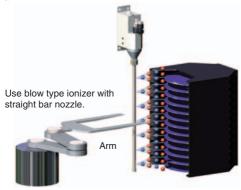
Blow Type Application Examples

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.

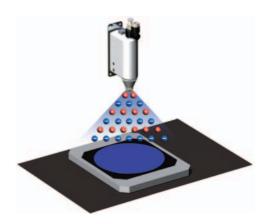
Use the blow type ionizer to prevent parts from being sticked caused

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.

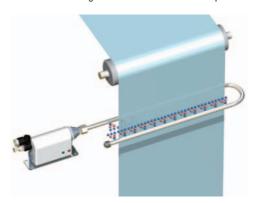


Removal of static charges and particles on CDs and DVDs



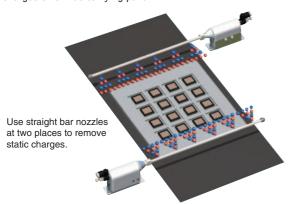
Removal of static charges on wrap film

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 bottles

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

Blows ionized air from the tip.

Spirally blows ionized air from the side surface of the bar.

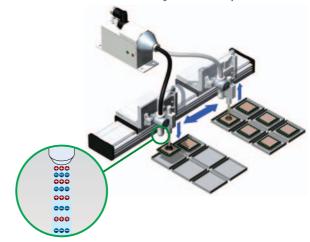
(Removal of dust)

Very low generation of electrical noise

 No damage to a device caused by induction electric field by the discharging needle.

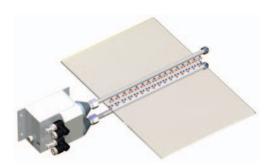
Removal of static charges on electronic parts

 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

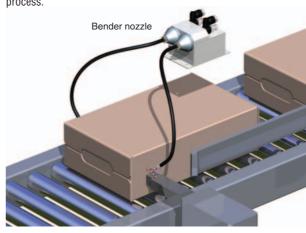
Use 2-head type Ionizers with two straight bar nozzles to remove static charges on FPD glass.



Removal of static charges in 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 pipes (φ50 or less)

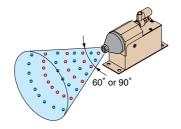
By inserting the tube inside a pipe enables removal of static charges.



Select the nozzle for your application

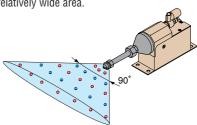
Shower nozzle

· Blows ionized air at 60° or 90° angles



Flat nozzle

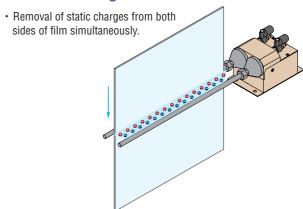
 Blows ionized air at 90° angle, suitable for removal of static charges over relatively wide area.



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.

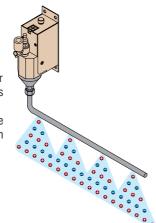
Use of two straight bar nozzles



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.

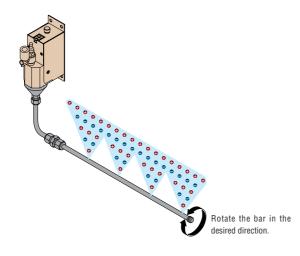


U-shaped bar nozzle

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

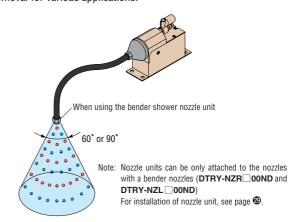
Free-mounting L-shaped bar nozzle

- 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.



Combining various nozzle units with bender nozzles

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



Specifications

■Blow Type and Compact Blow Type

	<u> </u>				
	Model	DTRY-ELB01	DTRY-ELB02	DTRY-ELL01	
Item		(Main Unit for 1-head Type)	(Main Unit for 2-head Type)	(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.			
Indicator LED	Abnormality	When an abnormal di	scharge occurs, the abnormality indicate	(Main Unit for 1-head Type) seen) turns on. tor LED (Red) turns on. The contact point output NO/NC is selectable whe abnormal discharge occurs. Note 1 (24 DVC 50 mA N 0) 65(L)×25(W)×47(H) (Main unit only) rd nozzle and 0.25 MPa air at primary side of the contact point of the c	
Power safety circuit		The contact point output NO/NC is selectab	th NO/NC is selectable when an abnormal discharge occurs. Note 1 (24 DVC 50 mA Max.) (Main unit only) 92(L)×62(W)×54(H) (Main unit only) 122 [4.30] (Main unit only) 122 [4.30] (Main unit only) 122 [4.30] (Main unit only) 124 DVC 50 mA Max.) Air (vapor- and oil-removed clean air) Y-NZR01NS nozzle and 0.15 MPa air at primary side, per head.) Approx. 50 (with DTRY-NZR01NS nozzle and 0.1 MPa air at primary side) (with DTRY-NZR01NS nozzle)		
Fower salety circuit		(24 DVC 50 mA Max.)		abnormal discharge occurs. Note 1 (24 DVC 50 mA Max.)	
Outer dimensions	mm	$92(L)\times30(W)\times54(H)$ (Main unit only)	$92(L)\times62(W)\times54(H)$ (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	$\ell/min(ANR)$	Approx. 100 (with DTRY-NZR01NS nozzle	and 0.15 MPa air at primary side, per head.)	Approx. 50 (with DTRY-NZLO1NS nozzle and 0.1 MPa air at primary side)	
	e 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)		0.05~0.5 [7~73]	
		0.05~0.40 [7~58] (with DTRY-NZR20SW nozzle)			
		0.05~0.40 [7~58] (with DTRY-NZR21SW nozzle)			
Operating air pressure range		,			
		0.05~0.40 [7~58] (with DTRY-NZR200SP nozzle)			
		.05~0.40 [7~58] (with DTRY-NZR100B~500B nozzles)			
		$0.05 \sim 0.40$ [7 ~ 58] (with DTRY-NZR100L $\sim 200L$ nozzles)			
		0.05~0.40 [7~58] (with DTRY-NZR100U nozzle)			
		0.05~0.40 [7~58] (with DTRY-NZR100FMT~200FMT nozzles)			
Operating ambient tempera	ture °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),	1 pc. power and signal cable (2 m), 1 pc. bracket,	
710003301163		and 1 pc. contact point s	elector protection sticker	and 1 pc. contact point selector protection sticker	
Notes 4 Even to testable					

Notes 1: For output of abnormality output contact point, see page ②.

2: The ion balance value of the **DTRY-ELL01** is the value when the air flow rate is 150 ℓ /min(ANR).

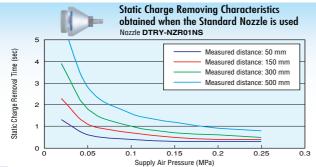
3: Always turn on the power supply with supplying air.

Remarks 1: When using two or more lonizers, 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.

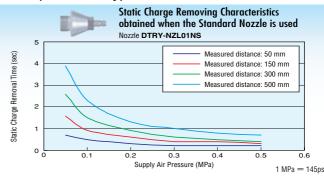
Graphs of Static Charge Removing Characteristics

(when using the standard nozzle) *See pages ? To Graphs of Static Charge Removing Characteristics when using the other nozzles.

■ Blow Type DTRY-ELB01



■ Compact Blow Type DTRY-ELL01



Controlle	ſ		1 IVIFA — 140µSI.
Item Model		DTRY-ELC11	
Power supply		24 VDC ± 5%	
Consumption current mA		410	
Outer dimensions mm		222 (L) \times 60 (W) \times 135 (H) (Main unit only)	
Mass	g[oz.]	830 [29.28] (Main unit only)	
Media		Air	
Max. flow rate	$\ell/\text{min}(ANR)$	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 μ m	0.01	
	Filtering efficiency %	99.99	
Operating ambient temperature °C[°F]		$5\sim45$ [41 \sim 113] indoor (avoid a place subject to dew condensation)	
Accessories		1 pc. connection cable between controller and lonizer (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.

Order code

BLOW TYPE

Main Unit

1-head type DTRY-ELB01



2-head type DTRY-ELB02



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

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



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: ϕ 6 Inner diameter: 64

● Teflon tube (500 mm) **DTRY-ADN-F**

Outer diameter: ϕ 7 Inner diameter: $\phi 5$ Silicone tube (500 mm)

DTRY-ADN-S



Outer diameter: ϕ 7 Inner diameter: $\phi 4$

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 $\ensuremath{\textbf{DTRY-NZR01S}}$ 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)

Main Unit

1-head type DTRY-ELL01



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

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





U-shaped bar nozzle DTRY-NZL100U



Spiral bar nozzle DTRY-NZL200SP



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



Rating

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



Controller DTRY-ELC11



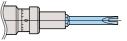
 Tungsten discharging needle for replacement (supplied by a set of 5 needles)

DTRY-ELB11

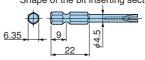
Dedicated for DTRY-ELLO1, DTRY-ELBO1 & 02.

 Dedicated tool for replacing the discharging needle Note: Bit alone is available

DTRY-ELB21



Shape of the bit inserting section

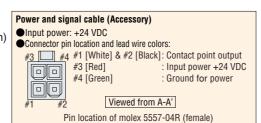


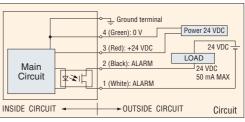


BLOW TYPE Dimensions (mm)

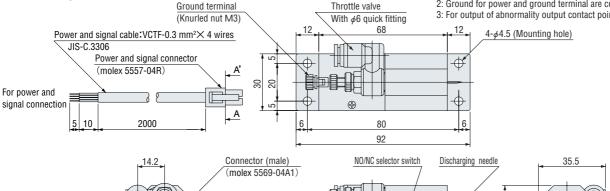
BLOW TYPE

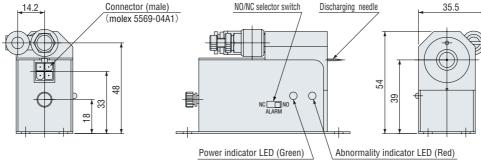
- Main Unit
- 1-head type DTRY-ELB01



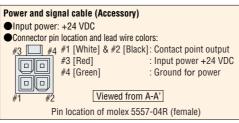


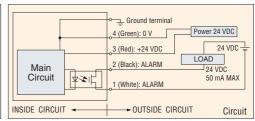
- Notes 1: ON/OFF of the power to the Ionizer should be done at the input side (+24 VDC side).
 - 2: Ground for power and ground terminal are connected inside. 3: For output of abnormality output contact point, see page **2**.



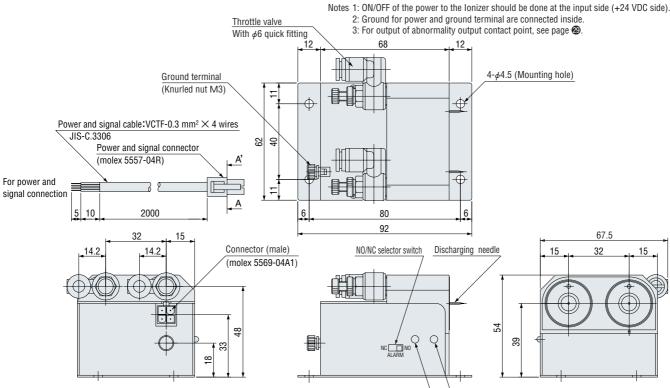


2-head type DTRY-ELB02





Abnormality indicator LED (Red)



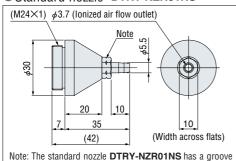
Power indicator LED (Green)

BLOW TYPE

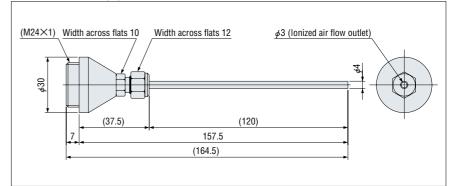
Nozzles

Standard nozzle DTRY-NZR01NS

DTRY-NZR01S (earlier model).

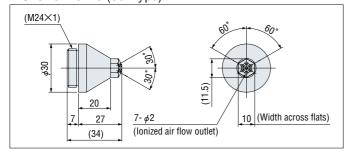


Stainless steel pipe nozzle DTRY-NZR02S

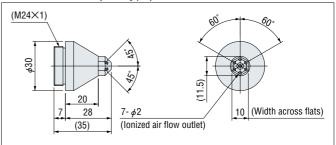


Shower nozzle (60° type) DTRY-NZR20SW

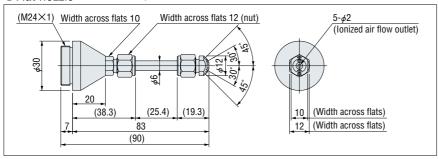
in the hexagonal section, to be distinguished from



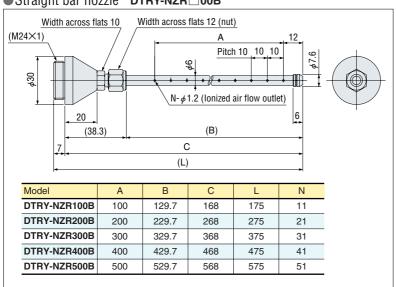
Shower nozzle (90° type) DTRY-NZR21SW



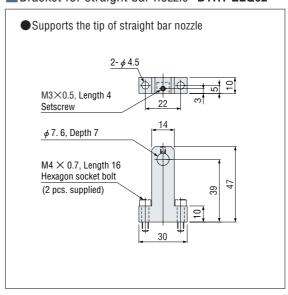
● Flat nozzle DTRY-NZR01FT



■Straight bar nozzle DTRY-NZR □ 00B



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

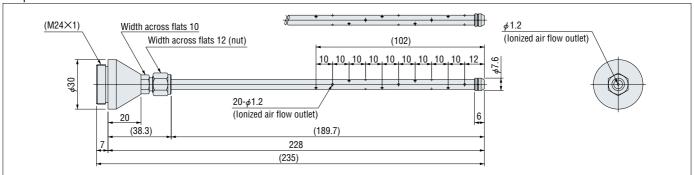


Creceed

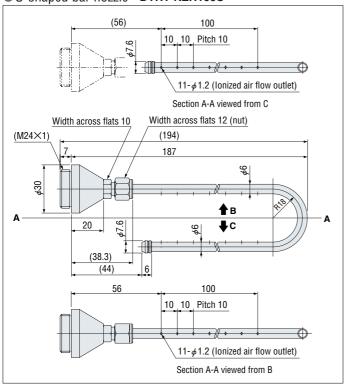
BLOW TYPE

Nozzles

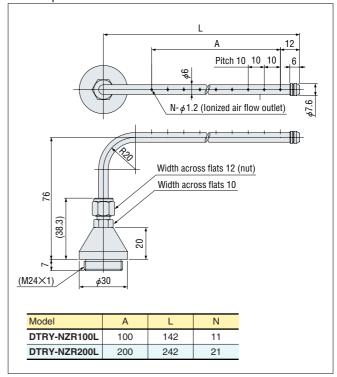
Spiral bar nozzle DTRY-NZR200SP



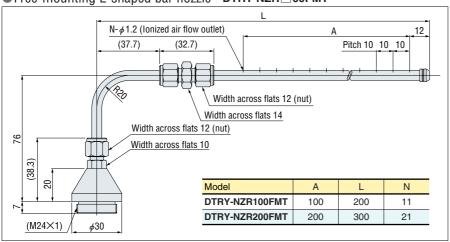
● U-shaped bar nozzle **DTRY-NZR100U**







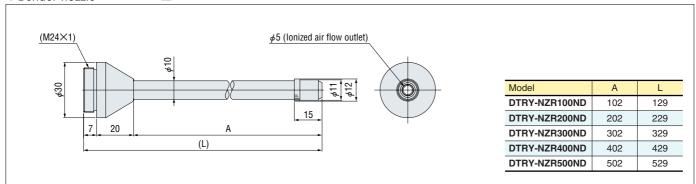
● Free-mounting L-shaped bar nozzle **DTRY-NZR** □ **00FMT**



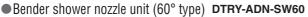
BLOW TYPE

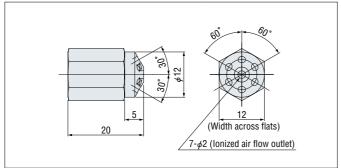
Nozzles

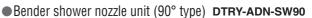
■ Bender nozzle DTRY-NZR □ 00ND

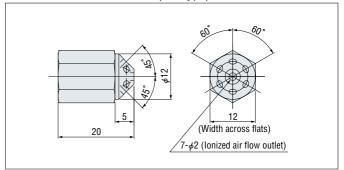


Optional nozzle units for bender nozzles. (use the unit at the tip of a flexible tube for changing a nozzle)

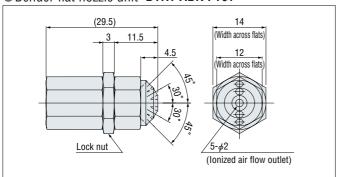




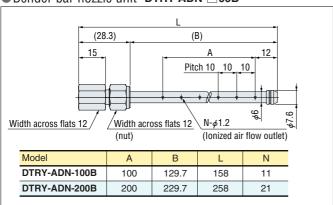




● Bender flat nozzle unit DTRY-ADN-FT01



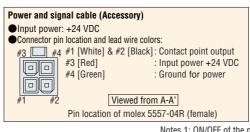
● Bender bar nozzle unit **DTRY-ADN-**□00B

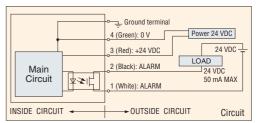


COMPACT BLOW TYPE Dimensions (mm)

COMPACT BLOW TYPE

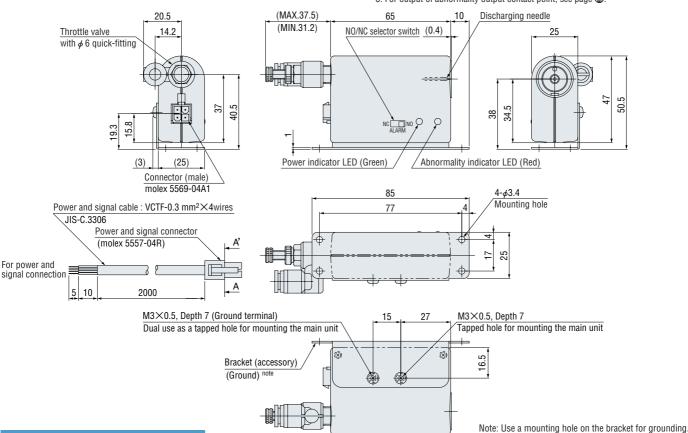
- Main Unit
- ●1-head type DTRY-ELL01





Notes 1: ON/OFF of the power to the Ionizer should be done at the input side (+24 VDC side).

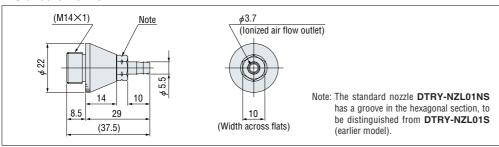
- 2: Ground for power and ground terminal are connected inside.
- 3: For output of abnormality output contact point, see page ②.



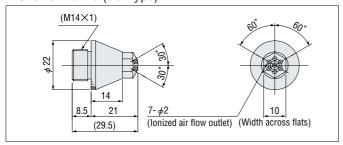
COMPACT BLOW TYPE

Nozzles

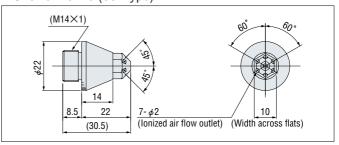
Standard nozzle DTRY-NZL01NS



● Shower nozzle (60° type) DTRY-NZL20SW

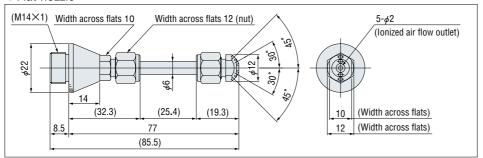


● Shower nozzle (90° type) **DTRY-NZL21SW**

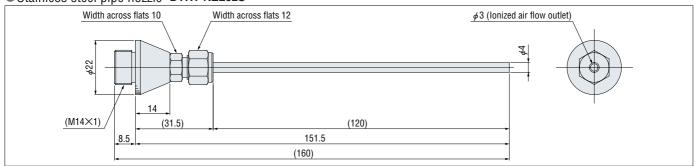


Nozzles

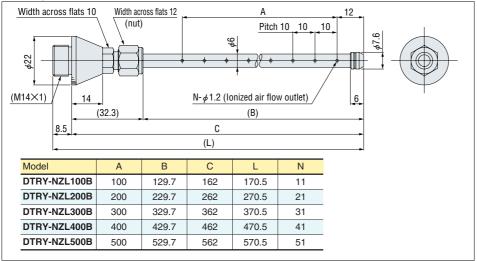
● Flat nozzle DTRY-NZL01FT



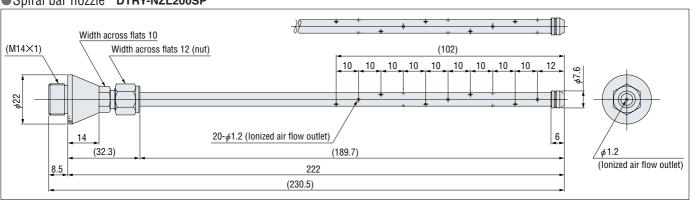
Stainless steel pipe nozzle DTRY-NZL02S



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

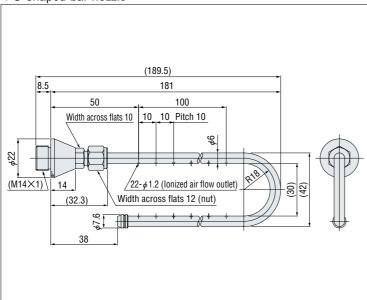


Spiral bar nozzle DTRY-NZL200SP

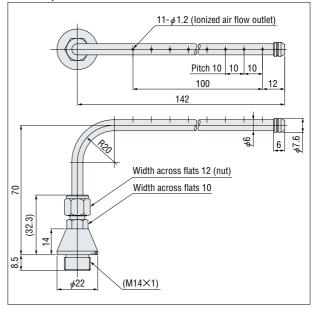


Nozzles

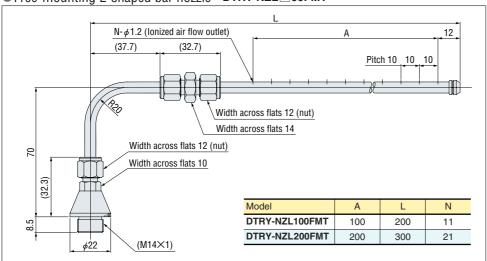
● U-shaped bar nozzle **DTRY-NZL100U**



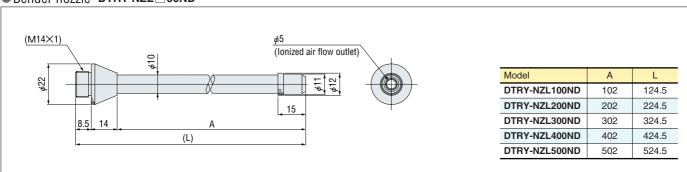
L-shaped bar nozzle DTRY-NZL100L



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

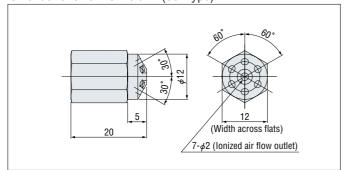


● Bender nozzle **DTRY-NZL** □ **00ND**

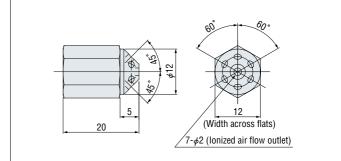


Optional nozzle units for bender nozzle (use the unit at the tip of a flexible tube for changing a nozzle)

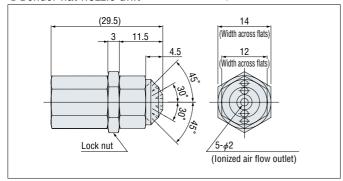
● Bender shower nozzle unit (60° type) **DTRY-ADN-SW60**



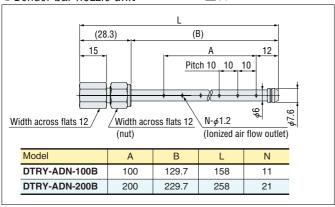
■ Bender shower nozzle unit (90° type) **DTRY-ADN-SW90**



Bender flat nozzle unit DTRY-ADN-FT01



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

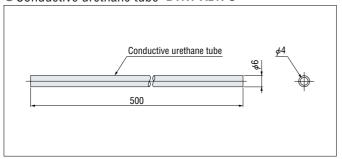




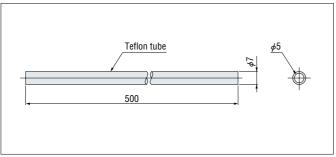
Dimensions of Common Options for BLOW TYPE and COMPACT BLOW TYPE (mm)

TUBES

Conductive urethane tube DTRY-ADN-U

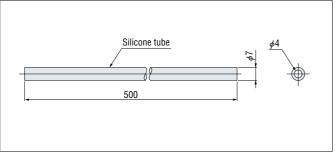


● Teflon tube **DTRY-ADN-F**



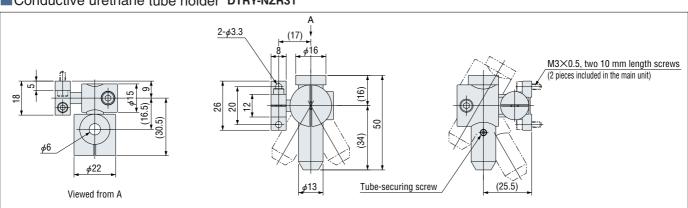
Note: The DTRY-ADN-F cannot be used for the earlier standard nozzles DTRY-NZR01S and DTRY-NZL01S.

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.

4. For a power supply cable, use the power and

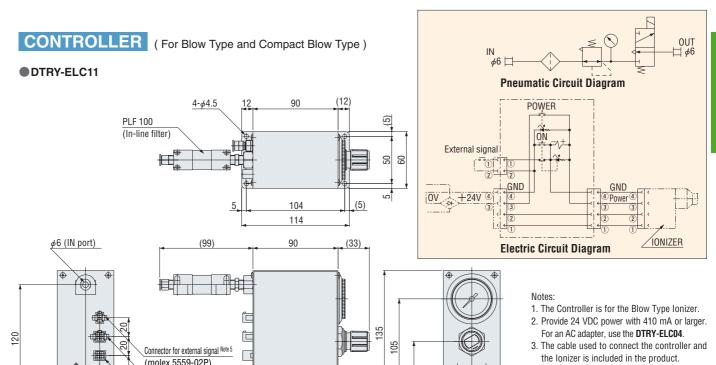
5. Separately purchase a cable for external

6. Ground the controller power supply and the

signal cable in the Ionizer accessories.

signals.

Ionizer separately.



9

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(molex 5559-02P)

10

 ϕ 6 (OUT port)

Connector for power supply Note 4

Connector for Ionizer Note 3

(molex 2004MR)

(molex 5559-04P)

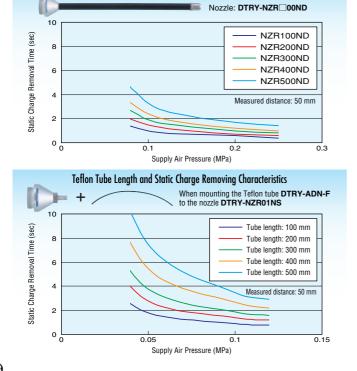
Graphs of Static charge Removing Characteristics (Blow Type)

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.

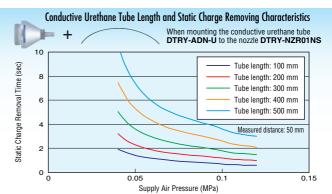
Notes 1: The static charge removing characteristics are measured by in-house test standard using the charged plate monitor of 20 pF, \square 150 mm. 2: The static charge removal time means decaying time from ±1000 V to ±100 V.

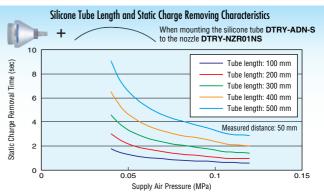


*For the graph of static charge removing characteristics obtained when using the standard nozzle DTRY-NZR01NS, see page .

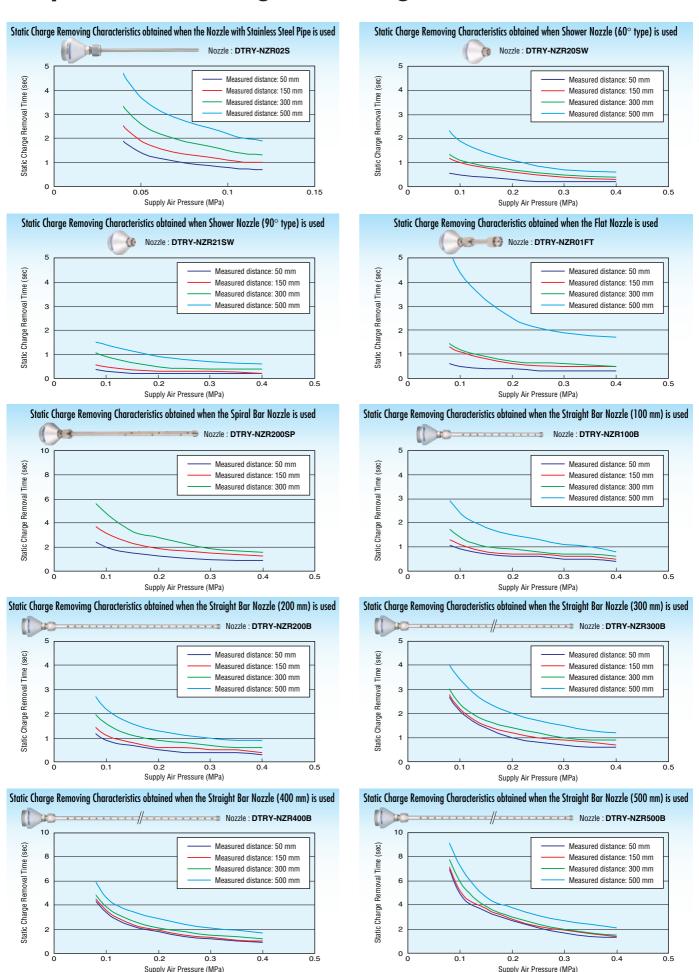


Bender Nozzle Length and Static Charge Removing Characteristics

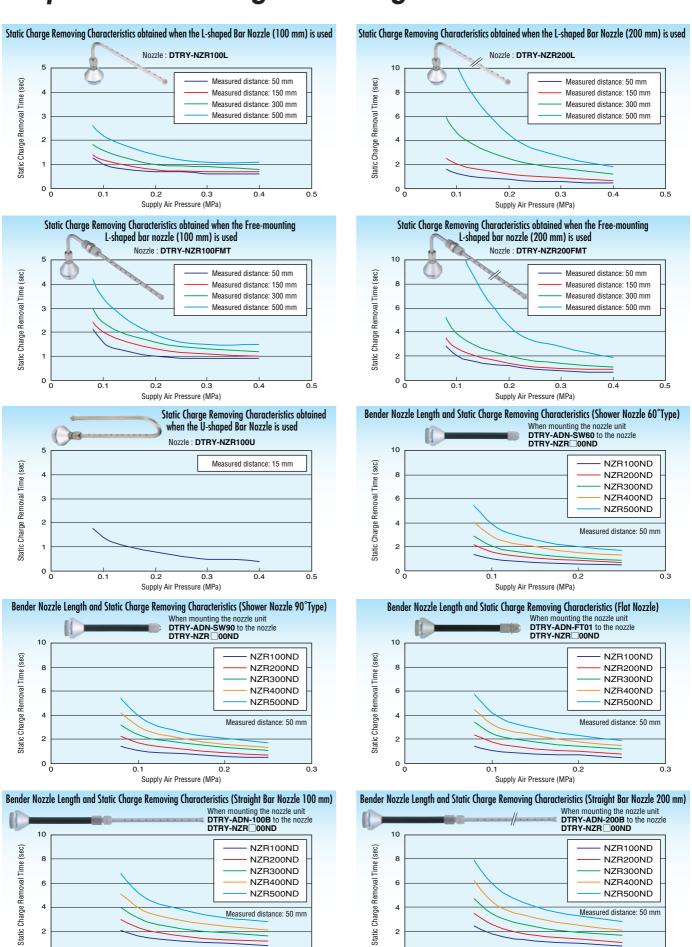




Graphs of Static charge Removing Characteristics



Graphs of Static charge Removing Characteristics



Supply Air Pressure (MPa)

0.1

Supply Air Pressure (MPa)

0.2