Built to Last

Air Nozzles and Jets

Engineered Air Nozzles and Jets reduce noise levels and air costs.

"Go Green" by upgrading your blowoff, cooling, and drying operation to the award winning Super Air Nozzles!



What Are Air Nozzles and Jets?

A simple solution to reduce excessive air consumption and noise levels on compressed air blowoff operations. EXAIR Air Nozzles and Jets produce outlet flows up to 25 times compressed air consumption using a small amount of compressed air as the power source. Many power companies now provide attractive rebates to plants who switch to engineered Super Air Nozzles!



Air savings, compared to open copper tubes or pipes commonly used for blowoff, can be as high as 80%. Less compressed air means less noise. The typical noise level reduction is 10 dBA. All EXAIR Air Nozzles and Jets meet Occupational Safety and Health Administration (OSHA) maximum dead ended pressure and sound level exposure requirements and carry the CE mark.

An open 1/4" (6mm) copper tube, by contrast, ejects pure compressed air at up to 40 standard cubic feet per minute (1133 SLPM), the entire output of a 10 horsepower compressor. Annual energy cost can exceed \$1,000 per year. Noise levels in excess of 100 dBA are commonly produced. When supply pressure exceeds 30 PSIG (2 BAR), an open pipe, tube or drilled holes violate OSHA static pressure requirements.

Applications

- Part cleaning
- · Chip removal
- · Part drying
- · Liquid blowoff Part cooling
- · Material conveying
- · Part ejection
- Fiber conveying
- Air assist

Advantages

- Reduced compressed air cost
- 10 dBA average noise reduction
- Conserve compressed air
- Improved blowoff performance
- Compact
- Improved safety
- Meets OSHA noise level requirements
- Meets OSHA pressure requirements
- Improved production



Flexible Stay Set Hoses™ are ideal where frequent repositioning of air nozzles is required.



Peek Super Air Nozzles deliver strong blowing force while providing nonmarring protection.

Safe And Efficient Use Of Compressed Air

The use of compressed air for blowoff in most facilities is a problem due to the energy costs, noise level and potential danger to personnel who are exposed to high pressure air. Open air pipes, copper tubes and drilled pipes are a few of the common abusers. They consume tremendous amounts of energy and often produce noise levels over 100 dBA.

Open Air Pipe or Copper Tube



Turbulent compressed air blasts straight out of the pipe or tube. It not only wastes huge amounts of compressed air but also violates OSHA noise and dead ended pressure requirements.

Reduce Energy Costs

The best way to cut energy costs is through proper maintenance and use of the compressed air system. Leaks and dirty filters require maintenance on a regular basis. Energy savings can also be realized when replacing outdated compressor motors and controls with high efficiency models that often pay for themselves in a short period of time.

The most important factor to dramatically boost efficiency is proper use. Using engineered products like EXAIR's Super Air Nozzles can cut operating costs since they use only a fraction of the compressed air of typical blowoffs. In addition, all of the Air Nozzles and Jets shown in this catalog can be cycled on and off with instantaneous response. EXAIR's EFC shown on page 4 is an electronic flow control that limits compressed air use by turning on the air only when a part is present.

Reduce Noise Levels

High noise levels are a common problem for many plants. Compressed air noise often exceeds OSHA noise level exposure requirements, resulting in hearing loss to those working in close proximity. Noisy blowoffs at 80 PSIG (5.5 BAR) that produce noise levels of 100 dBA can be reduced to only 74 dBA when using a Super Air Nozzle. At that pressure, it is still possible to obtain hard-hitting force without the high noise.

OSHA Maximum Allowable Noise Exposure							
Hours per day (constant noise)	8	7	4	3	2	1	0.5
Sound level dBA	90	91	95	97	100	105	110

OSHA Standard 29 CFR - 1910.95 (a)

Eliminate Harmful Dead Ended Pressures

Air can be dangerous when the outlet pressure of a hole, hose or copper tube is higher than 30 PSIG (2 BAR). In the event the opening is blocked by a hand or other body part, air may enter the bloodstream through the skin, resulting in a serious injury. All of the Air Nozzles and Jets manufactured by EXAIR have been designed for safety. All are safe to be supplied with higher pressure compressed air and meet OSHA standard CFR 1910.242(b).

Air Consumption of Open Tube And Pipe

Pres	sure Su	pply	Air Consumption of Hon Blowoffs			omema	de	
			Copper Tube			(Open Pip	e
PSIG	BAR		1/4"	5/16"	3/8"	1/8"	1/4"	3/8"
80	5.5	SCFM	33	58	87	70	140	240
80	5.5	SLPM	934	1641	2462	1981	3962	6792

Saving Money and Compressed Air

The table above shows the air consumption for typical homemade blowoffs. The pages that follow give the air consumption and other data on EXAIR's Air Nozzles and Jets.



Consider the following example where a Model 1102 Mini Super Air Nozzle replaces a 1/8" (3.2mm) open pipe. The compressed air savings is easy to calculate and proves to be dramatic. Payout for Air Nozzles and Jets, including filter and installation cost is measured in weeks – not years, as is the case for other cost reduction equipment.

Example:

- 1. Existing blowoff is 1/8" (3.2mm) open pipe at 80 PSIG (5.5 BAR) supply. Air consumption, from the table above, is 70 SCFM (1981 SLPM).
- 2. Use a 1/8 FNPT Model 1102 Mini Super Air Nozzle also at 80 PSIG (5.5 BAR) supply. Air consumption, from the table on page 45, is 10 SCFM (283 SLPM).
- 3. Compressed air saved = 70 10 = 60 SCFM (1981 283 = 1698 SLPM)
- 4. For this example, the blowoff is continuous. If the duty cycle was 20%, then air saved would be $60 \times .2 = 12 \text{ SCFM}$ (1698 $\times .2 = 340 \text{ SLPM}$).
- 5. Most large plants know their cost per 1000 standard cubic feet of compressed air (10,000 standard liters). If you don't know your actual cost per 1000 SCF, \$0.25 is a reasonable average to use. (Cost per 10,000 standard liters is approximately \$0.089.)
- Dollars saved per hour = SCFM saved x 60 minutes x cost/1000 SCF (SLPM saved x 60 min x cost/10,000 SL) = 60 x 60 x \$0.25/1000 (= 1698 x 60 x \$0.089/10,000)
 - = \$0.90/hour
 - = \$0.90/hr. is \$36.00/week and
 - = \$1,872.00/year savings for One nozzle!







How Air Nozzles Work

Air Nozzles use the coanda effect or small directed nozzles to amplify compressed airflow 25 times or more. As illustrated on the right, compressed air (black arrows) is ejected through a series of nozzles on the outer perimeter. As the air travels along the outer wall of the nozzle, surrounding air (blue arrows) is entrained into the stream. The airstream that results is a high volume, high velocity blast of air at minimal consumption. The air is always ejected so it can vent safely, well below OSHA dead ended **pressure requirements**, should the nozzle end be blocked.

Selecting The Right Air Nozzle

EXAIR manufactures a wide selection of Air Nozzles and Jets. To help narrow your selection, they are divided into two groups. The first group includes Air Nozzles and Jets that deliver force up to 22 ounces (624 grams) and are suitable for most applications. The second group includes Air Nozzles that produce high force up to 23 lbs (10,433 grams) where additional reach and extreme force are required. The materials available for each style are indicated.

- **Brass** is suited to general purpose applications.
- **Zinc aluminum alloy** is suited to general purpose applications.
- Type 303 Stainless Steel is best for high temperatures and corrosive environments.
- Type 316 Stainless Steel withstands high temperatures, corrosive environments, mechanical wear, and is commonly used in food processing, corrosive and pharmaceutical applications.
- PEEK is used to replace metals in harsh environments. This engineered thermoplastic offers excellent resistance to chemicals, fatigue and high temperatures up to 320°F (160°C).



Air Nozzles And Jets "Quick Pick" Comparison

		Air Nozzl	es And Jets Comparison (sorted by compr	essed air c	onsumptio	on)			
	Model	del Material Description Inlet		Inlet	Air Consur 80 PSIG (5.5 BAR)		rce	Sound Level	More Details
					SCFM	SLPM	Ozs	Grams	dBA	
	1110SS	Stainless Steel - Type 316	Nano Super Air Nozzle	6mm or 1/8 MNPT	8.3	235	8.1*	230	75	p. 46
4	1110SS-NPT	Stainless Steel - Type 316	Nano Super Air Nozzle	1/8 MNPT	8.3	235	8.1*	230	75	p. 46
T_{i}	1110SS-PEEK	PEEK (Plastic)	Nano Super Air Nozzle	M6 x 0.75	8.3	235	8.1*	230	75	p. 46
•	1001	Brass	Safety Air Nozzle	1/8 FNPT	10	283	9*	255	78	p. 48
	1102	Zinc Aluminum alloy	Mini Super Air Nozzle	1/8 FNPT	10	283	9*	255	71	p. 47
	1102SS	Stainless Steel - Type 316	Mini Super Air Nozzle	1/8 FNPT	10	283	9*	255	71	p. 47
V	1102-PEEK	PEEK (Plastic)	Mini Super Air Nozzle	1/8 FNPT	10	283	9*	255	71	p. 47
•	1103	Zinc Aluminum alloy	Mini Super Air Nozzle	1/8 MNPT	10	283	9*	255	71	p. 47
	1103SS	Stainless Steel - Type 316	Mini Super Air Nozzle	1/8 MNPT	10	283	9*	255	71	p. 47
	1010SS	Stainless Steel - Type 303	Micro Air Nozzle	1/8 MNPT	13	368	12*	340	80	p. 46
	1009	Aluminum	Adjustable Air Nozzle	1/8 MNPT	13	368	12**	340	79	p. 48
	1009SS	Stainless Steel - Type 303	Adjustable Air Nozzle	1/8 MNPT	13	368	12**	340	79	p. 48
	1100	Zinc Aluminum alloy	Super Air Nozzle	1/4 FNPT	14	396	13*	368	74	p. 47
	1100SS	Stainless Steel - Type 316	Super Air Nozzle	1/4 FNPT	14	396	13*	368	74	p. 47
	1100-PEEK	PEEK (Plastic)	Super Air Nozzle	1/4 FNPT	14	396	13*	368	74	p. 47
	1101	Zinc Aluminum alloy	Super Air Nozzle	1/4 MNPT	14	396	13*	368	74	p. 47
	1101SS	Stainless Steel - Type 316	Super Air Nozzle	1/4 MNPT	14	396	13*	368	74	p. 47
	1002	Brass	Safety Air Nozzle	1/4 FNPT	17	481	16*	453	80	p. 48
	1002SS	Stainless Steel - Type 303	Safety Air Nozzle	1/4 FNPT	17	481	16*	453	80	p. 48
	1003	Brass	Safety Air Nozzle	3/8 FNPT	18	509	18*	510	83	p. 48
	6019	Brass	Adjustable Air Jet	1/8 MNPT	18	509	16***	453	83	p. 50
	6013	Brass	High Velocity Air Jet	1/8 MNPT	22	622	20 [†]	567	82	p. 50
	1122	Zinc Aluminum alloy	2" Super Air Nozzle	1/4 FNPT	22	622	22 [†]	624	77	p. 49
	1122SS	Stainless Steel - Type 316	2" Super Air Nozzle	1/4 FNPT	22	622	22 [†]	624	77	p. 49
	or High Force Air Novelog see page 52									

For High Force Air Nozzles, see page 52.

Force measured at 12" (305mm) from target
 Force measured at 12" (305mm) from target with a .008" (0.20mm) factory setting
 Force measured at 12" (305mm) from target with a .006" (0.15mm) factory setting

All sound levels measured at 3 feet (914mm)

All measurements taken at 80 PSIG (5.5 BAR)
† Force measured at 12" (305mm) from target with a .015" (0.38mm) shim installed



The Air Nozzles and Jets shown on pages 46 – 50 deliver up to 22 ounces (624 grams) of force, making them suitable for most blowoff, drying and cooling applications. All models shown use a small amount of compressed air to entrain large volumes of surrounding room air. The award winning Super Air Nozzles have been engineered to provide the best performance. They are extremely efficient, producing a high thrust, concentrated stream of high velocity airflow with low sound levels and air consumption. The compressed air is ejected through holes located in recessed grooves that can not be blocked or dead ended.



Nano Super Air Nozzle™



(actual size)

Model: 1110SS M6 x 0.75 Material: Type 316 Stainless Steel



(actual size)

Model: 1110-PEEK M6 x 0.75 Material: PEEK (plastic)



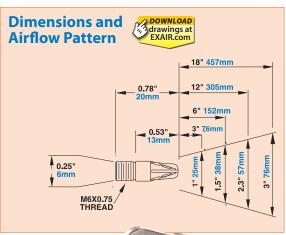
Model 1110SS-NPT 1/8 NPT male **Material:** Type 316 Stainless Steel

Model 1110SS, 1110-PEEK and 1110SS-NPT Nano Super Air Nozzle

EXAIR's Nano Super Air Nozzle is the smallest air nozzle available. It has been engineered for precision blowoff, providing the highest performance from a tiny nozzle. The overall length measures only 0.78" with a diameter of 0.25", that permits installation in tight spaces. The narrowly focused air pattern is forceful, measuring 1.5" in diameter when positioned 6" away from the target surface.

Air Consumption		For	Force*		
SCFM	SLPM	Ozs	Grams	dBA	
8.3	235	8.1	230	75	

^{*} Force measured at 12" (305mm) from target Sound level measured at 3' (914mm) All measurements taken at 80 PSIG (5.5 BAR)





Micro Air Nozzle™



Model 1010SS 1/8 NPT male **Material:** Type 303 Stainless Steel

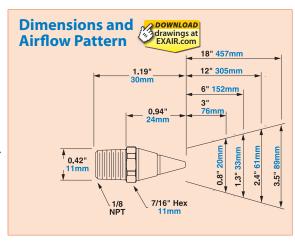


Model 1010SS Micro Air Nozzle

EXAIR's Micro Air Nozzle provides "precision blowoff" with a narrowly focused air pattern. It optimizes entrainment for a directed, high volume, high velocity airflow. Sound level and air consumption are low. The compact size permits mounting where space is limited.

Air Consumption		For	Force*		
SCFM	SLPM	Ozs	Grams	dBA	
13	368	12	340	80	

^{*} Force measured at 12" (305mm) from target Sound level measured at 3' (914mm) All measurements taken at 80 PSIG (5.5 BAR)







Mini Super Air Nozzles™



Model 1102 1/8 NPT female Material: Zinc Aluminum alloy

Model 1102SS 1/8 NPT female Material: Type 316 Stainless Steel



Model 1102-PEEK 1/8 NPT female Material: PEEK (plastic)



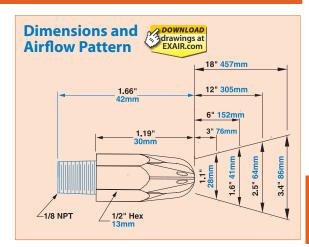
Model 1103 1/8 NPT male Material: Zinc Aluminum alloy Model 1103SS 1/8 NPT male Material: Type 316 Stainless Steel

Model 1102, 1102SS, 1102-PEEK, 1103 and 1103SS Mini Super Air Nozzles

The 1/8 NPT Mini Super Air Nozzles provide a forceful, concentrated stream of high velocity airflow. It has fewer holes than the larger Super Air Nozzles, resulting in lower sound levels, air consumption and force.

Air Consumption		For	Force*		
SCFM	SLPM	Ozs	Grams	dBA	
10	283	9	255	71	

* Force measured at 12" (305mm) from target Sound level measured at 3' (914mm) All measurements taken at 80 PSIG (5.5 BAR)



Super Air Nozzles™





Model 1100 1/4 NPT female Material: Zinc Aluminum alloy

Model 1100SS 1/4 NPT female **Material:** Type 316 Stainless Steel



Model 1101 1/4 NPT male Material: Zinc Aluminum alloy

Model 1101SS 1/4 NPT male Material: Type 316 Stainless Steel



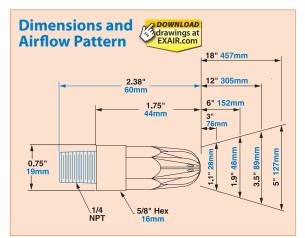
Model 1100-PEEK 1/4 NPT female Material: PEEK (plastic)

Model 1100, 1100SS, 1100-PEEK, 1101 and 1101SS Super Air Nozzles

EXAIR's award winning Super Air Nozzles deliver high performance suitable for a wide range of blowoff, drying and cooling applications. The aerodynamic design of this engineered Super Air Nozzle directs the air to a single point of convergence, delivering hard-hitting force. It dramatically reduces air consumption and, in many cases, can cut the noise level in half. All Super Air Nozzles eject the compressed air through holes located in recessed grooves that can not be blocked or dead ended.

Air Consumption		For	Sound Level	
SCFM	SLPM	Ozs	Grams	dBA
14	396	13	368	74

^{*} Force measured at 12" (305mm) from target Sound level measured at 3' (914mm) All measurements taken at 80 PSIG (5.5 BAR)





Most EXAIR Air Nozzles have a standard hex base making them easy to install with a socket wrench.



EXAIR's Swivel Fittings make it easy to adjust the aim of the Air Nozzles and Jets. Correct placement of the blowing angle can help optimize performance, reduce noise levels and improve efficiency. See page 58 for details.

Safety Air Nozzles



Model 1001 1/8 NPT female Material: Brass

Model 1002 1/4 NPT female Material: Brass

Model 1002SS 1/4 NPT female **Material:** Type 303 Stainless Steel

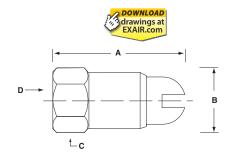
Model 1003 3/8 NPT female **Material:** Brass

Model 1001, 1002, 1002SS, and 1003 Safety Air Nozzles

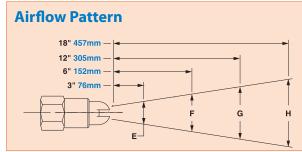
Safety Air Nozzles eject a small amount of compressed air 360° around the outer ring that combines with the air ejected from the center hole to produce a high volume, high velocity blast of air. The slotted end allows air to vent safely should the nozzle end be blocked.

Air Consumption			Fo	rce*	Sound Level
Model	SCFM	SLPM	Ozs	Grams	dBA
1001	10	283	9	255	78
1002	17	481	16	453	80
1002SS	17	481	16	453	80
1003	18	509	18	510	83

^{*} Force measured at 12" (305mm) from target Sound level measured at 3' (914mm) All measurements taken at 80 PSIG (5.5 BAR)



Dimensi	ons	Α	В	C	D
Model				Hex	Inlet
1001	in 1.19 0.38 1/2	1/2	1/8		
1001	mm	30	10	13	NPT
1002	in	1.44	0.50	5/8	1/4
1002SS	mm	37	13	16	NPT
1003	in	1.65	0.63	3/4	3/8
1003	mm	42	16	19	NPT



Model		E	F	G	н
1001	in	1.1	2.1	4.1	6.0
1001	mm	28	53	104	152
1002	in	1.3	2.3	4.4	6.5
1002SS	mm	33	58	112	165
1003	in	1.3	2.4	4.7	7.0
1003	mm	33	61	119	178

Adjustable Air Nozzles



Model 1009 1/8 NPT male Material: Aluminum

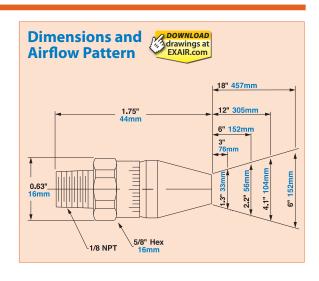
Model 1009SS 1/8 NPT male Material: Type 303 Stainless Steel

Model 1009 and 1009SS Adjustable Air Nozzles

Adjustable Air Nozzles are suitable for a wide variety of blowoff applications. The design allows you to "tune in" the force and flow to the application requirements, thereby minimizing air consumption. A micrometer-like dial indicates the gap setting. A set screw in the end can be tightened so the air nozzle holds the setting.

Air Cons	umption	For	ce*	Sound Level
SCFM	SLPM	Ozs	Grams	dBA
13	368	12	340	79

^{*} Force measured at 12" (305mm) from target with a .008" (0.20mm) factory setting Sound level measured at 3' (914mm) All measurements taken at 80 PSIG (5.5 BAR)







2" Super Air Nozzles™





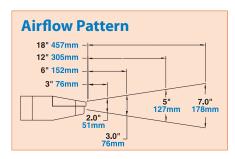


Model 1122 1/4 NPT female Material: Zinc Aluminum alloy

Model 1122SS 1/4 NPT female Material: Type 316 Stainless Steel

Air Consumption		ce*	Sound Level
SLPM	Ozs	Grams	dBA
622	22	624	77
	SLPM	SLPM Ozs	SLPM Ozs Grams

^{*} Force measured at 12" (305mm) from target Sound level measured at 3' (914mm) All measurements taken at 80 PSIG (5.5 BAR) .015" (0.38mm) shim installed.

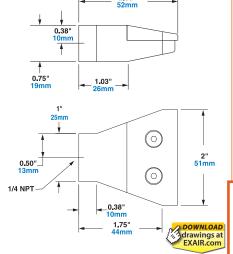




2" Super Air Nozzles blow off metal parts as they are lifted through a vacuum chamber.

Model 1122 and 1122SS 2" Super Air Nozzles

EXAIR's 2" (51mm) Super Air Nozzle is a highly efficient, unique flat air nozzle. The patented† design uses a special shim to maintain the critical position of the component parts. A precise amount of air is released through the thin slot, across a flat surface. The result is a wide, forceful stream of high velocity, laminar airflow with minimal air consumption and noise.





The Model 1132SS Stainless Steel Shim Set for the 2" Super Air Nozzle (shown) includes a .005" (0.13mm), .010" (0.25mm), and .020" (0.51mm) thick shim. A .015" (0.38mm) shim is installed.

The 2" Super Air Nozzle has a .015" (0.38mm) air gap opening that is set with a stainless steel shim positioned between the cap and the body. Force and flow may be easily increased or decreased by installing a different shim thickness.

†Patent #5402938

Save Over \$1,200 Per Year By Replacing One Outdated Air Nozzle!



Flat air nozzles by other manufacturers use a series of holes and consume enormous amounts of compressed air. Many break off, are loud and can get you an OSHA fine due to dangerous dead end pressures. Theirs aren't adjustable, making it likely you'll waste compressed air. Replacing one of theirs with the EXAIR 2" Super Air Nozzle can save over \$1,200 per year.

Here's how:

- One popular flat nozzle consumes 31 SCFM @ 80 PSIG.
- EXAIR's 2" Super Air Nozzle with .015" shim consumes 21.8 SCFM @ 80 PSIG.
- 31 SCFM (theirs) 21.8 SCFM (EXAIR's) = 9.2 SCFM compressed air saved/min.

Most large plants know their cost per 1000 standard cubic feet of compressed air. If you don't know your actual cost per 1000 SCF, \$0.25 is a reasonable average to use.

SCFM saved x 60 minutes x cost/1000 SCF = dollars saved per hour.

- In this case, 9.2 SCFM x 60 x \$0.25/1000 SCF = 13.8 cents per hour.
- 13.8 cents per hour x 24 hours = \$3.31 per day.
- \$3.31 per day x 365 days = \$1,208.88 saved in one year (in this 24/7 operation).

And, This Savings Is For One Nozzle!

Air Nozzle	Air Consumption @ 80 PSIG	Noise Level dBA	lbs. of Force @ 80 PSIG
Yellow	29 SCFM	83	1.7
Orange	28 SCFM	82	1.7
Blue	26 SCFM	78	1.5
Metal (machined)	29 SCFM	82	1.7
Metal (cast)	31 SCFM	80	1.9
2" Super Air Nozzle	*7.3 - 30 SCFM	62-81	0.5 - 1.9
v 4.1	1 4 11		

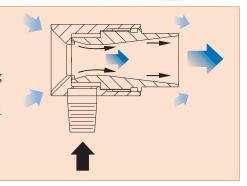
*Air consumption dependent upon shim size.

EXAIR's 2" Super Air Nozzle can pay for itself in less than 18 days.



How Air Jets Work

Air Jets utilize the coanda effect (wall attachment of a high velocity fluid) to produce air motion in their surroundings. As illustrated on the right, a small amount of compressed air (black arrows) is throttled through an internal ring nozzle above sonic velocity. A vacuum is produced, pulling large volumes of surrounding, or "free" air, through the jet (blue arrows). Both the outlet and inlet can be ducted for remote positioning. If the end is blocked, flow simply reverses at well below OSHA dead ended pressure requirements.



High Velocity Air Jet





The Model 6313 Air Jet Shim Set for the High Velocity Air Jet includes a .006" (0.15mm) and a .009" (0.23mm) thick shim. A .015" (0.38mm) shim comes installed with the Model 6013 Air Jet.

Model 6013 High Velocity Air Jet

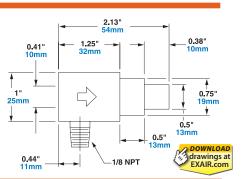
Provides maximum thrust with a confined, directed airstream. It is the best choice for part ejection, chip removal, part drying.

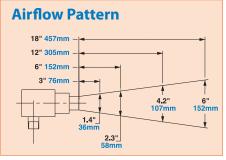
Shim Sets: Shims can be used to change the gap on the Model 6013 High Velocity Air Jet. Changing shims will alter air consumption, force, flow and vacuum capability. Order Model 6313 Air Jet Shim Set.

Air Cons	umption	For	ce*	Sound Level
SCFM	SLPM	Ozs	Grams	dBA
22	622	20	567	82

^{*} Force measured at 12" (305mm) from target with a .015" (0.38mm) shim

Sound level measured at 3' (914mm)
All measurements taken at 80 PSIG (5.5 BAR)





Adjustable Air Jet





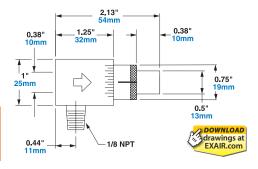
A combination of Model 6013 High Velocity Air Jets and Model 6042 Adjustable Air Amplifiers dry this engine casting.

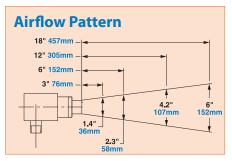
Model 6019 Adjustable Air Jet

This is an adjustable version of the Model 6013 High Velocity Air Jet. Airflow and thrust are easily adjusted using the micrometer gap indicator.

Air Cons	umption	For	ce*	Sound Level
SCFM	SLPM	Ozs	Grams	dBA
18	509	16	453	83

* Force measured at 12" (305mm) from target with a .006" (0.15mm) factory setting Sound level measured at 3' (914mm) All measurements taken at 80 PSIG (5.5 BAR)









How Much Air Does It Really Use?

The amount of compressed air wasted by copper tubes, drilled pipe and other compressed air blowoffs can easily cost thousands of dollars per year. To quantify it, air consumption can be translated into electrical energy use. One horsepower of compressor (746 watts) generates 4 to 5 SCFM (113 to 142 SLPM). The SCFM (SLPM) output depends on the efficiency of the compressor. Wasteful blowoffs can drain the compressed air system where a plant will experience

frequent and sizeable pressure drops. The lack of air can be eliminated when the inefficient blowoffs are replaced.

Efficient products like EXAIR's engineered Super Air Nozzles are quiet while being capable of pulling in 25 parts of room air using one part compressed air. Companies who want to "Go Green" and minimize compressed air use should listen for the loud compressed air noise in their plant. Once the noisy blowoff is located, EXAIR's Digital Sound Level Meter (shown on page 10) can isolate the source and measure the sound level. Replacing one drilled pipe or other homemade blowoff with one Super Air Nozzle can amount to a large air savings. Here's a typical example:



EXAIR's Digital Sound Level Meter detects the source of high noise. (See page 10)

A Steel Plant Reduces Air Use by 59%

A steel plant was using open ended pipes on their cold rolled process to blow away a dense fog of oil vapor so the operator could see the process. Each pipe consumed 195 SCFM of compressed air. With only a 3:1 air amplification ratio, the open ended pipe did a poor job of clearing the fog. The pipes were dangerous since they could potentially be dead ended (an OSHA violation). Even with hearing protection, workers complained that it was loud.

They installed (2) Model 1106 1/2 NPT Stainless Steel Super Air Nozzles with Model 9069 Swivel Fittings (to aim them) that blew the fog across the 6' (1.8m) width. The Super Air Nozzles completely cleared the fog and the workers complimented the significant noise drop. Each open pipe that used to consume 195 SCFM was reduced to only 60 SCFM when the Super Air Nozzles were installed.







EXAIR's Digital Flowmeter shows the exact amount of air that is consumed downstream. (See page 9)

Compressed air products should not be used at pressures higher than indicated by the manufacturer since this wastes air. When looking for places to conserve air, it is important to measure the air consumption of everything connected to the compressed air supply rather than relying on the numbers printed in a manufacturer's literature. Some manufacturers of compressed air products understate the air consumption of their products. It is hard to say if it is done intentionally or in error. One possibility is that their flow meter has not been regularly calibrated. Another reason could be a failure to properly use their flow meter.

Most flow meter manufacturers require that any measurement made on their meter be multiplied by a correction factor in order to get the exact air consumption measurement. This takes into account the conditions under which the flow meter was calibrated. If a company using one of these flow meters simply takes the reading but fails to multiply it by the appropriate correction factor, it would appear their product uses a lot less compressed air - easily half what it actually consumes. EXAIR's Digital Flowmeter (shown on page 9) is an easy to use meter that does not require regular calibration and provides the actual reading without having to use a correction factor.





Some applications require extremely high force with extensive reach. EXAIR's High Power Safety Air Nozzles, 2" High Power Super Air Nozzles, Large Super Air Nozzles and Super Air Nozzle Clusters provide incredibly strong blowing force. They are ideal for part ejection as well as blowoff, cooling and drying applications. EXAIR has engineered Large Super Air Nozzles that put the blowing capability of multiple nozzles into one single air nozzle. Hard-hitting force is measured in pounds, not ounces. All meet OSHA noise level and pressure requirements.

High Force Air Nozzles "Quick Pick" Comparison

High Force Air Nozzles Comparison (sorted by compressed air consumption)									
Model	Material	Description	Inlet	PSIG (5	nption at 80 .5 BAR)	Force		Sound Level	More Details
				SCFM	SLPM	Lbs	Grams	dBA	
HP1002	Brass	High Power Safety Air Nozzle	1/4 FNPT	32	906	1.8*	792	87	p. 52
HP1002SS	Stainless Steel - Type 303	High Power Safety Air Nozzle	1/4 FNPT	32	906	1.8*	792	87	p. 52
1104	ZInc Aluminum alloy	Super Air Nozzle	3/8 FNPT	35	991	1.9*	850	82	p. 53
1104SS	Stainless Steel - Type 316	Super Air Nozzle	3/8 FNPT	35	991	1.9*	850	82	p. 53
1105	ZInc Aluminum alloy	Super Air Nozzle	3/8 MNPT	35	991	1.9*	850	82	p. 53
1105SS	Stainless Steel - Type 316	Super Air Nozzle	3/8 MNPT	35	991	1.9*	850	82	p. 53
HP1125	Zinc Aluminum alloy	2" High Power Super Air Nozzle	1/4 FNPT	37	1039	2.2 [†]	1134	83	p. 53
HP1125SS	Stainless Steel - Type 316	2" High Power Super Air Nozzle	1/4 FNPT	37	1039	2.2 [†]	1134	83	p. 53
1111-4	Zinc Aluminum alloy	Super Air Nozzle Cluster	3/8 FNPT	56	1585	3.2*	1451	82	p. 56
1106	Zinc Aluminum alloy	Super Air Nozzle	1/2 FNPT	60	1699	3.3*	1497	87	p. 53
1106SS	Stainless Steel - Type 316	Super Air Nozzle	1/2 FNPT	60	1699	3.3*	1497	87	p. 53
1107	Zinc Aluminum alloy	Super Air Nozzle	1/2 MNPT	60	1699	3.3*	1497	87	p. 53
1107SS	Stainless Steel - Type 316	Super Air Nozzle	1/2 MNPT	60	1699	3.3*	1497	87	p. 53
1112	Zinc Aluminum alloy	Super Air Nozzle	3/4 FNPT	91	2577	4.5*	2041	96	p. 54
1112SS	Stainless Steel - Type 316	Super Air Nozzle	3/4 FNPT	91	2577	4.5*	2041	96	p. 54
1113	Zinc Aluminum alloy	Super Air Nozzle	3/4 MNPT	91	2577	4.5*	2041	96	p. 54
1113SS	Stainless Steel - Type 316	Super Air Nozzle	3/4 MNPT	91	2577	4.5*	2041	96	p. 54
1111-7	Zinc Aluminum alloy	Super Air Nozzle Cluster	1/2 FNPT	98	2773	5.7*	2585	85	p. 56
1114	Zinc Aluminum alloy	Super Air Nozzle	1 FNPT	135	3823	6.6*	3005	99	p. 54
1115	Zinc Aluminum alloy	Super Air Nozzle	1 MNPT	135	3823	6.6*	3005	99	p. 54
1111-12	Zinc Aluminum alloy	Super Air Nozzle Cluster	1 FNPT	168	4754	9.8*	4445	89	p. 56
1116	Zinc Aluminum alloy	Super Air Nozzle	1-1/4 FNPT	188	5324	9.4*	4252	102	p. 54
1117	Zinc Aluminum alloy	Super Air Nozzle	1-1/4 MNPT	188	5324	9.4*	4252	102	p. 54
1118	Zinc Aluminum alloy	Super Air Nozzle	1-1/4 FNPT	300	8495	15*	6804	106	p. 55
1119	Zinc Aluminum alloy	Super Air Nozzle	1-1/4 MNPT	300	8495	15*	6804	106	p. 55
1120	Zinc Aluminum alloy	Super Air Nozzle	1-1/4 FNPT	460	13027	23*	10433	109	p. 55
1121	Zinc Aluminum alloy	Super Air Nozzle	1-1/4 MNPT	460	13027	23*	10433	109	p. 55
For Air Nozz	les with lower force, see pag	* Force measured at 12" (305mm)		Force measured at	12" (305mm) fron	n target	FNPT = NPT		

High Power Safety Air Nozzles™



Model HP1002 1/4 NPT female Material: Brass

Model HP1002SS 1/4 NPT female **Material:** Type 303 Stainless Steel

Model HP1002 and HP1002SS **High Power Safety Air Nozzles**

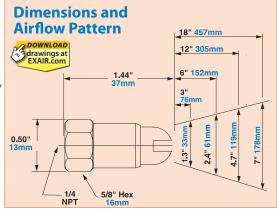
Provides strong blowing force for applications requiring high thrust and velocity. It uses more compressed air than other air nozzles but is low when compared to typical blowoffs delivering the same force.

All sound levels measured at 3 feet (914mm)

All measurements taken at 80 PSIG (5.5 BAR)

Air Consumption		For	Sound Level	
SCFM	SLPM	Lbs	Grams	dBA
32	906	1.8	792	87

^{*} Force measured at 12" (305mm) from target Sound level measured at 3' (914mm)
All measurements taken at 80 PSIG (5.5 BAR)



MNPT = NPT Male

with a .025" (0.64mm) shim installed







2" High Power Super Air Nozzles⁻



Model HP1125 1/4 NPT female Material: Zinc Aluminum alloy

Material: Type 316 Stainless Steel

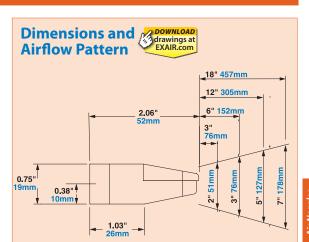


Model HP1125 and HP1125SS 2" High Power Super Air Nozzles

EXAIR's 2" High Power Super Air Nozzles produce a flat 2" (51mm) wide airstream with a strong blowing force of 2.2 pounds. The adjustable force is Model HP1125SS 1/4 NPT female more than three times that of ordinary air nozzles. It uses EXAIR's patented technology to maximize entrained airflow while reducing noise levels.

Air Consumption		For	Sound Level	
SCFM	SLPM	Lbs	Grams	dBA
37	1039	2.2	1134	83
37	1039	2.2	1134	83

Force measured at 12" (305mm) from target. Sound level measured at 3' (914mm). All measurements taken at 80 PSIG (5.5 BAR). .025" (0.64mm) shim installed.



Note: For highest force and flow, order Model 900633 .030" (0.74mm) shim.

Large Super Air Nozzles™



Model 1104 3/8 NPT female Material: Zinc Aluminum allov

Model 1104SS 3/8 NPT female Material: Type 316 Stainless Steel



Model 1105 3/8 NPT male Material: Zinc Aluminum alloy

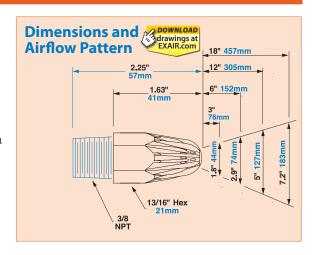
Model 1105SS 3/8 NPT male Material: Type 316 Stainless Steel

Model 1104, 1104SS, 1105 and 1105SS 3/8 NPT Super Air Nozzles

EXAIR's 3/8 NPT Super Air Nozzles produce 1.9 lbs of strong blowing force that is 2.3 times that of the standard Super Air Nozzle. The protective aerodynamic slots guide the airflow to a single point of convergence for hard-hitting force and dramatic noise reduction over typical blowoffs.

Air Consumption		For	Sound Level	
SCFM	SLPM	Lbs	Grams	dBA
35	991	1.9	850	82

^{*} Force measured at 12" (305mm) from target Sound level measured at 3' (914mm) All measurements taken at 80 PSIG (5.5 BAR)



Model 1106 1/2 NPT female Material: Zinc Aluminum alloy

Model 1106SS 1/2 NPT female Material: Type 316 Stainless Steel



Model 1107 1/2 NPT male Material: Zinc Aluminum alloy

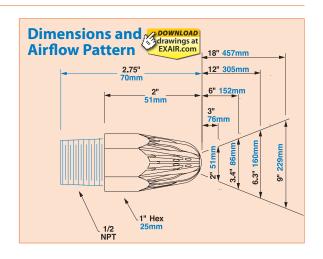
Model 1107SS 1/2 NPT male Material: Type 316 Stainless Steel

Model 1106, 1106SS, 1107 and 1107SS 1/2 NPT Super Air Nozzles

EXAIR's 1/2 NPT Super Air Nozzles produce 3.3 lbs of blowing force – 4 times that of ordinary nozzles. Air consumption and noise are extremely low compared to that of open pipe or copper tubes.

Air Consumption		For	Sound Level	
SCFM	SLPM	Lbs.	Grams	dBA
60	1699	3.3	1497	87

^{*} Force measured at 12" (305mm) from target Sound level measured at 3' (914mm) All measurements taken at 80 PSIG (5.5 BAR)





Large Super Air Nozzles™



Model 1112 3/4 NPT female Material: Zinc Aluminum alloy Model 1112SS 3/4 NPT female

Material: Type 316 Stainless Steel



Model 1113 3/4 NPT male **Material:** Zinc Aluminum alloy

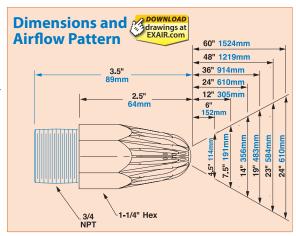
Model 1113SS 3/4 NPT female **Material:** Type 316 Stainless Steel

Model 1112, 1112SS, 1113 and 1113SS 3/4 NPT Super Air Nozzles

EXAIR's Super Air Nozzles are now available in larger sizes where extreme force is required. The 3/4 NPT Super Air Nozzles produce 4.5 lbs of blowing force – over 5 times that of ordinary nozzles.

Air Consumption		For	Sound Level	
SCFM	SLPM	Lbs	Grams	dBA
91	2577	4.5	2041	96

* Force measured at 12" (305mm) from target Sound level measured at 3' (914mm) All measurements taken at 80 PSIG (5.5 BAR) OSHA allows 3 hours of exposure per day without hearing protection.





Model 1114 1 NPT female **Material:** Zinc Aluminum alloy



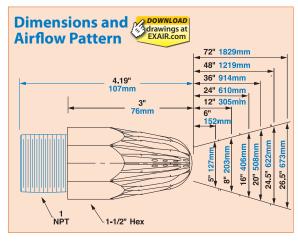
Model 1115 1 NPT male **Material:** Zinc Aluminum alloy

Model 1114 and 1115 1 NPT Super Air Nozzles

EXAIR's 1 NPT Super Air Nozzles optimize entrained airflow across the nozzle surface to minimize the noise level while providing extremely strong blowing force. They produce 6.6 lbs of blowing force – over 8 times that of ordinary nozzles.

Air Consumption		For	Sound Level	
SCFM	SLPM	Lbs	Grams	dBA
135	3823	6.6	3005	99

* Force measured at 12" (305mm) from target Sound level measured at 3' (914mm) All measurements taken at 80 PSIG (5.5 BAR) OSHA allows 2 hours of exposure per day without hearing protection.





Model 1116 1-1/4 NPT female **Material:** Zinc Aluminum alloy

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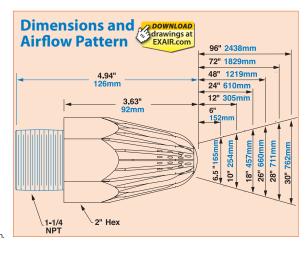
Model 1117 1-1/4 NPT male **Material:** Zinc Aluminum alloy

Model 1116 and 1117 1-1/4 NPT Super Air Nozzles

EXAIR's 1-1/4 NPT Super Air Nozzles provide exceptionally strong blowing force. They produce 9.4 lbs of blowing force – almost 12 times that of the standard Super Air Nozzle.

Air Consumption		For	Sound Level	
SCFM	SLPM	Lbs	Grams	dBA
188	5324	9.4	4252	102

Force measured at 12" (305mm) from target Sound level measured at 3' (914mm) All measurements taken at 80 PSIG (5.5 BAR) OSHA allows 1 hour of exposure per day without hearing protection.





Large Super Air Nozzles™



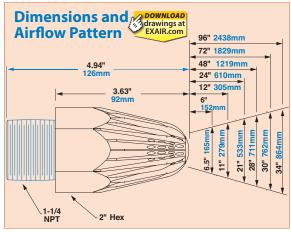
Model 1118 1-1/4 NPT female Material: Zinc Aluminum alloy

Model 1118 and 1119 1-1/4 NPT Super Air Nozzles

These 1-1/4 NPT Super Air Nozzles have larger orifices than the model 1116/1117 that provide additional air velocity. They generate 15 lbs of blowing force – almost 18 times that of the standard Super Air Nozzle.

6	Air Consumption		For	Sound Level	
-	SCFM	SLPM	Lbs	Grams	dBA
	300	8495	15	6804	106

Force measured at 12" (305mm) from target Sound level measured at 3' (914mm) All measurements taken at 80 PSIG (5.5 BAR) OSHA allows 1/2 hour of exposure per day without hearing protection.





Model 1119 1-1/4 NPT male Material: Zinc Aluminum alloy

Model 1120 and 1121 1-1/4 NPT Super Air Nozzles

These 1-1/4 NPT Super Air Nozzles have the largest orifices that provide additional air velocity, and generate the strongest blowing force of any single air nozzle. They produce 23 lbs of blowing force - almost 28 times that of the standard Super Air Nozzle.



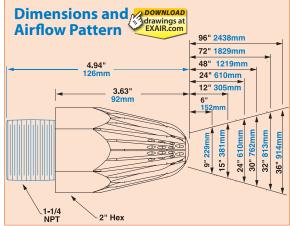
Model 1120 1-1/4 NPT female

Material: Zinc Aluminum alloy

Model 1121 1-1/4 NPT male Material: Zinc Aluminum alloy

Air Consumption		Force*		Sound Level
SCFM	SLPM	Lbs	Grams	dBA
460	13026	23	10433	109

^{*} Force measured at 12" (305mm) from target Sound level measured at 3' (914mm) All measurements taken at 80 PSIG (5.5 BAR) OSHA allows 1/2 hour of exposure per day without hearing protection.





The Large Super Air Nozzle ejects a defective box of tools off a conveyor.

Super Air Nozzle Clusters



Super Air Nozzle Clusters

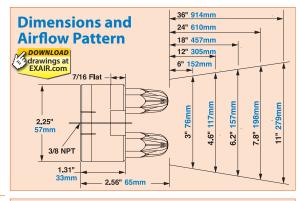


Model 1111-4 Super Air Nozzle Cluster

Air Cons	umption	For	ce*	Sound Level
SCFM	SLPM	Lbs	Grams	dBA
56	1585	3.2	1451	82

* Force measured at 12" (305mm) from target Sound level measured at 3' (914mm) All measurements taken at 80 PSIG (5.5 BAR)

Model 1111-4 3/8 NPT female Material: Nozzles - Zinc Aluminum alloy Body - Aluminum



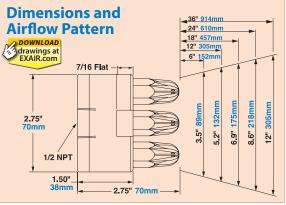


Model 1111-7 Super Air Nozzle Cluster

Air Consumption		Force*		Sound Level
SCFM	SLPM	Lbs	Grams	dBA
98	2773	5.7	2585	85

* Force measured at 12" (305mm) from target Sound level measured at 3' (914mm) All measurements taken at 80 PSIG (5.5 BAR)

Model 1111-7 1/2 NPT female Material: Nozzles - Zinc Aluminum alloy Body - Aluminum





Model 1111-12 Super Air Nozzle Cluster

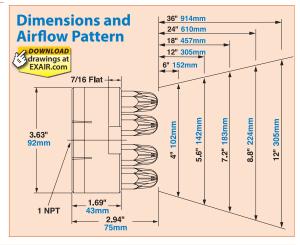
Air Consumption		Force*	
SLPM	Lbs	Grams	dBA
4754	9.8	4445	89
	SLPM	SLPM Lbs	SLPM Lbs Grams

* Force measured at 12" (305mm) from target Sound level measured at 3' (914mm) All measurements taken at 80 PSIG (5.5 BAR)

Model 1111-12 1 NPT female

Material: Nozzles - Zinc Aluminum alloy

Body - Aluminum



Flexible Stay Set Hoses™

Adding Flexibility

For applications where frequent repositioning of the Air Nozzle or Jet is required, the Flexible Stay Set HosesTM are ideal. Simply mount the hose in close proximity to the application and bend it to aim the airstream at the target. Since the hose has "memory", it will not creep or bend. It always keeps the aim until physically moved to the next position.

Two versions of the Stay Set Hoses are available in a variety of lengths. The 1/4 MNPT x 1/4 MNPT has a 1/4 NPT male fitting on each end and the 1/4 MNPT x 1/8 FNPT has a 1/4 NPT male fitting on one end and 1/8 NPT female fitting on the other.



Flexible Stay Set Hoses bend and keep their aim until physically moved.







Flexible Stay Set Hoses™ continued



Model 1002 Safety Air Nozzle

Model 1002SS SS Safety Air Nozzle

Model HP1002

High Power Safety Air Nozzle

Model HP1002SS

SS High Power Safety Air Nozzle



Model 1122

2" (51mm) Super Air Nozzle

Model 1122SS

2" (51mm) SS Super Air Nozzle

Model HP1125

2" (51mm) High Power Super Air Nozzle

Model HP1125SS

2" (51mm) SS High Power Super Air Nozzle



Model 1100

Super Air Nozzle

Model 1100SS SS Super Air Nozzle

Model 1100-PEEK

PEEK Super Air Nozzle

The Air Nozzles shown above can be used with the following Stay Set Hoses (1/4 NPT male fitting on each end):

Model# Description 9206 6" (152mm) 1/4 MNPT x 1/4 MNPT 9212 12" (305mm) 1/4 MNPT x 1/4 MNPT 18" (457mm) 1/4 MNPT x 1/4 MNPT 9218 9224 24" (610mm) 1/4 MNPT x 1/4 MNPT 9230 30" (762mm) 1/4 MNPT x 1/4 MNPT 9236 36" (914mm) 1/4 MNPT x 1/4 MNPT







Model 1010SS SS Micro Air Nozzle



Mini Super Air Nozzle





Model 1009 Adjustable Air Nozzle





Model 6013 High Velocity Air Jet



Model 6019 Adjustable Air Jet

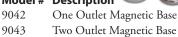
The Air Nozzles and Jets shown above can be used with the following Stay Set Hoses (1/4 NPT male fitting on one end, 1/8 NPT female on the other):

Model #	Description			
9256	6" (152mm) 1/4 MNPT x 1/8 FNPT	I EX LA EDIRICHATION		
9262	12" (305mm) 1/4 MNPT x 1/8 FNPT	TEXASCORPE SATION CINCINN 1.(1)		
9268	18" (457mm) 1/4 MNPT x 1/8 FNPT	THE EXPEDITION ATTON CINCINNAT, OHUSA	EXAM SOUTH CENTRE	
9274	24" (610mm) 1/4 MNPT x 1/8 FNPT	NEAR OCCUPATION CINCINNATI, OH USA	EXAIR CORPORATION CINCINNAL (1)	
9280	30" (762mm) 1/4 MNPT x 1/8 FNPT	11111 I I PART CONTORATION CINCINNATI, OH USA	EXAIR CORPORATION CINCINNATI, OH USA	EXA 1.35 POS ABON 13
9286	36" (914mm) 1/4 MNPT x 1/8 FNPT	PORTION PORTION CINCINIATI, OH USA	EXAIR CORPORATION CINCINNATI, OH USA	EXAIR CORPORATION CINCINNATITY STEEL

Magnetic Bases

Magnetic bases are suited to applications where frequent movement of the Air Nozzle or Jet is required. The powerful magnet permits horizontal or vertical mounting that will hold the blowing position of the Stay Set Hose. A shutoff valve is provided that can be used to infinitely vary the force and flow.





Build Your Own System

Now you can put together the best combination that suits your blowoff, cooling, drying or cleaning application. Select the model number that includes your choice of Air Nozzle or Jet, a length of Stay Set Hose, and a one or two outlet magnetic base. Here's how:

- 1. Choose the Air Nozzle or Jet model. **Example:** Model 1100 Super Air Nozzle
- 2. You have the option to include a length of Stay Set Hose. Simply list the model of the Stay Set Hose (shown above) as a dash number after the Air Nozzle or Jet model number.

Example: A Model 1100 Super Air Nozzle with a Model 9212 12" (305mm) Stay Set Hose is a Model 1100-9212.

3. You have the option to include a magnetic base. If you want a One Outlet Magnetic Base, change the second digit of the "added on" dash number to a "3". If you would like the Two Outlet Magnetic Base, change the second digit to a "4". By using a "4", you will receive (2) Air Nozzles or Jets and (2) Stay Set Hoses to attach to the Two Outlet Magnetic Base.

Example: A Model 1100 Super Air Nozzle with a 12" (305mm) Stay Set Hose and One Outlet Magnetic Base is a Model 1100-9312.



A Model 1100-9312 Super Air Nozzle with a 12" (305mm) Stay Set Hose and One Outlet Magnetic Base.

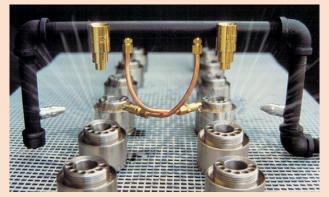




Choosing The Air Nozzle Or Jet That Best Suits Your Application

Not really sure which Air Nozzle or Jet is best suited to your application? EXAIR's Blowoff Kits provide a complete assortment of Air Nozzles and Jets for you to experiment with. Our catalog provides extensive test data that includes air consumption, force, sound level and airflow patterns. Still, this is nothing like seeing first hand what each of the Air Nozzles and Jets can do for you.

You can also depend on FREE expert technical help. Our full staff of qualified Application Engineers will be glad to assist you in choosing the best product for your application.



Oddly shaped parts often require a combination of Air Nozzles and Jets for blowoff.

Blowoff Kits



Model # 1909

Description

Blowoff Kit includes (1) 1102 Mini Super Air Nozzle, (1) 1009 Adjustable Air Nozzle, (1) 1100 1/4 NPT Super Air Nozzle, (1) 1104 3/8 NPT Super Air Nozzle, (1) 1106 1/2 NPT Super Air Nozzle, (1) 1122 2" Super Air Nozzle, (1) 6013 High Velocity Air Jet and (1) 6019 Adjustable Air Jet



Model # 1909SS

Description

Stainless Steel Blowoff Kit includes (1) 1100SS 1/4 NPT Super Air Nozzle, (1) 1104SS 3/8 NPT Super Air Nozzle, (1) 1106SS 1/2 NPT Super Air Nozzle, (1) 1009SS Adjustable Air Nozzle, (1) 1010SS 1/8 NPT Micro Air Nozzle, (1) 1102SS 1/8 NPT Mini Super Air Nozzle and (1) 1122SS 2" Super Air Nozzle



Model # 1910

Description

Instant Blowoff Station includes (1) 1100 Super Air Nozzle, (1) 9212 12" Stay Set Hose, (1) 9042 Magnetic Base, (1) 9040 Foot Pedal, and (2) 900061 10' Compressed Air Hose

Swivel Fittings



EXAIR's Swivel Fittings make it easy to adjust the aim of the Air Nozzles and Jets. Correct placement of the blowing angle can help optimize performance, reduce noise levels and improve efficiency. The Swivel Fittings permit a movement of 25 degrees. Construction is Type 303 Stainless Steel.

Swivel Fittings		
Model #	Description	
9052	1/8 MNPT x 1/8 FNPT	
9053	1/4 MNPT x 1/4 FNPT	
9068	3/8 MNPT x 3/8 FNPT	
9069	1/2 MNPT x 1/2 FNPT	
9023	3/4 MNPT x 3/4 FNPT	



For filters, pressure regulators, valves, fittings and more, see the "Accessories" section beginning on page 158.



