispersed ionized air through the louver removes static charges in a broader range.



Note: A safety circuit will shut the unit off when the louver is removed during operation.

Power Switch



Filter / Filter Cover

The filter cover can be removed.
IONIZER of these models can be used without the filter.

Selector Switch of Abnormality Output Contact Point

Contact point is switchable between NO (a-contact) and NC (b-contact). (Dedicated protection sticker for selector switch of contact included)

Connector

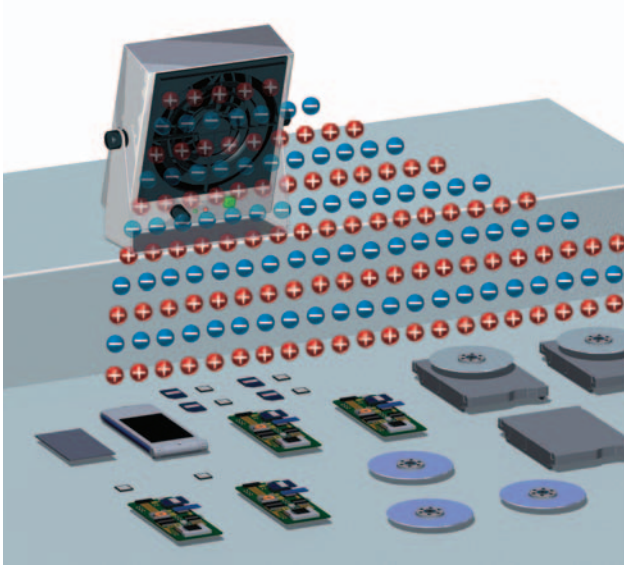
Ground terminal

Photo: DTRY-ELF03

Steady Flow Fan Type Application Examples

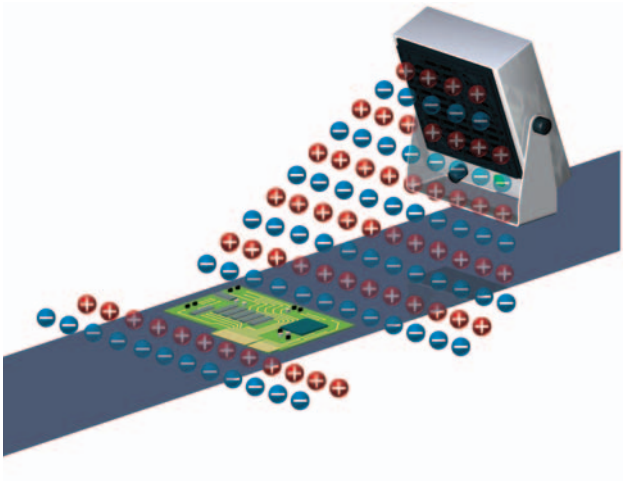
Static charge removal for parts on a work bench

Removes static charges from various parts when assembling



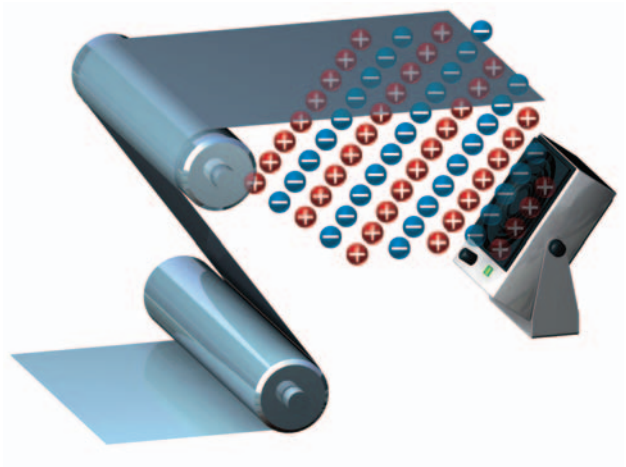
Static charge removal for circuit boards etc.

You can make static charge removal for relatively wide objects.

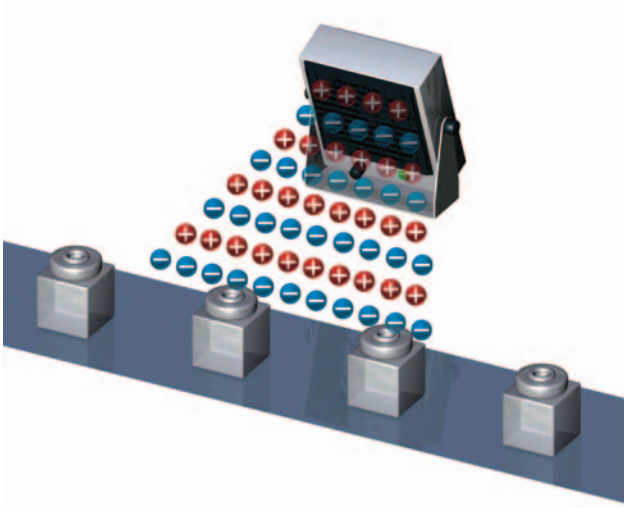


Static charge removal for packaging films etc.

You can remove the static electricity generated when the film leaves the film roller.

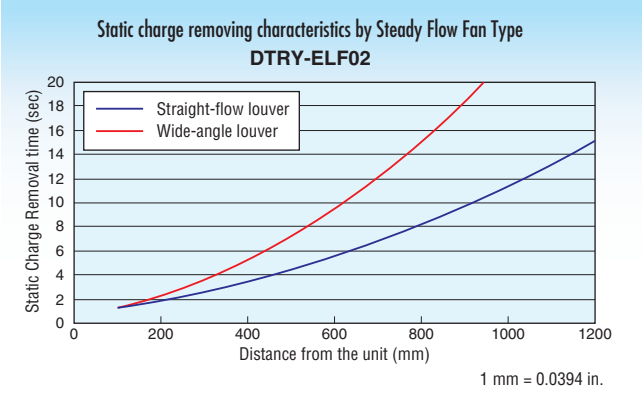


Static charge removal for plastic containers and parts etc.



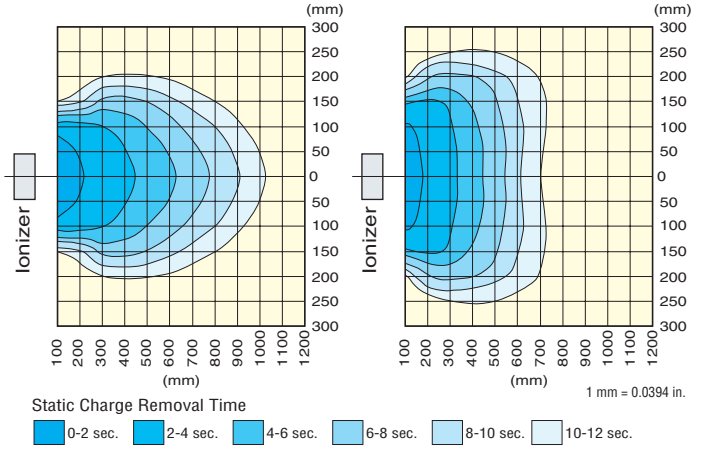
Graphs of Static Charge Removing Characteristics / Static Charge Removal Range of Straight-flow and Wide-angle Louver (image)

●DTRY-ELF02

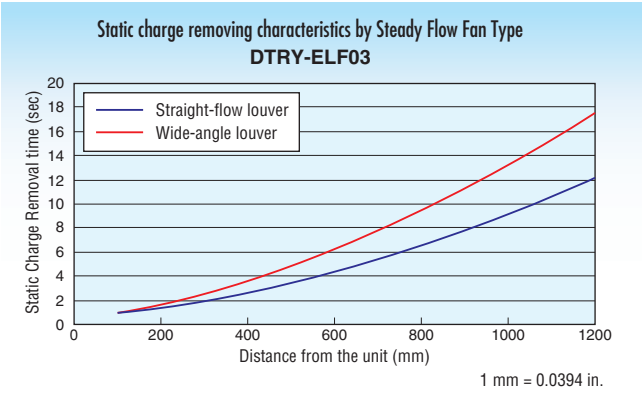


●Static charge removal range when the straight-flow louver is used

●Static charge removal range when the wide-angle louver is used

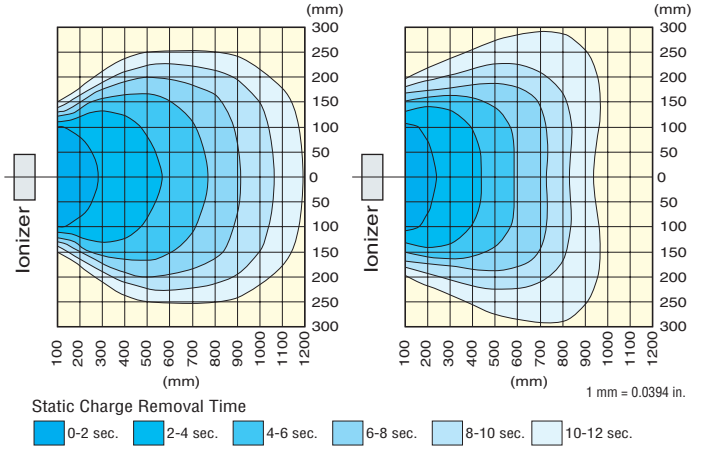


●DTRY-ELF03

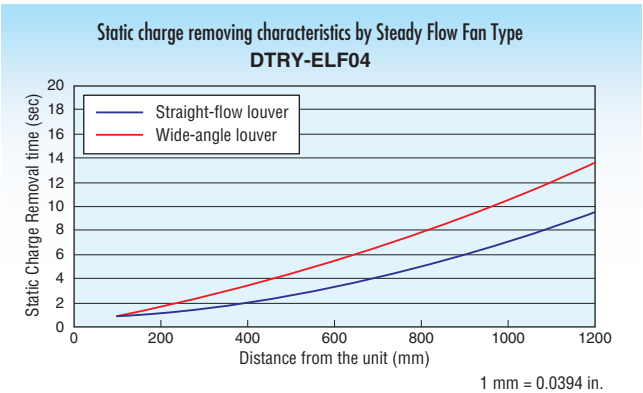


●Static charge removal range when the straight-flow louver is used

●Static charge removal range when the wide-angle louver is used

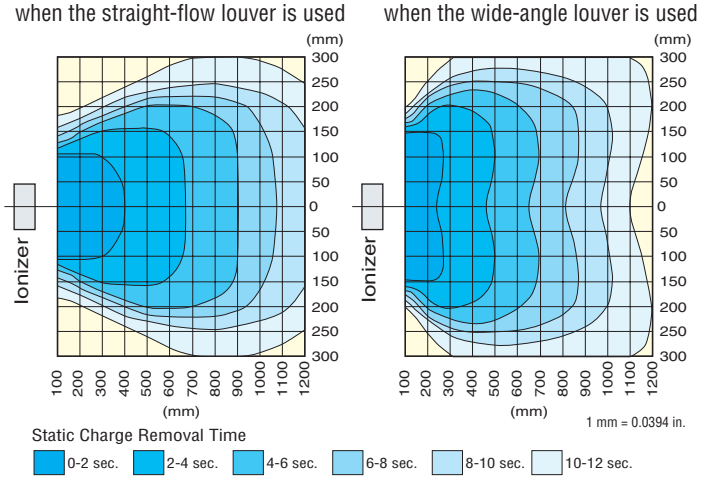


●DTRY-ELF04



●Static charge removal range when the straight-flow louver is used

●Static charge removal range when the wide-angle louver is used



Notes 1: The static charge removing characteristics are measured by in-house test standard using the charged plate monitor of 20 pF, □150 mm.
2: The static charge removal time means decaying time from ±1000 V to ±100 V at the max. flow rate without filter.
3: The static charge removing characteristics were measured from the center of the fan outlet.

Specifications

Steady Flow Fan Type

Item \ Model			DTRY-ELF02	DTRY-ELF03	DTRY-ELF04
Power supply			24VDC ±5%		
Consumption current		mA	200	210	350
Output voltage		kV	Approx. 2 (high frequency type)		
Indicator LED	Power supply		While the Power Switch is pushed ON, the Power Switch (Green) and the H.V.power indicator LED (Green) on the front of the main unit turn on.		
	Abnormality		When an abnormality occurs during discharge, the abnormality indicator LED (Red) on the front of the main unit turns on.		
Power safety circuit			The contact point output NO/NC is selectable when an abnormal discharge occurs.Note 1(24 DVC, 50 mA Max.)		
Outer dimension Note2		mm	61 (L) ×80 (W) ×100 (H)	62 (L)×100 (W)×120 (H)	62 (L)×140 (W)×160 (H)
Mass Note3		g [oz.]	400 [14.1]	520 [18.3]	830 [29.3]
Ion balance Note4		V	±10		
Static charge removal time Note4		sec.	3 or less	2.2 or less	1.5 or less
Ozone generation amount Note4		ppm	0.04 or less		
Fan capacity	Max. flow rate	m^3/min [ft^3/min]	0.5 [17.7]	1.1 [38.8]	3.0 [105.9]
	Adjustment		Stepless adjustment by using the flow rate adjusting knob		
Operating ambient temperature		°C [°F]	0～40 [32～104] (avoid a place subject to dew condensation)		
Accessories			User's manual, 1 pc. wide-angle louver, 1 pc. power and signal cable (2 m[78.7in.]), 1 pc. ground lead wire (2 m[78.7in.]), 1 pc. rear filter, 1 pc. cleaning brush for discharging needle, and 1 pc. contact point selector switch protection sticker		

Notes 1: For output of abnormality output contact point, see page 41.
2: When a bracket and a filter removed (Does not include protruding portions).
3: When a bracket and a filter removed.
4: 300 mm [11.8in.] from the center of the fan outlet, at maximum flow rate when the straight-flow louver used.
Remark: Ion balance and static charge removal time were measured by in-house test standard. Contact us for more detail.

Order code

STEADY FLOW FAN TYPE

Main unit

DTRY-ELF02

Wide-angle louver (accessory)

DTRY-ELF03

Wide-angle louver (accessory)

DTRY-ELF04

Wide-angle louver (accessory)

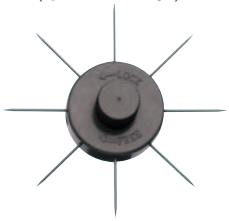
Option

● Discharging needle unit for replacement (sales unit: 1 pc.)

DTRY-ZEM-F02 (for **DTRY-ELF02**)

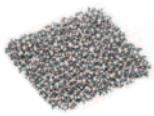
DTRY-ZEM-F03 (for **DTRY-ELF03**)

DTRY-ZEM-F04 (for **DTRY-ELF04**)

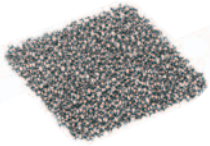


● Rear filter for replacement (sales unit: a set of 5 pcs.)

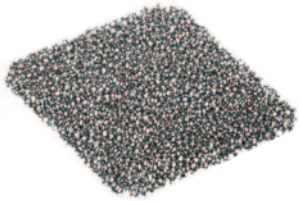
DTRY-ZFR-F02 (for **DTRY-ELF02**)



DTRY-ZFR-F03 (for **DTRY-ELF03**)



DTRY-ZFR-F04 (for **DTRY-ELF04**)



● AC adapter

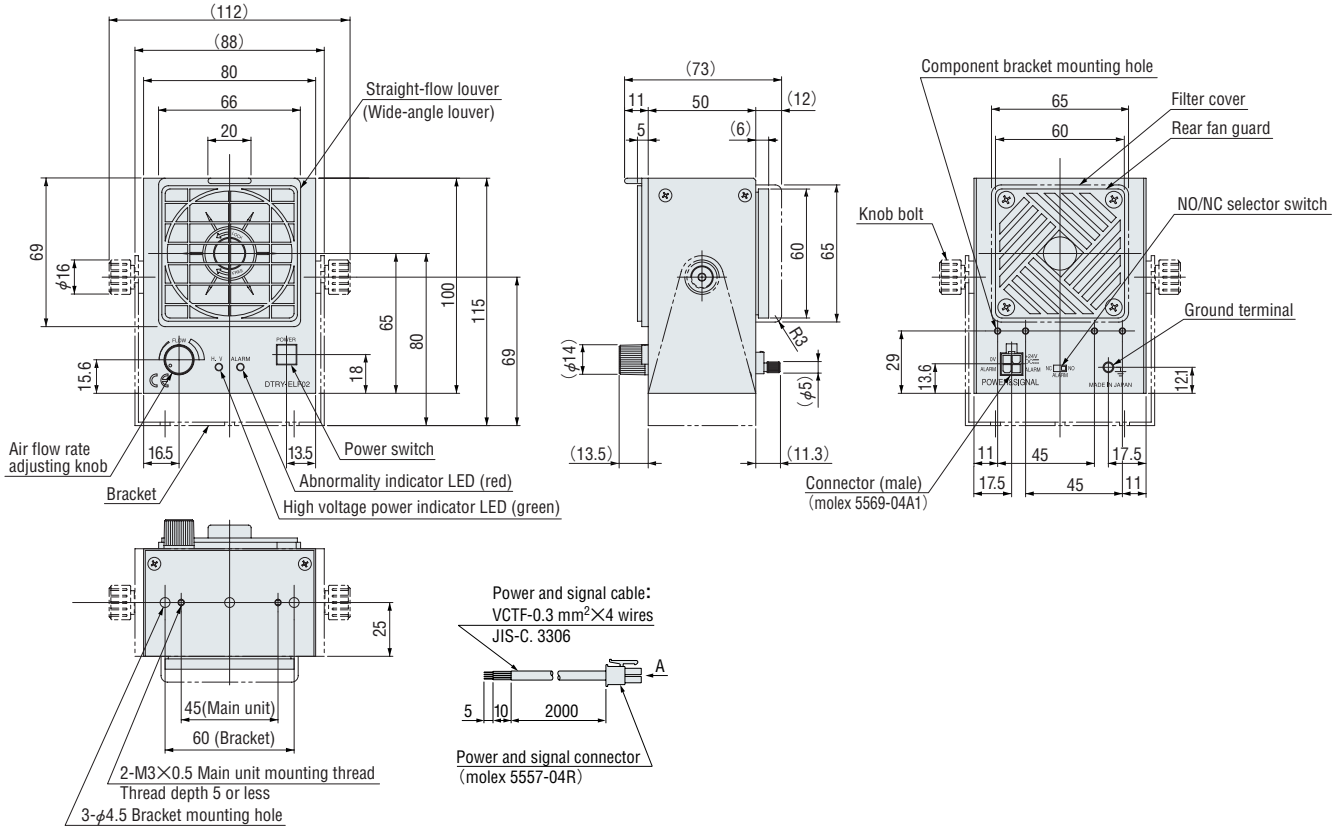
DTRY-ELC04

Rating
Input:100 VAC to 240 VAC
50/60 Hz, 0.6 A
Output:24 VDC, 750 mA

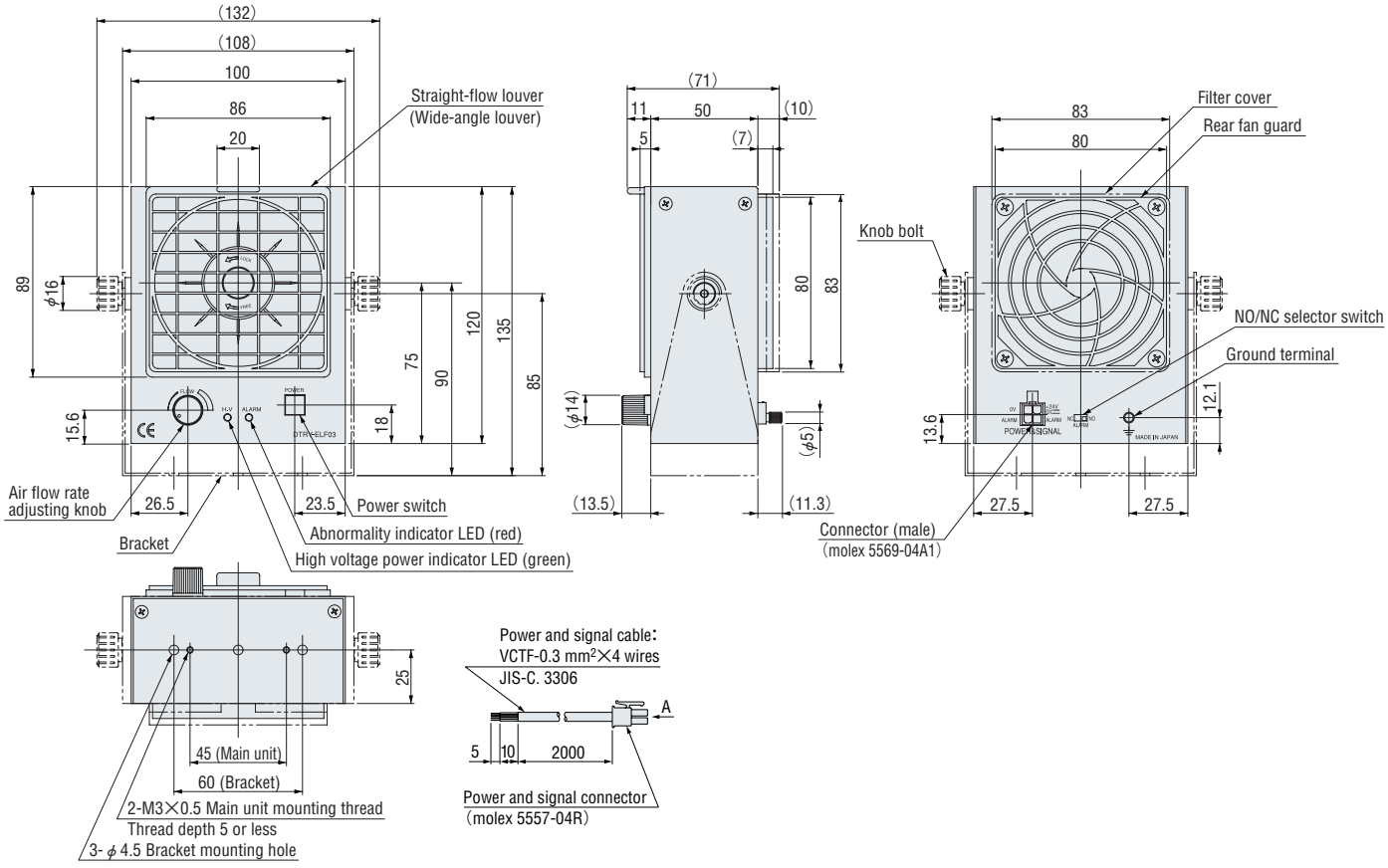
Dimensions (mm)

STEADY FLOW FAN TYPE

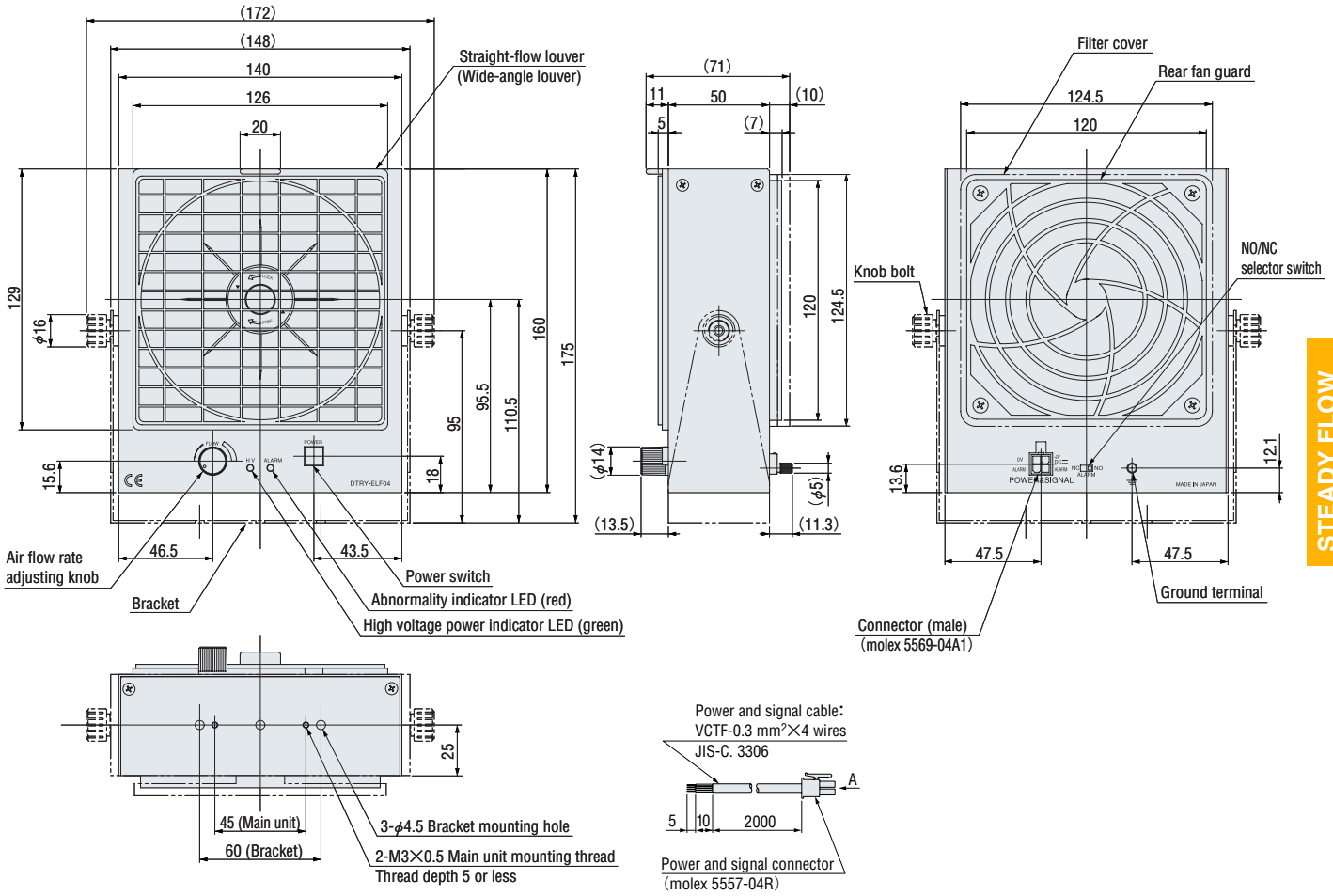
●DTRY-ELF02



●DTRY-ELF03



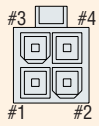
●DTRY-ELF04



Power and signal cable (Accessory)

●Input power: +24 VDC

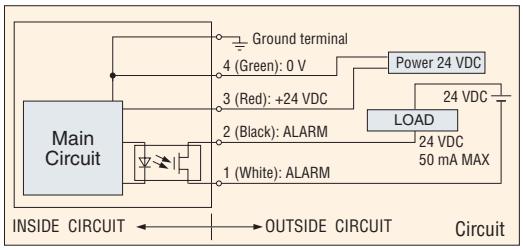
●Connector pin location and lead wire colors:



#1 [White] & #2 [Black]: Contact point output
#3 [Red] : Input power +24 VDC
#4 [Green] : Ground for power

Viewed from A

Pin location of molex 5557-04R (female)



Notes 1: ON/OFF of the power to the Ionizer should be done at the input side (+24 VDC side)
2: Ground for power and ground terminal are connected inside
3: For output of abnormality output contact point, see page ❹❶.

Handling Instructions and Precautions (for STEADY FLOW FAN TYPE)

Installation

1. When mounting, do not thread mounting screws in 5mm or deeper; otherwise the mounting screws may contact the inner circuit board. It could result in damage to the product.
2. When installing, ensure sufficient space so as not to block the suction opening.

Precaution on Use

1. Before inspections, cleaning, or maintenance, be sure to disconnect a power cable from a connector.
2. The discharging needle has a sharp-pointed tip. Handle the discharging needle unit with care when removing or cleaning it. Otherwise it could possibly result in injury. Pay attention not to bend or break a discharging needle. Otherwise, you could not get the desired effect.
3. Do not disassemble the discharging needle unit. Since the discharging needle has a sharp-pointed tip, you could be injured.
4. A poor operating environment (e.g., very humid conditions) or failure to clean the discharging needle will lead to degraded performance of the Ionizer. Hence, periodic maintenance is required to maintain performance. For maintenance, refer to the supplied instruction manual.
5. To turn ON/OFF externally, make it the input on +24 VDC side.

Output of abnormality output contact point

1. The abnormality output circuit of this product will be active normally about 2 seconds later after being turned on. Sufficient care should be taken to design an error detection circuit at the time of the unit installation on other equipment, etc.
2. When the power to the main unit of the Ionizer is turned on immediately after being turned off, an abnormality output may occur. When performing such an operation, be sure to wait at least 2-second or longer after turning off.
3. Caution should be exercised to design the error detection circuit not to detect the Ionizer's abnormality output for one second after turning off the power to the Ionizer main unit.

Note: Either of the above cases, no problem with the Ionizer performance.

For output at the time of setting each contact point, see the table below.

Setting MODE	Power OFF	Power ON	Abnormality
NO (a-contact)	OPEN	OPEN	CLOSE
NC (b-contact)	OPEN	CLOSE	OPEN

※For the precautions for IONIZER, see page ❹.

AIR GUN TYPE

Has built-in compact high-voltage power supply and a discharging electrode, and can remove static charges and blow off dust instantaneously.

Features

- Air piping port with a ϕ6 quick fitting provides easy plumbing.
- Employs high frequency corona ionization method for constant and optimum removal of static charges with superior ion balance (When the distance from the ionized air flow outlet is 50 mm, ion balance is ±15 V or less).
- There is little radiation noise, and no electrical field concentration generated by corona discharge, therefore there is no detrimental effet on electric equipment and electronic devices.
- Compact high-voltage power supply is built in the main body, and high-voltage section is not exposed externally, providing safer design. Main body weighs only 140 g and is very compact.
- Easy-to-use construction, because air supply tube, electric power supply and signal wire are all built into one cable.
- Two types of nozzles are equipped as standard (long and short). Suitable for removing static charges with pinpoint accuracy, and removing dust in tight spaces.
- Electric operation switch offers light force operation and is free of finger fatigue.
- Two operating procedures of operation switch:
  Mode A: Provides air flow while the operation switch is pressed. (This is the same as general air guns.)
  Mode B: Provides air flow when the operation switch is pressed once, and press it again to stop. This keeps the blowing air when the switch pressed once.
- Dedicated holder allows the use even with the main body is placed on the holder. The main body can be rotated by every 9 degrees on the holder.

Application example

- Highly effective to remove dust when printing photos, or making additional copies.
- Countermeasures against particles attraction caused by static electricity when inputting into a digital scanner.
- Countermeasures against static electricity and particles attraction when assembling, manufacturing or repairing electric equipment.
- Countermeasures against static electricity and particles attraction when molding or machining plastic.
- Countermeasures against static electricity and particles attraction in all other fields.

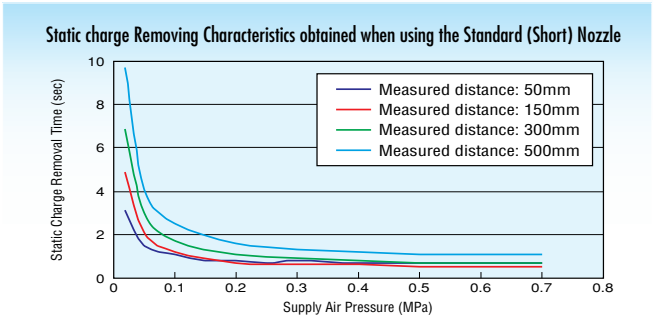
Specifications

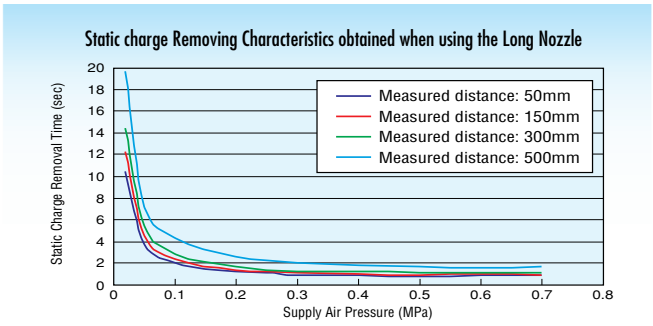
Item \ Model		DTRY-ELG01
Power supply		24 VDC ±10%
Consumption current	mA	Approx. 750
Output voltage	kV	Approx. 2 (High frequency type)
Operation indicator LED	Normality	Green LED turns on during normal discharging
	Abnormality	Red LED turns on at abnormal discharging Note 1
Ion balance	V	±15 or less
Ozone generation amount	ppm	0.04 or less (100 mm apart from the nozzle outlet)
Media Note 2		Air (vapor- and oil-removed clean air)
Operating air pressure range	MPa [psi.]	0.02～0.7 [3～102]
Operating temprature range	°C [°F]	5～35 [41～95] (avoid a place subject to dew condensation)
Operating humidity range	%RH	20～70
Tube length Note 3	mm	Approx. 2500
Accessories		Holder, Velcro fastening

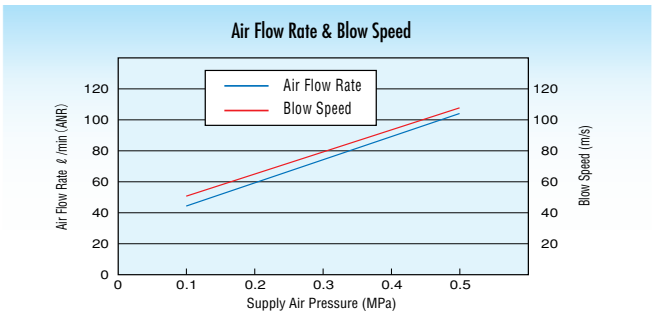
Notes 1: When the red operation indicator LED turns on, shut off the power and clean the discharging needle. No alarm signal output at abnormal discharging.
2: Before using, always supply compressed air to the air piping port.
3: The power cable is built in the tube. Do not excessively bend or cut it.

Remarks 1: Ion balance is measured by in-house test standard.
2: If you want to use the AC adapter, consult us.
3: If you want to use the Air Gun Type with the hanging hook, consult us.

Static Charge Removing Characteristics







※Measured at the end of a short nozzle.

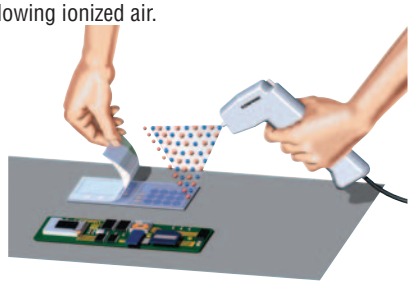
Note: The static charge removing characteristics are measured by in-house test standard using the charged plate monitor of 20 pF, □150 mm.

Air Gun Type Application Examples

Removal of static charges when peeling off a protective sheet

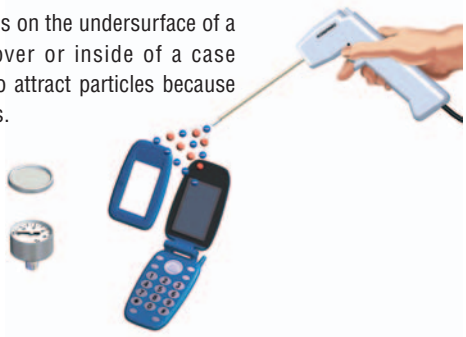
Optimum for removing particles when peeling an LCD protective sheet on car navigation systems, cellular phone, etc.

A normal high-pressure air blower may cause a workpiece charged with static electricity, which could attract particles. Air Gun Type Ionizer can remove static charges while blowing away undesired particles by blowing ionized air.



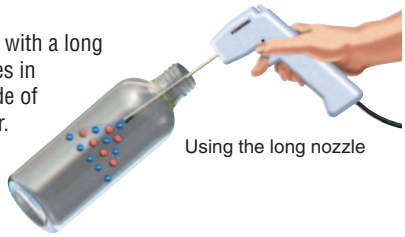
Removal of particles when assembling parts

Remove particles on the undersurface of a transparent cover or inside of a case which is easy to attract particles because of static charges.



Removal of particles inside a container using a long nozzle

Use Air-Gun type Ionizer with a long nozzle to remove particles in a confined space or inside of a bottle necked container.

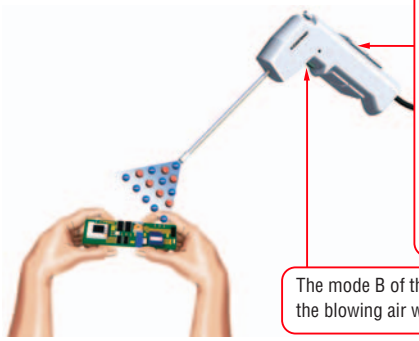


Using the long nozzle

Removal of static charges and particles on parts by holding the Air-Gun type Ionizer

The operation switch has two operating procedure

Mode A : Provides air flow while the operation switch is pressed.
Mode B : Provides air flow when the operation switch is pressed once, and press it again to stop.

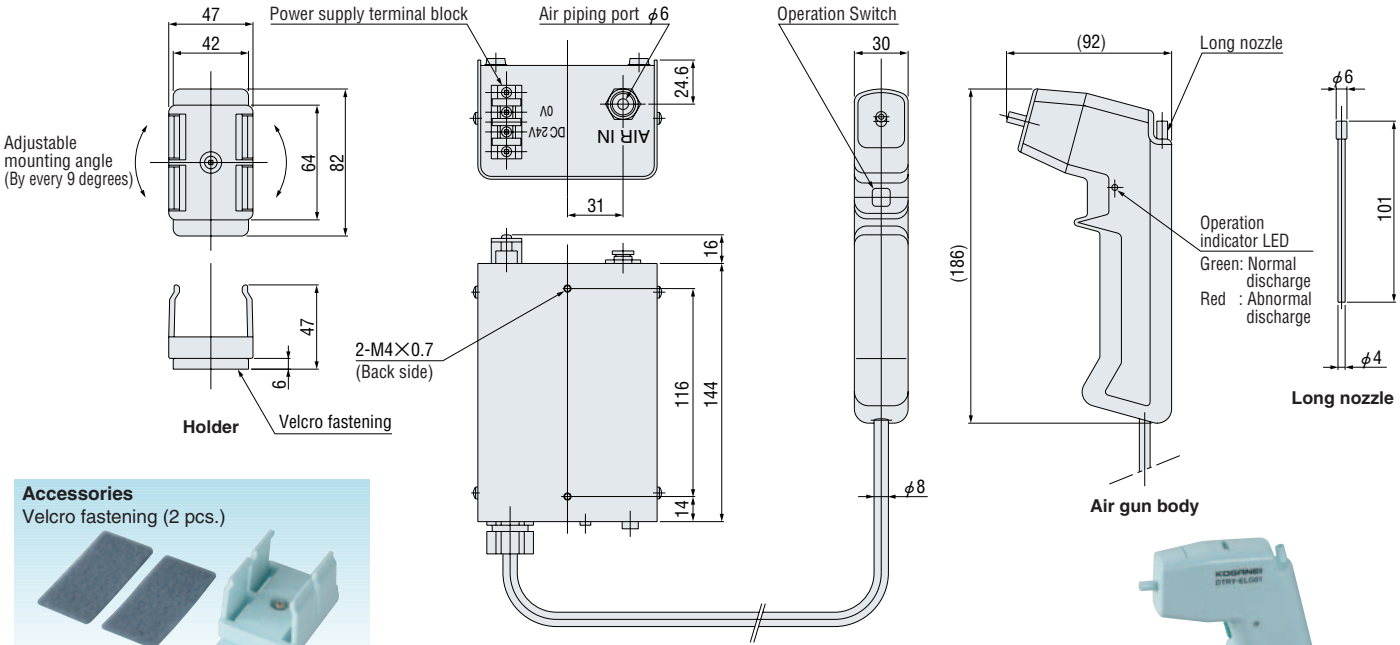


Dedicated holder

Easy to place/remove the main body to/from the holder. The main body can be rotated by every 9 degrees on the holder.

The mode B of the operation switch keeps the blowing air when pressed once.

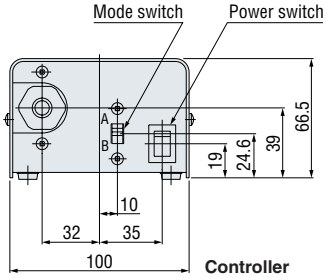
Dimensions (mm)



Accessories
Velcro fastening (2 pcs.)

Holder

Controller's back side



Controller

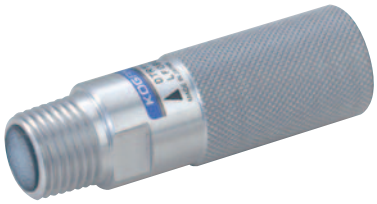
MINI LINE FILTER

Offers clean and economical air

Use of a porous hollow fiber membrane achieves a lightweight and compact filter with simple construction.
Can be mounted directly to the static electricity removing unit IONIZER.

Note: **DTRY-LF080** cannot be directly mounted to the Ionizer.

DTRY-LF040
●Connection port: R (Rc) 1/8



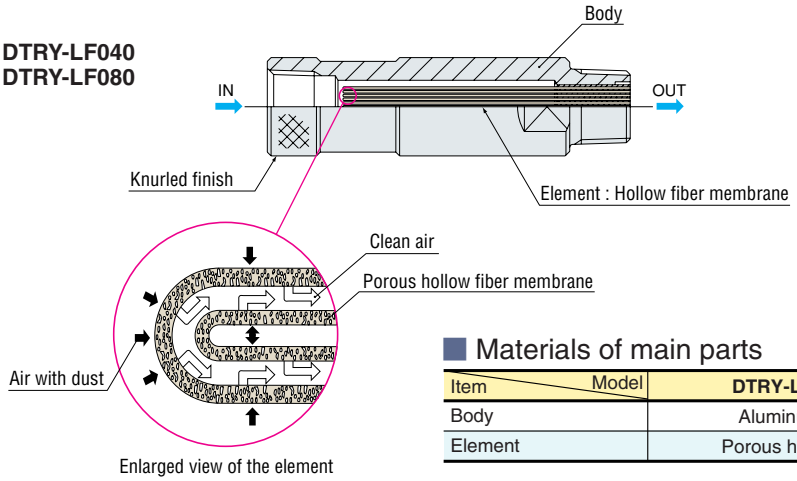
DTRY-LF080
●Connection port: R (Rc) 1/4

High filtering performance:
Filter element 0.1 micron / Filtering efficiency 99.9%

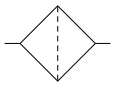
Compact but high flow rate–
DTRY-LF040: 40 ℓ/minute (ANR)※ / DTRY-LF080: 80 ℓ/minute (ANR)※
※These values are the flow rate at 0.7MPa supply air with 0.03 MPa pressure drop.

Inner construction and parts name

●DTRY-LF040
●DTRY-LF080



Symbol



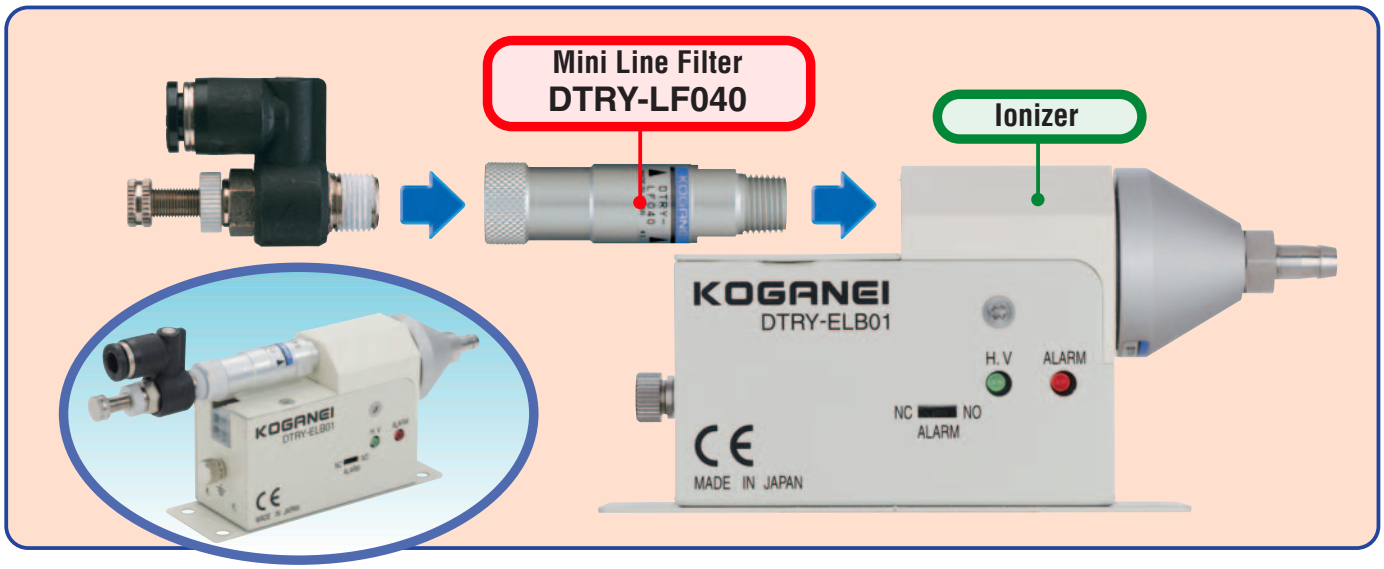
Remark: See page 45 for the specifications, flow characteristics, dimensions, handling instructions and precautions.

Note: Do not disassemble the Mini Line Filter.

Materials of main parts

Item \ Model	DTRY-LF040, DTRY-LF080
Body	Aluminum alloy (anodized)
Element	Porous hollow fiber membrane

Application with an Ionizer



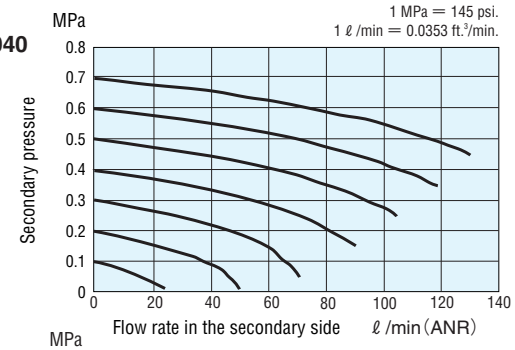
Specifications

Item \ Model	DTRY-LF040	DTRY-LF080
Media	Air	
Connection port	R (Rc) 1/8	R (Rc) 1/4
Collecting particle size μm	0.1	
Filtering efficiency %	99.9	
Processing air flow rate[NOTE1] ℓ/min(ANR)	40	80
Membrane area cm^2	29.9	68.7
Maximum operating pressure MPa [psi.]	0.97 [141]	
Proof pressure MPa [psi.]	1.47 [213]	
Operating temperature range °C [°F]	5～45 [41～113]	
Mass g[oz.]	11 [0.39]	18 [0.63]
Recommended tightening torque[Note2] N·cm	400～600	700～900

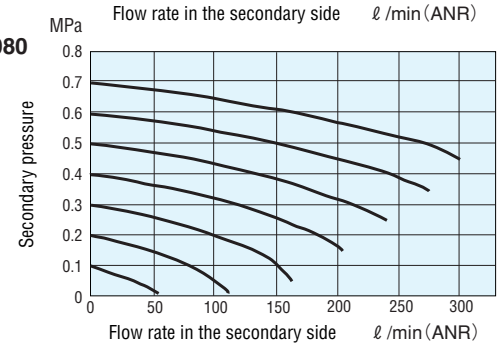
Notes 1: Flow rate at 0.7 MPa supply air with 0.03 MPa pressure drop.
In the worst case, up to approx. 5% reduction could occur due to applications.
2: When mounting the **DTRY-LF040** to the Ionizer **DTRY-ELB01**, **DTRY-ELB02** or **DTRY-ELL01**, the tightening torque should be 60～70 N·cm or less.

Flow Rate Characteristics

●**DTRY-LF040**

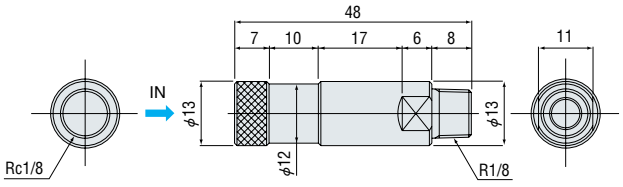


●**DTRY-LF080**

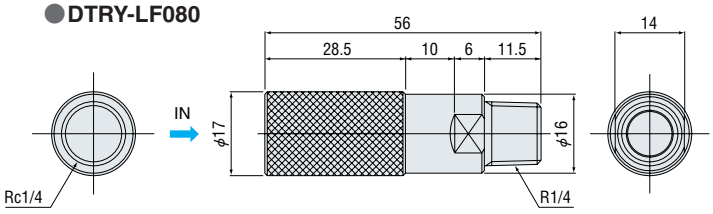


Dimensions (mm)

●**DTRY-LF040**



●**DTRY-LF080**

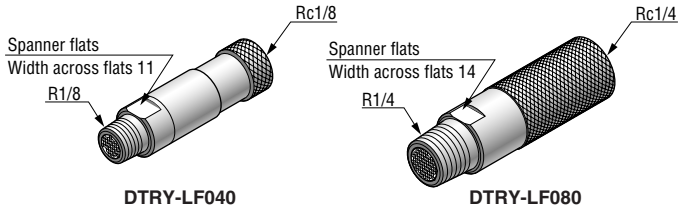


Note: The **DTRY-LF080** cannot be directly mounted to the Ionizer.

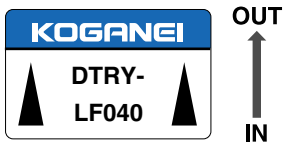
Handling Instructions and Precautions (for Mini Line Filter)

Mounting and Piping

1.When mounting the **DTRY-LF040** to the Ionizer **DTRY-ELB01, DTRY-ELB02** or **DTRY-ELL01**, tightening torque should be 60～70 N·cm or less. Excessive tightening could damage the Ionizer.

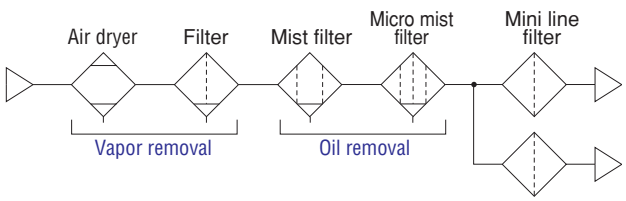


2. Plumb as air flows in the direction of the black arrow on the label. (Do not plumb as air flows in the reverse direction.)



3. As aluminum alloy is used in the Mini Line Filters. Take care not to apply excessive force when using them such as in rigid piping.
4. The purpose of the Mini Line Filter is to remove solid particles, consequently ensure the removal of vapor and oil in the pneumatic circuit before they reach the Mini Line Filter.

●Recommended circuit



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