

# Air Blow Nozzles

BN□

## ■ Pneumatic Auxiliary Components



### C O N T E N T S

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# We propose installing Air Blow Nozzles to save energy in your air blow applications.



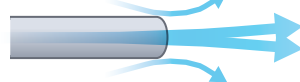
Energy-saving type (Flat-type)	
Material	Resin (PPS), Metal (stainless steel)
Injection-type	Straight
Air source	Compressor



## Energy Saving

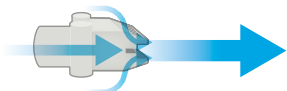
A special structure which brings in the surrounding air to enhance the pneumatic air source. Reduces the load on the compressor, and blows air powerfully even with less air consumption.

With an open pipe



With an energy-saving-type (flat-type)

Sucks in not only the surrounding air, but also internal air. Blows air strongly even with little air consumption



Consumption flow rate reduced by approx. 45%



## Uniformity

Employs a special structure that ejects air to the target area more uniformly. Achieves a uniform force along the width of injection by alternating the nozzle holes and air suction holes on the top and bottom. Achieves stable quality of workpieces through highly efficient air blow with little decay in force from distance.

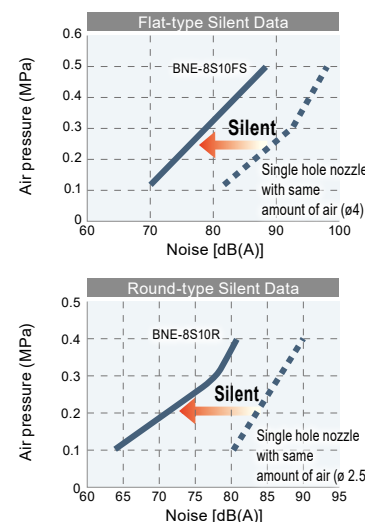


A special structure that uniformly ejects air



## Low noise

In addition to a work environment-friendly silent design that reduces turbulence, there are also flat types and round types for the appropriate situations.



Blower specification	
Material	Metal (stainless steel)
Injection-type	Fan type
Air source	Blower



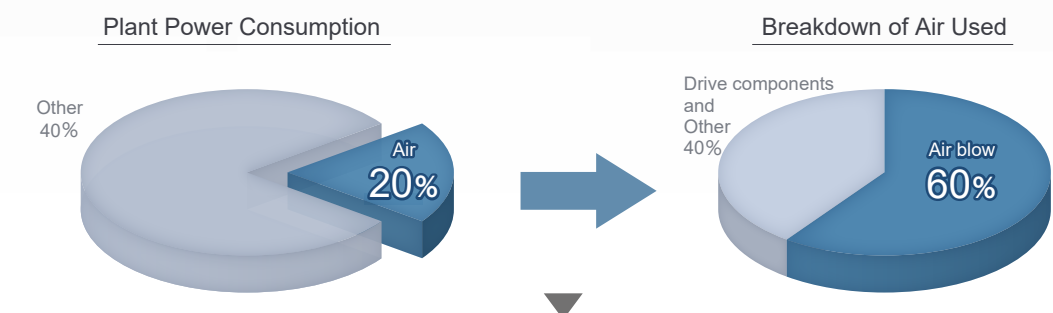
General Type	
Material	Metal (stainless steel)
Injection-type	Point
Air source	Compressor



Energy-saving Type (Round-type)	
Material	Resin (PP), Metal (stainless steel)
Injection-type	Round
Air source	Compressor



Did you know? It is said that compressed air accounts for approximately 20% of a factory's total power consumption. Of that, air blow applications account for over 60%.



A reduction in air blow consumption is necessary for saving energy throughout the plant.

## Effects of Installation

(As of November 2024)

### Air consumption

	Energy-saving Type (Flat Type) Nozzle	Open pipe *1
Air consumption (1 nozzle)	440 L/min (ANR)	900 L/min (ANR)
Annual cost (estimate)	7,900,000 yen per year	16,200,000 yen per year

50 nozzles used. For pressure of 0.3 MPa, and operations of 8 hours a day, 250 days a year. Air cost: Calculated as 3.0 yen/m<sup>3</sup>.

\*1. Compared to an open pipe with an equivalent about of injected air.

Approx. 8 million yen reduced/year

### Noise level

	Energy-saving Type (Flat Type) Nozzle	Open pipe *1
Amount of Noise (Pressure 0.3 MPa)	77 dB(A)	94 dB(A)

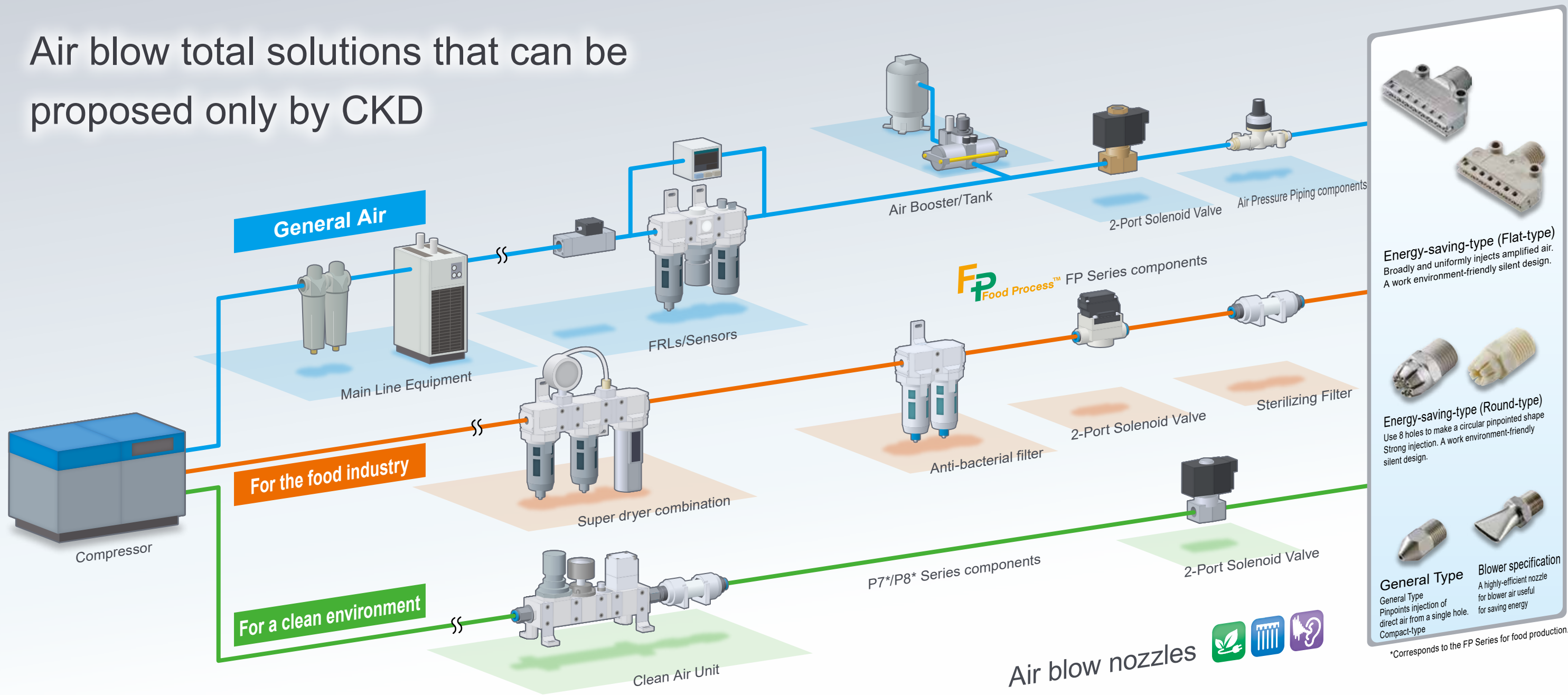
Measurement conditions - background noise: 58 dB (A), injection direction: Sideways, injection height: 1 m, measurement point nozzle: Front 1 m

\*1. Compared to an open pipe with an equivalent about of injected air.

Reduced by approx. 17 dB (A)

# Air blow total solutions that can be proposed only by CKD

Pneumatic Auxiliary Components  
Speed Controller  
Silencer  
Check valves/others  
Fitting/Tubing  
Nozzle



Pneumatic Auxiliary Components  
Speed Controller  
Silencer  
Check valves/others  
Fitting/Tubing  
Nozzle

## Main Line Components



**Large Main Line Filter AF3000 Series**  
Low pressure loss element is used to contribute to energy saving. Pressure loss is reduced by approx. 1/2 of conventional products. 40 models in 4 series are available to cover a wide range of variations, from 16 to 256 m³/min. (ANR).



**Medium Size Main Line Filter AF2 Series**  
Low pressure loss for a long life. Simple module connections for further space saving. Differential pressure indicator provided as standard needed to control element service life.



**Refrigerant Air Dryer GX Series**  
Low profile and compact body. Low air loss drain discharger adopted. Achieves low power consumption.



**Desiccant air dryers SHD Series**  
Purge flow rate is minimized with the energy-saving dew point monitor. Achieves low noise with the proprietary 2-level exhaust system.

## F.R.L./Sensor



**Air Unit CXU Series**  
Each air component can be made into a module, reducing the number of pipes compared to conventional designs. Piping free, space saving, free combination.



**Flow Sensor PFD Series**  
For grasping the current situation and confirming the effect of energy. Degree of protection IP64 supported




**Flow Sensor FSM3 Series**  
Functions which pursue the operability of the compact flow rate sensor. Compact even with large flow rate to downsize and lighten your equipment. Line-up of display integrated and display separated models.




**Pressure Switch PPX Series**  
Air pressure is electrically detected, displayed and outputted. Digital display increases visibility.

## Fluid Control Valve




**Pilot Operated 2-Port Solenoid Valve for Compressed Air EXA Series**  
Large flow rate (450L/min and over\*) and low power consumption (0.6 W) contribute to energy saving.  
\*ø6 Fittings Primary pressure: 0.5 MPa Secondary pressure: Potential value of atmospheric release

## Air Pressure Piping Components




**Needle valve with adjusting dial DVL Series**  
Needle rotation speed value is displayed with the dial so that flow rate adjustment is easy. Linear flow characteristics in proportion to dial indicator value.




**Inline Filter FSL Series**  
Compact, lightweight and space saving inline filter. Use either positive or negative pressure.

## Antibacterial/Bacteria-removing Filter



**Antibacterial/Bacteria-removing Filter SFC-FP2 Series**  
• Bactericidal activity value 4.  
• Bacteria trapping performance LRV10 or more.  
• Inline type bacteria removing filter also available.

## FP Series



An extensive lineup of everything from Air Filters to actuators allows for secure and safe use in food processing. FP1 Series: Food-grade (NSF H1) lubricants are used for flow paths and sliding parts. FP2 Series: In addition to FP1, the flow path uses Food Sanitation Act compliant materials (resin, rubber)



Energy Saving



Uniformity



Low noise



Long service life



Space-saving



## Solution Examples

### Clearing Food Debris with Air Blow

Application: Cleaning  
Industry: Food  
Product: Flat nozzle

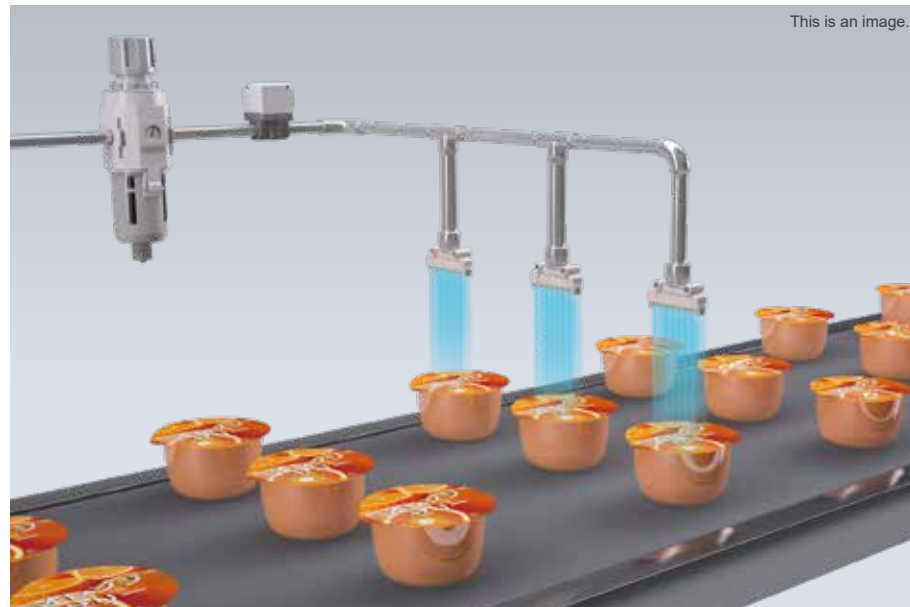
Various FR components  
FP Series



Diaphragm Cylinder Valve



Air nozzle flat-type



This is an image.

Effect

Injects air more powerfully and more uniformly, while reducing air consumption. The FP Series can be used safely and securely in food manufacturing processes. Food-grade (NSF H1) lubricants are used for flow paths and sliding parts.

### Directly Cleaning Food Products with Air Blow

Application: Cleaning  
Industry: Food products  
Product: Flat nozzle  
(stainless steel)

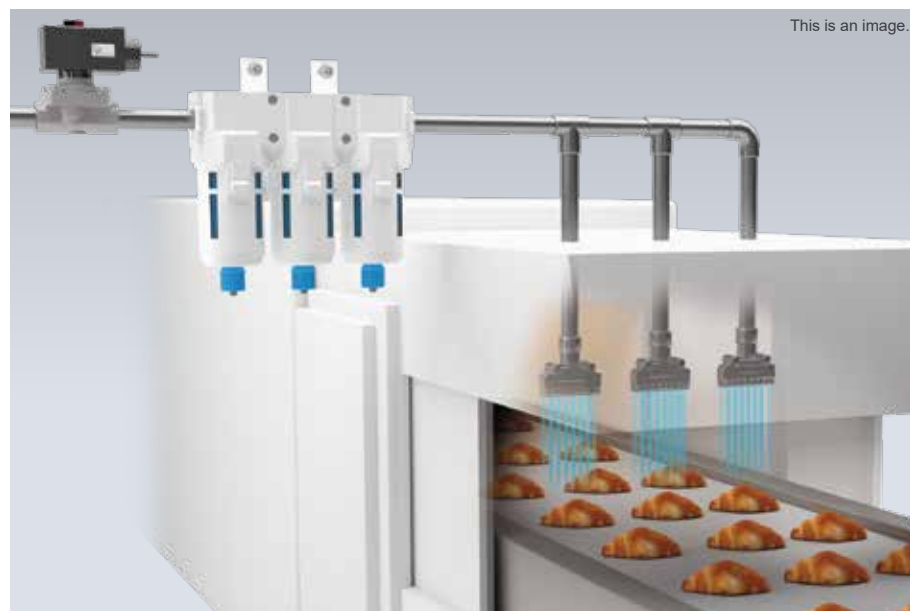
2-Port Solenoid Valve



Antibacterial/ Bacteria-  
removing Filter



Air nozzle flat-type



This is an image.

Effect

Corresponds with the Food Sanitation Act by combining with anti-bacterial or bacteria-removing filters. The nozzle is made of stainless steel that is heat, chemical, and impact-resistant. The FP Series can be used safely and securely in food manufacturing processes.

\*Contact CKD when blowing directly on food.

### Blowing away bad workpieces

Application: Transportation/  
sorting  
Industry: Food  
Product: Flat nozzle

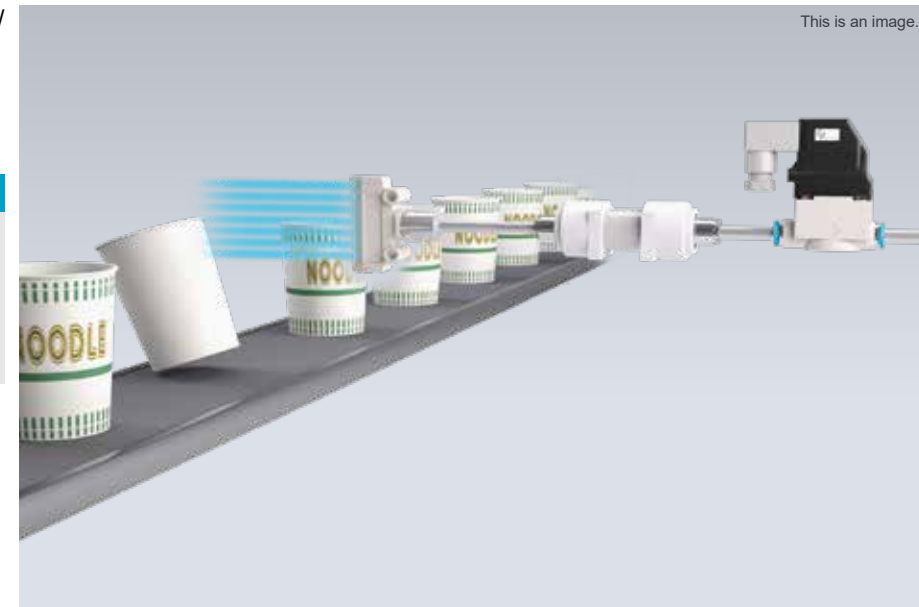
2-Port Solenoid Valve



Bacteria removing filter/  
inline



Air nozzle flat-type



This is an image.

Effect

By amplifying the air, it is highly efficient and has strong impact force, and reliably transports workpieces. Can be safely used in food manufacturing processes by mounting an inline bacteria removing filter.

### Use for high-speed sorting and transportation

Application: Transportation/  
sorting  
Industry: Machine parts  
Product: Single hole nozzle

Direct acting solenoid valve



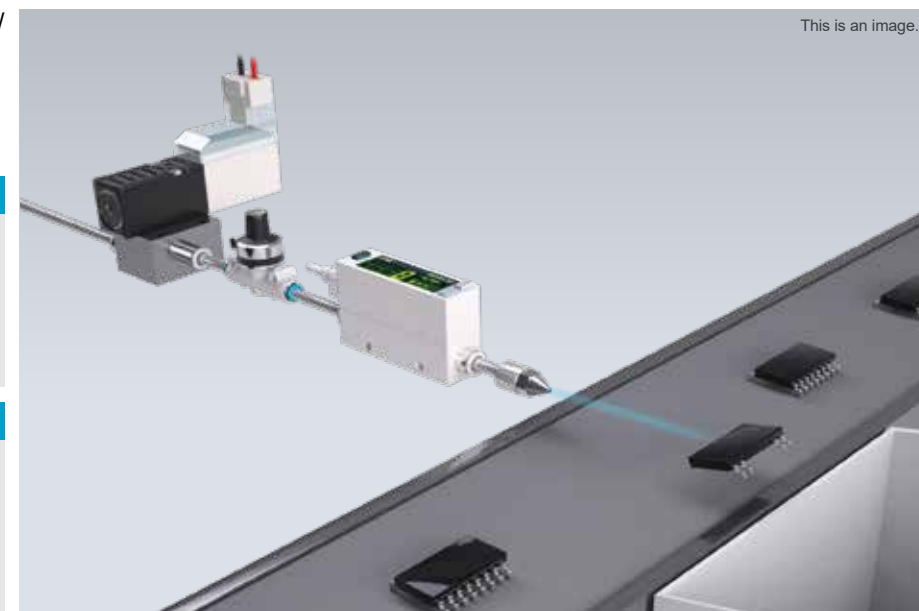
Flow Sensor



Needle valve with  
adjusting dial



General air nozzle  
(point type)



This is an image.

Effect

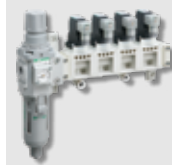
High reactive solenoid valves that correspond to fast tact sorting, such as with chip production or parts feeder. Pinpoints air blow is possible for fine parts.

## Solution Examples

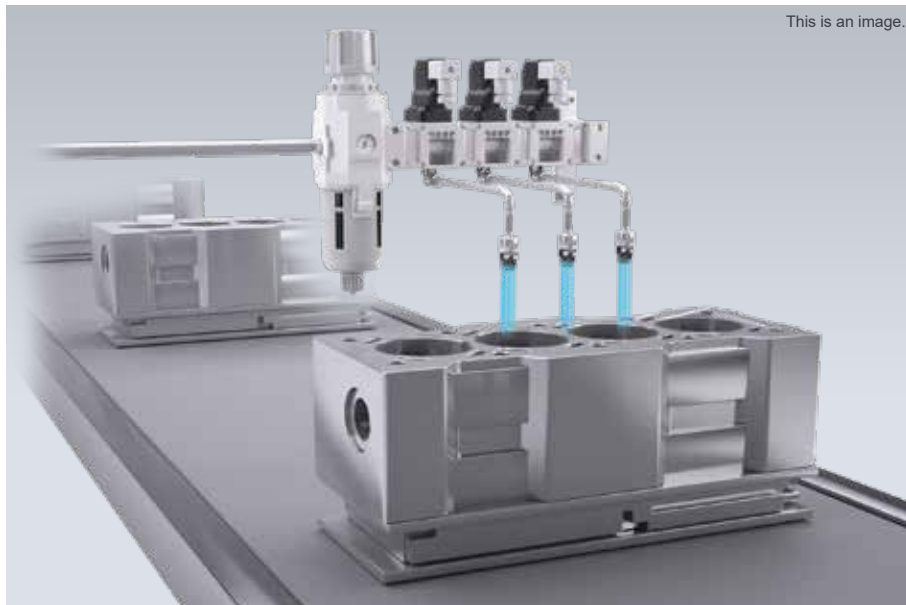
### Draining by blowing workpieces

Application: Draining  
Industry: Automobiles  
Product: Round type nozzle (stainless steel)

Air unit with blow valve



Air nozzle round-type



This is an image.

#### Effect

Localized powerful air blow made possible with a round-type nozzle. Has high effect on air blow of complicated workpieces. Made of highly heat-resistant stainless steel.

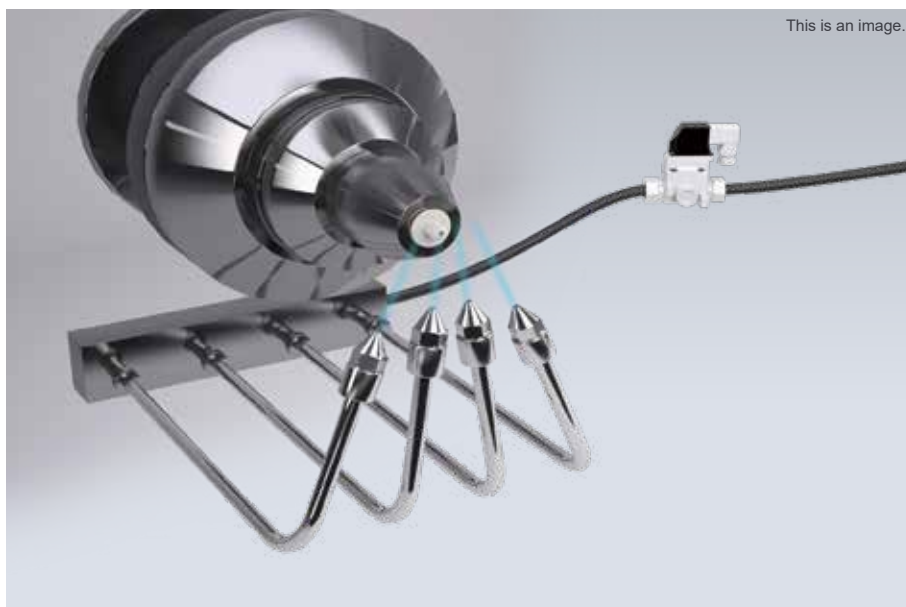
### Blowing away chips clinging to workpieces and cooling the processing jig.

Application: Cleaning/cooling  
Industry: Machine parts  
Product: Single hole nozzle

Blow solenoid valve



General air nozzle (point type)



This is an image.

#### Effect

Emits a straight jet of air from a single orifice for pinpoint accuracy. Its compact design is ideal for mounting in tight spaces. Excellent cost performance.

### Prevents double-feeding of thin workpieces by separating layers.

Application: Separation  
Industry: General industrial machinery  
Product: Flat nozzle

Blow solenoid valve



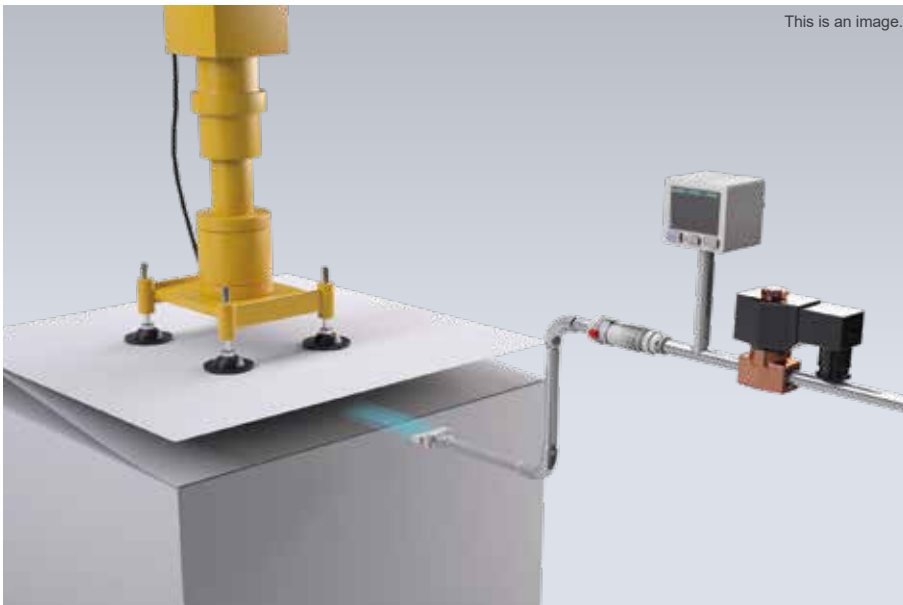
Pressure Sensor



Inline Filter



Air nozzle flat-type



This is an image.

#### Effect

The flat-type air nozzle prevents the double-feeding of workpieces by delivering a uniform blow over a wide area. It can also be used to prevent the double-suction of oily thin sheets.

### Cleaning the surface of the electronic circuit board

Application: Cleaning  
Industry: Electronic components  
Product: Flat nozzle (PPS)

Blow solenoid valve



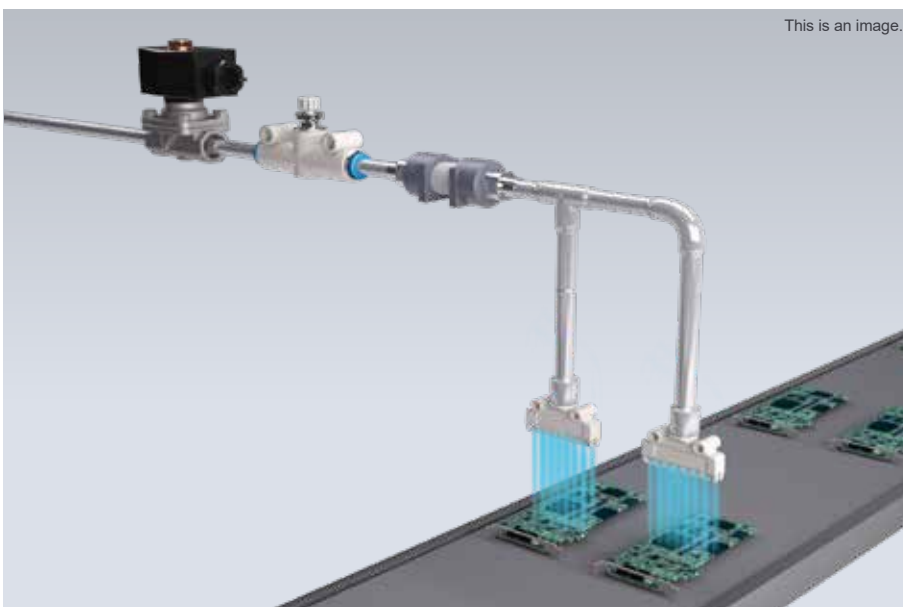
Needle valve



Clean filter



Air nozzle flat-type



This is an image.

#### Effect

A variety of pneumatic components are available to suit the target workpiece, including oil-free and cleanroom specifications. The nozzle is made of PPS resin for excellent heat and chemical resistance.



Air Blow Nozzle (Energy-saving Type)

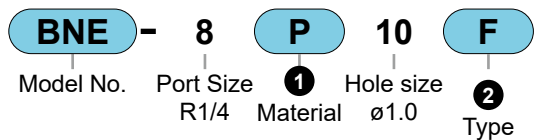
# BNE Series

●Connection Port Size: R1/4



- An energy-saving air nozzle that amplifies airflow by drawing in ambient air.
- Two types are available: a flat type for a uniform blow across a wide area, and a round type for a targeted, pinpoint blow. The evenly distributed air jet provides high blow efficiency and reduces air consumption.
- Both resin and metal types are available, allowing selection based on the application and environment.
- Low-noise design for a quiet work environment.

## Model No. Notation Method



### ① Material

Code	Content
<b>P</b>	Resin
<b>S</b>	Metal

### ② Type

Code	Content
<b>F</b>	Flat type (P resin)
<b>FS</b>	Flat type ( S For metal)
<b>R</b>	Round-type

## Specifications

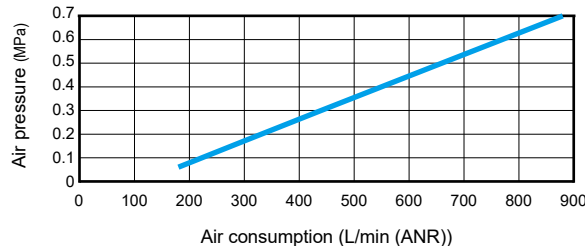
Item		BNE-8P10F	BNE-8S10FS	BNE-8P10R	BNE-8S10R
Maximum Operating Pressure	MPa	0.7	1.0	0.7	1.0
Heat Resistant Temperature	°C	120	400	60	400
Port Size	R	1/4			
Weight	g	9	38	2	12
Hole diameter	mm	1.0			
Number of holes	Individual	16	16	8	8
Air consumption *1	L/min (ANR)	440		245	

\*1: Air consumption is the reference value of atmospheric pressure conversion when the standard pressure is 0.3 MPa.

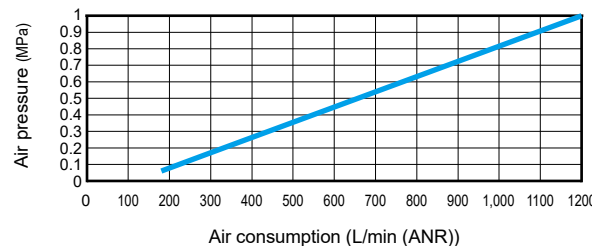
Air consumption characteristics \*The air consumption characteristics graph gives reference values but does not guarantee the values.

### Flat Type

●BNE-8P10F

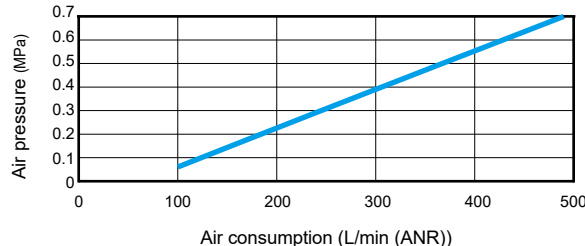


●BNE-8S10FS

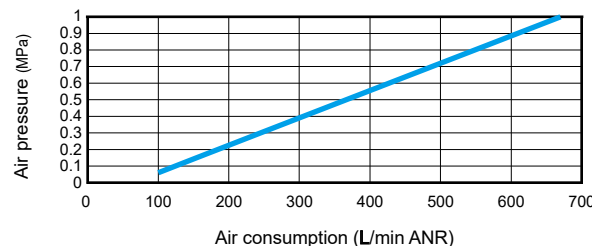


### Round-type

●BNE-8P10R



●BNE-8S10R



## Air Patterns

● Flat Type



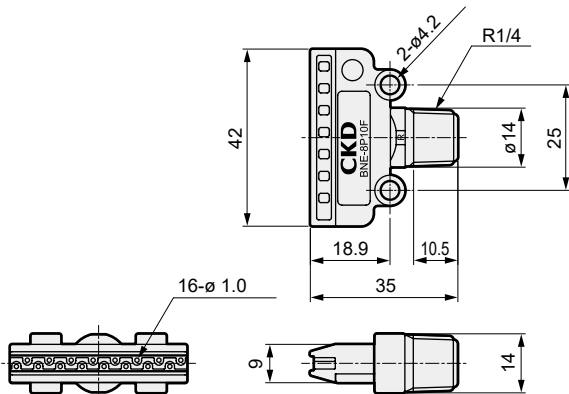
● Round-type



## Outline Dimension Drawing

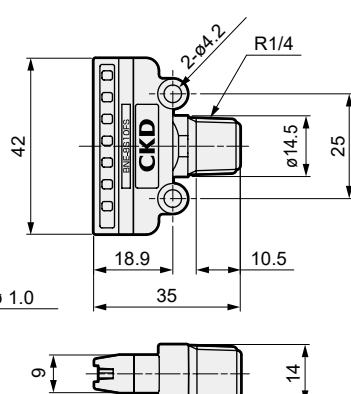
### Flat Type

●BNE-8P10F



Material: PPS

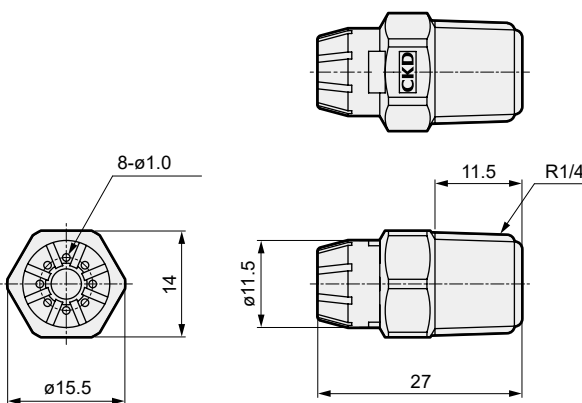
●BNE-8S10FS



Material: Stainless steel 316L

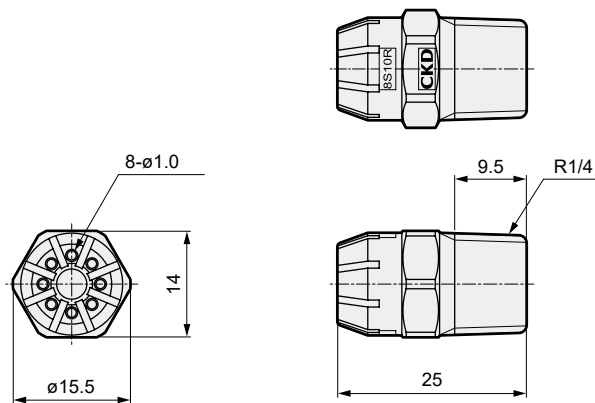
### Round-type

●BNE-8P10R



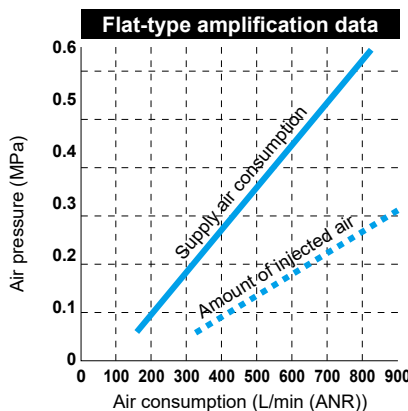
Material: PP

●BNE-8S10R

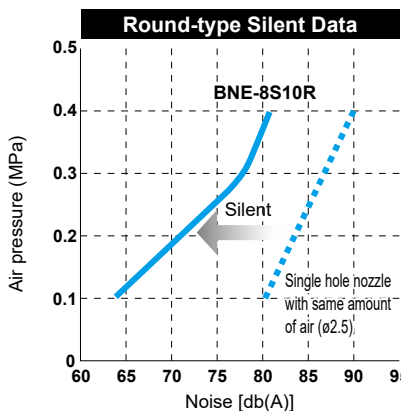
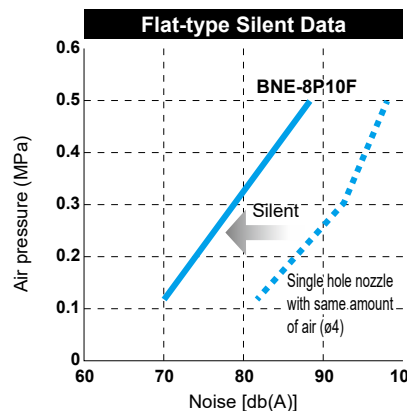


Material: Stainless steel 316L

## (Reference) Amplification effect characteristic



## (Reference) Silent effect characteristic



- Measurement position: 1 m ahead of nozzle (1 m high)
- Background noise value: 58 dB (A)





Air blow nozzle (General)

# BN Series

●Connection Port Size: R1/8, R1/4

RoHS



Air Blow Nozzle (Blower Specifications)

# BNB Series

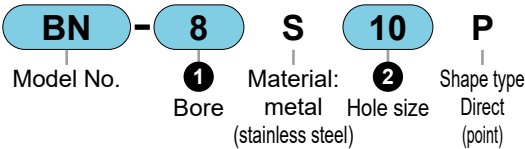
●Connection Port Size: R1/8, R1/4

RoHS

- A single-orifice nozzle that emits a highly directional air jet.
- Made of 303 stainless steel for its excellent corrosion resistance.
- Its compact size and cost-effectiveness make it ideal for use in tight spaces and in high-volume applications.

## Model No. Notation Method

●Blow Nozzle (General Type)



### 1 Bore size

Code	Content
6	R1/8
8	R1/4

### 2 Hole size

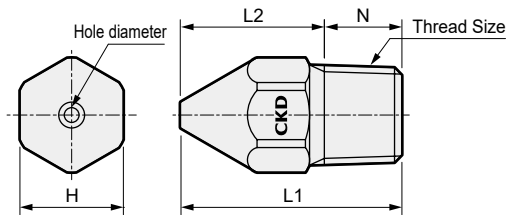
Code	Content
10	ø1.0
15	ø1.5
20	ø2.0
25	ø2.5

## Specifications

Item	BN-6S10P	BN-8S10P	BN-6S15P	BN-8S15P	BN-6S20P	BN-8S20P	BN-6S25P	BN-8S25P
Maximum Operating Pressure MPa	1.0							
Heat Resistant Temperature °C	400							
Port Size	R	1/8	1/4	1/8	1/4	1/8	1/4	1/4
Weight	g	7.2	19	7.2	19	7.2	19	19
Hole diameter	mm	1.0		1.5		2.0		2.5
Air consumption *1	L/min (ANR)	35		80		138		215

\*1: Air consumption is the reference value of atmospheric pressure conversion when the standard pressure is 0.3 MPa.

## Outline Dimension Drawing

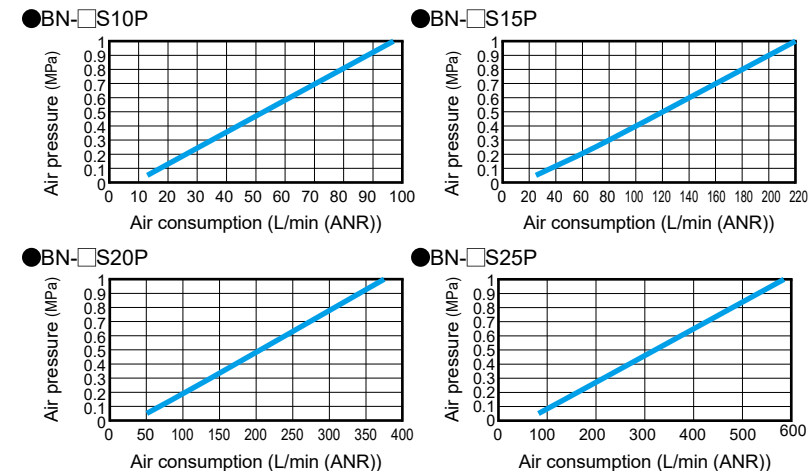


Material: Stainless steel 303

Model No.	Thread Size	L1	L2	H	N	Hole diameter
BN-6S10P	R1/8	21	14	10	7	1.0
BN-6S15P	R1/8	21	14	10	7	1.5
BN-6S20P	R1/8	21	14	10	7	2.0
BN-6S25P	R1/8	21	14	10	7	2.5
BN-8S10P	R1/4	30	19.5	14	10.5	1.0
BN-8S15P	R1/4	30	19.5	14	10.5	1.5
BN-8S20P	R1/4	30	19.5	14	10.5	2.0
BN-8S25P	R1/4	30	19.5	14	10.5	2.5

## Air consumption characteristics

\* The air consumption characteristics graph gives reference values and guarantees the values is not the case.

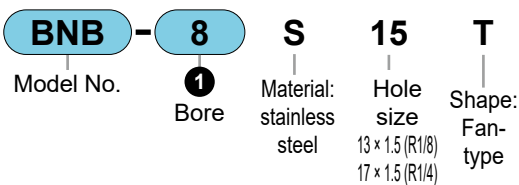


## Air Patterns



- A dual-purpose air nozzle for both blowers and compressors, designed for efficient air jetting.
- Its compact size allows for installation in tight spaces.
- A high-efficiency nozzle capable of both high impact force and wide-area jetting.

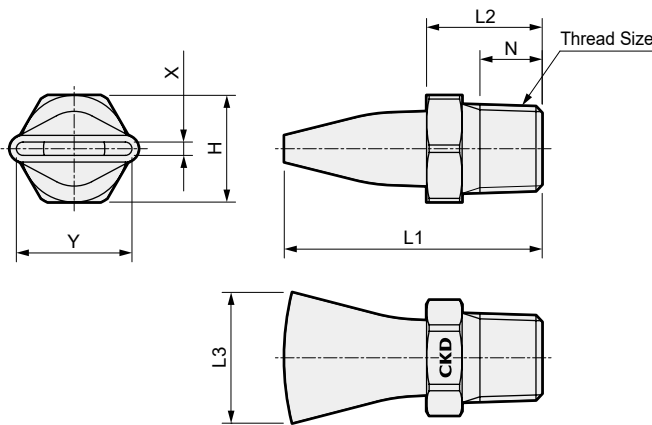
## Model No. Notation Method



### 1 Bore size

Code	Content
6	R1/8
8	R1/4

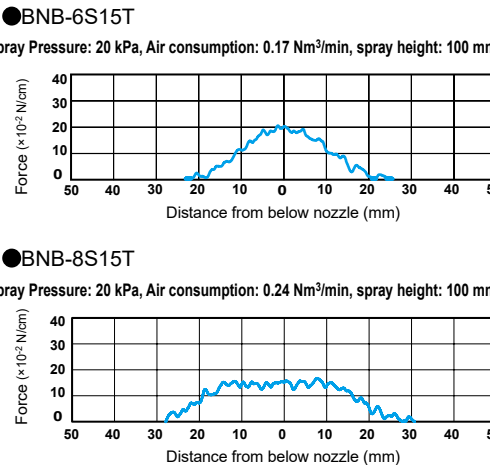
## Outline Dimension Drawing



Material: Stainless steel 304

Model No.	Thread Size	L1	L2	L3	X	Y	H	N
BNB-6S15T	R1/8	29	13	14.7	1.5	13	12	7
BNB-8S15T	R1/4	37	17.5	18.9	1.5	17	14	10.5

## (Reference) Force distribution



## Specifications

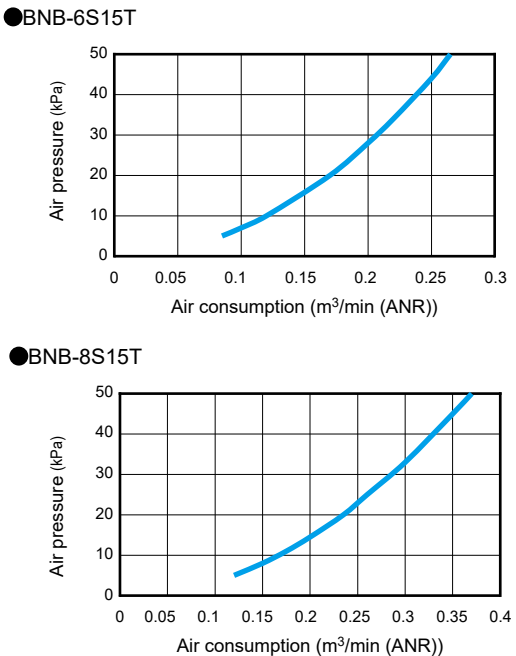
Item		BNB-6S15T	BNB-8S15T
Max. working pressure MPa		0.7	
Heat resistance temperature °C		400	
Port size R		1/8	1/4
Weight g		10	16
Hole size (lateral × height) mm		13 × 1.5	17 × 1.5
Air Consumption rate	*1 m³/min (ANR)	0.17	0.24
	*2 L/min (ANR)	736	1,016

\*1: Air consumption is the reference value of atmospheric pressure conversion when the standard pressure is 20 kPa.

\*2: Air consumption is the reference value of atmospheric pressure conversion when the standard pressure is 0.3 MPa.

## Air consumption characteristics (with blower air)

\* The air consumption characteristics graph gives reference values but does not guarantee the values.





Pneumatic Equipment

# To Use This Product Safely

Be sure to read this before use.  
Refer to Intro Page 27 for general precautions.

Individual Precautions: Air Blow Nozzle BN□ Series

During Design / Selection

Warning

- Use the product within specifications. Consult with CKD when using the product for special applications.
- Use the product at below the maximum working pressure. Also avoid sudden pressure increase. It may cause the product to break or burst out.
- Use the product within the specified heat resistance temperature. It may cause the product to break or burst out.
- Avoid using the products in freezing environments. It may cause the product to break or burst out.
- Avoid installing this product outdoors or where it is exposed to direct sunlight.
- Avoid sudden pressure increase.
- The chemical resistance of nozzle material is shown below. Avoid using products in an atmosphere where these chemicals are contained in compressed air or atmosphere, or where they could adhere to parts.

Chemical Substance Name	Nozzle material				
	Stainless steel 303	Stainless steel 304	Stainless steel 316L	PP	PPS
Hydrochloric acid	x	x	x	○	○
Concentrated hydrochloric acid	x	x	x	△	○
Sulfuric acid (35%)	x	x	x	○	○
Concentrated sulfuric acid	x	x	○	x	△
Nitric acid (35%)	○	○	○	x	△
Concentrated nitric acid	△	○	△	x	x
Acetic acid	△	○	○	○	○
Sodium hydroxide (Caustic soda)	○	○	○	○	○
Aqueous ammonia	○	○	○	○	○
Acetone	○	○	○	○	○
Ethyl alcohol	○	○	○	○	○

○: Usable, △: Usable short-term, x: Unusable

Caution

- Confirm before use that the product will withstand the working environment.
- Before installing the nozzle, flush out the pipe to remove any foreign objects.

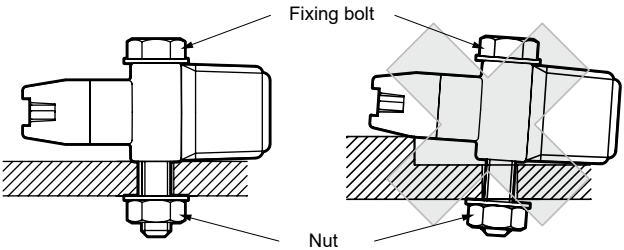
- For nozzle mounting, avoid attaching the bent pipe and elbow as much as possible. It may not achieve standard performance when turbulence occurs.
- When attaching the nozzle, after screwing it on by hand, retighten it with a tool. Check that the tool's hexagon face and wrench are the correct size. At this time, ensure that the tool does not interfere with the nozzle port. The nozzle may be damaged if gripped with a tool and screwed in with strong force.

[reference value]		Tightening torque N·m
Size	Material	
R1/8	Stainless steel 303	8
	Stainless steel 304	
R1/4	Stainless steel 303	15
	Stainless steel 304	
	Stainless steel 316L	
	PP	2
	PPS	3 to 3.5

- Use sealing tape on the threaded end of the nozzle.
- Do not tighten while pressure is applied.
- Do not damage the nozzle. Do not poke the nozzle's spray holes with anything hard (needles, nails, etc.).
- Periodically check that there is no clogging in the spray holes.
- When there is clogging in the spray holes, detach the nozzle from the pipe and remove the foreign object with a soft brush.
- Do not apply sudden impact or excessive force. Note that resin nozzles are different from metal nozzles and are easily damaged.
- Store in a clean, dust-free place.

BNE flat type

- When using the fixing hole for the nozzle, use M4 bolts and nuts, and do not tighten with strong force. (Recommended Tightening Torque: 0.75 N·m) When tightening the bolt, be careful not to apply force to the screw. Do not fix the nozzle in a tilted position. There is a risk of damage.



For cautions about mounting, installation, adjustment, use, and maintenance, refer to the CKD components Product Site (<https://www.ckd.co.jp/kiki/jp/en/>) → "Model No." → Instruction Manual .