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HOW TO OPTIMIZE DRYING & BLOW-OFF OPERATIONS & DRAMATICALLY REDUCE OPERATING COSTS

You may not give much thought to your drying and blow-off operations if you aren't experiencing problems. But, new technology makes it possible to dry parts more thoroughly and quickly, improve precision in blow-off and achieve dramatic reductions in compressed air use. In fact, you may be able to save tens of thousands or even hundreds of thousands of dollars annually by using less compressed air or eliminating it completely. In addition to improving operating efficiency and lowering costs, adapting new technology can help reduce noise and improve worker safety.

Many plants use open or drilled pipe for drying and blow-off. These systems are inexpensive to make but very expensive to operate, are noisy and can be dangerous. There are many alternatives to consider.

WINDJET AIR KNIFE PACKAGES THAT USE BLOWER AIR:

- No compressed air required
- Low operating noise

WINDJET AIR NOZZLES THAT USE COMPRESSED AIR:

- Low flow air knives that use 89% to 92% less air than open pipe
- Air amplifiers that use 75% to 90% less air than open pipe
- Air nozzles that use compressed air that use 25% to 35% less air than open pipe
- All these nozzles provide perceived noise reductions ranging from 28% to 60% less than open pipe





BLOWER AIR PRODUCTS

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OVERVIEW: WINDJET AIR KNIFE PACKAGES

Using a system powered by blower air can reduce operating costs by 95% or more.

In addition to reducing costs, WindJet air knife/blower packages offer:

- Clean, heated air
- Low operating noise
- Easy installation and operation

The following applications are good candidates for air knife/blower systems:

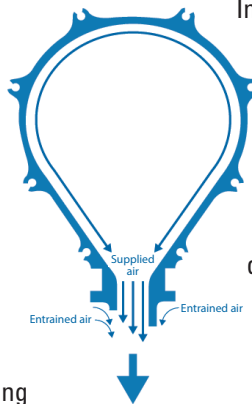
- Velocity rather than impact is required
- The oil in compressed air is causing quality problems
- Large application areas – more than 2' (61 cm)
- Heated air is needed
- Air knives can be placed close to the target surface – 4" (10.2 cm) or less



WINDJET AIR KNIVES

To ensure air stream integrity, WindJet air knives feature a unique leading edge design that directs the airflow out of the knife in a straight stream. This design uses the Coanda effect and air entrainment to economically produce a uniform and constant air stream. The Coanda effect induces the supplied air to attach itself to the surface of the air knife and helps maintain the integrity of the air stream further downstream. This effect also creates a condition conducive to entraining ambient air to increase the total volume of air.

The result of this leading edge design is a uniform, high volume, constant air stream along the entire length of the knife. The spotting and blotching problems associated with many air knives are eliminated. Another advantage of the leading edge design is that it provides a visual guide for positioning the air stream, pointing out the direction of the flow. This allows easy positioning of the knife to ensure maximum target coverage. Extended edge design improves air entrainment and ensures the integrity of the air stream.



Extended edge design improves air entrainment and ensures the integrity of the air stream.

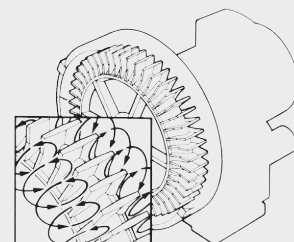
REGENERATIVE BLOWERS

Unlike other blower types, regenerative blowers are rugged, reliable and require infrequent, minimal maintenance. These blowers use a dynamic operating principle that recycles a certain amount of air and provide performance comparable to many multi-stage or positive displacement blowers.

In a regenerative blower, the compression space consists of a hollow circular ring between the tips of the impeller blades and the walls of the housing. In operation, the rotating impeller draws air from the inlet port into the compression space and moves it radially outward to the curved housing by centrifugal force. The action is called "regenerative" because a certain amount of air slips past each impeller blade during rotation and returns to the base of a succeeding blade for re-acceleration.

THE REGENERATIVE PRINCIPLE

In a regenerative blower, the compression space consists of a hollow circular ring between the tips of the impeller blades and the walls of the housing. In operation, the rotating impeller draws air from the inlet port into the compression space and moves it radially outward to the curved housing by centrifugal force. The action is called "regenerative" because a certain amount of air slips past each impeller blade during rotation and returns to the base of a succeeding blade for re-acceleration.



FEATURES AND BENEFITS: PACKAGES ARE CUSTOMIZED FOR YOUR APPLICATION

The number and length of knives and cannons, blower size and necessary accessories are sized depending on your application.

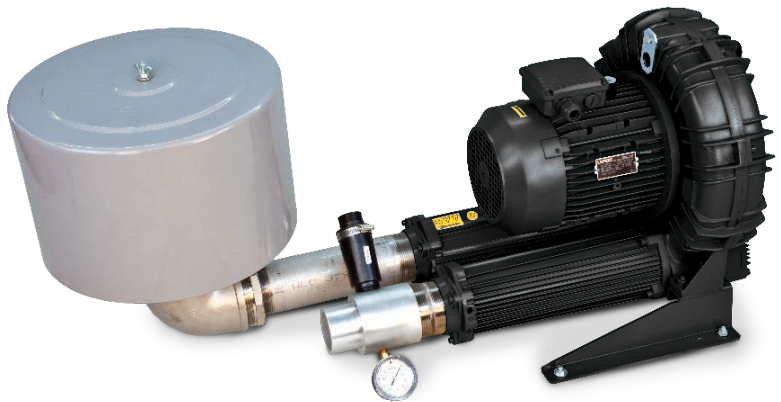
Each package includes:**WINDJET AIR KNIVES**

- Superior performance – straight, controlled air stream
- Standard knife lengths of 6", 12", 18", 24", 30" and 36" (152, 305, 457, 610, 762 and 914 mm)
- Custom lengths also available
- Dual inlet knives available (suggested for lengths greater than 60" [1524 mm])
- Air slot sizes of .040" and .060" (1 and 1.5 mm)

- Leak-proof end cap gaskets to prevent leakage on aluminum air knives
- Corrosion-resistant finish
- 3" flanged air inlet
- Also available in 316 stainless steel

**REGENERATIVE BLOWER ASSEMBLIES**

- 5.5, 10, 20A, 25 and 30 Hp. Assemblies include pressure relief valve, pressure gauge, air inlet filter, filter monitoring gauge, fittings, mounting adapter for flexible or rigid tubing
- Low maintenance, direct drive operation
- Fan cooling dissipates heat around the bearings to extend wear life
- Continuous, non-pulsating, oil-free air flow
- Low noise
- Rugged cast aluminum construction
- Lightweight
- Tropicalized for corrosion protection
- No heating element; air is warmed by heat generated during operation
- TEFC motors; CE and cURus certified



- Mountable in any position (except F30 which requires vertical mounting)
- Three-phase, dual frequency and multi-voltage motor versions
- Filter monitoring gauge alerts operator when service is required
- Wash down units available

AIR CANNONS

- Used in conjunction with air knife packages for complete drying by providing a high velocity air stream into holes and indentations in irregularly shaped parts
- Built-in mount spacer simplifies positioning in a mount bracket

- Anodized aluminum construction for corrosion-resistance and long wear life
- Also available in 316 stainless steel
- Three orifice sizes: .5", .75" and 1" (12.7, 19 and 25.4 mm)

**PACKAGE ACCESSORIES**

Replacement air inlet fittings, mounting brackets, muffler and more. See page 12.

QUICK REFERENCE GUIDE

Model	Motor Enclosure	Hp/kW	Voltage	Amps	Starting Amps	Insulation Class	Blower Sound Levels	Performance Data, Dimensions & Weights
							dBa at Pressure	
50760-F5.5 	TEFC	5.5/4.0	208-230/ 460-3	14.5/7.55	84 @ 460V	F	60 Hz: 79 50 Hz: 77	Page 7
50760-F10 	TEFC	10/7.5	208-230/ 460-3	25.5/12.5	163 @ 460V	F	60 Hz: 80 56 Hz: 78	Page 8
50760-F20A 	TEFC	20/15	208-230/ 460-3	47/23.5	228 @ 460V	F	60 Hz: 83 50 Hz: 81	Page 9
50760-F25 	TEFC	25/18.5	208-230/ 460	62/31	388 @ 460V	F	60 Hz: 87 50 Hz: 85	Page 10
50760-F30 	TEFC	30/22.3	208-230/ 460-3	71.5/36	380 @ 460V	F	60 Hz: 90 50 Hz: 88	Page 11

50760-F5.5 BLOWER ASSEMBLY



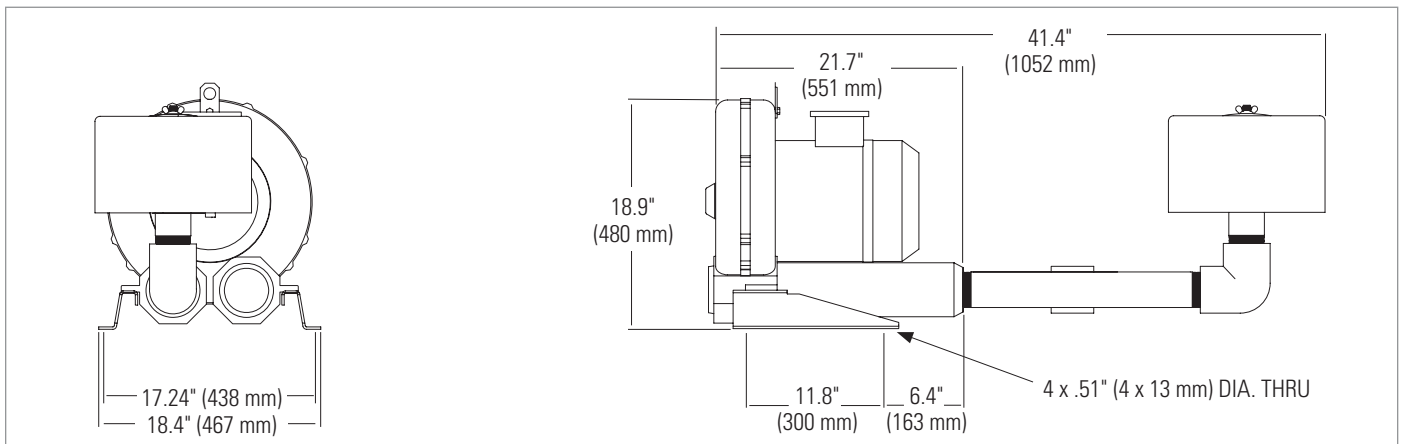
Recommended NEMA Starter Size	1/0
Net Weight	119 lbs. (54 kg)
Conn. Size	3" dia. (76.2 mm)

PERFORMANCE DATA

Model	Power Rating				Maximum Free Air Flow		Maximum Pressure	
	Hp		kW		cfm (m³h)		"H₂O (m bar)	
F5.5	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz
	5.5	5.5	4.0	4.0	294 (500)	243 (413)	80 (200)	110 (274)

To convert "H₂O to psi, multiply "H₂O x 0.03613.

DIMENSIONS



Mounting in all planes is acceptable.



50760-F10 BLOWER ASSEMBLY



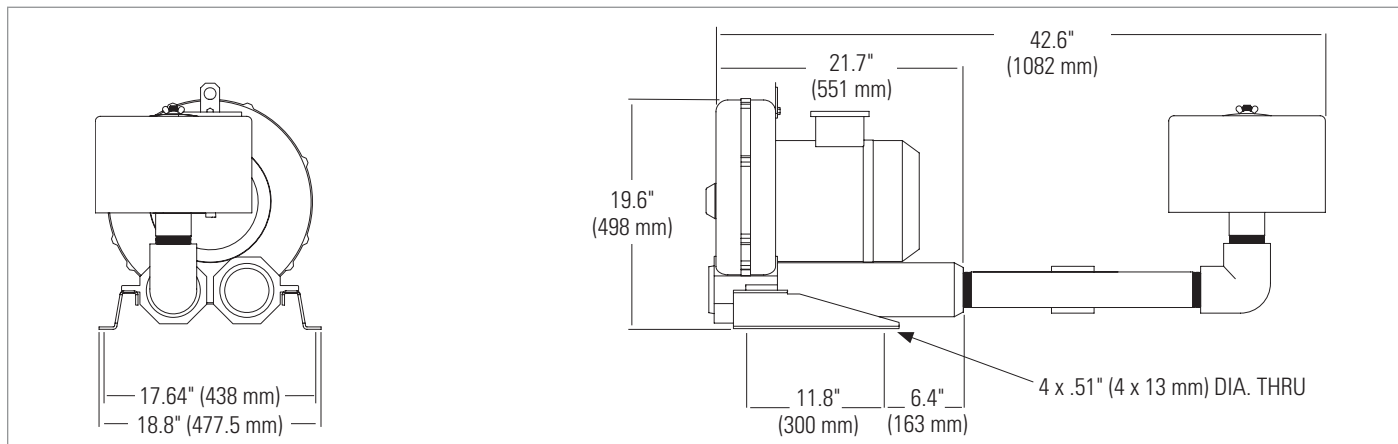
Recommended NEMA Starter Size	2/0
Net Weight	179 lbs. (82 kg)
Conn. Size	3" dia. (76.2 mm)

PERFORMANCE DATA

Model	Power Rating				Maximum Free Air Flow		Maximum Pressure	
	Hp		kW		cfm (m³h)		"H ₂ O (m bar)	
	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz
F10	10	10	7.5	7.5	381 (647)	316 (537)	111 (277)	141 (351)

To convert "H₂O to psi, multiply "H₂O x 0.03613.

DIMENSIONS



Mounting in all planes is acceptable.

50760-F20A BLOWER ASSEMBLY



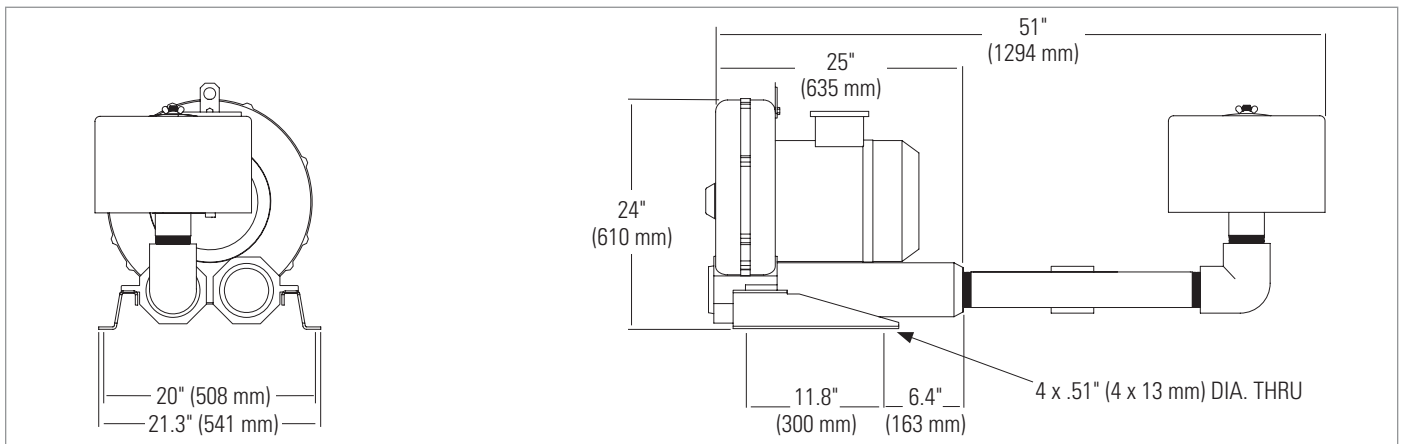
Recommended NEMA Starter Size	2/1
Net Weight	259 lbs. (118 kg)
Conn. Size	6" dia. (152.4 mm)

PERFORMANCE DATA

Model	Power Rating				Maximum Free Air Flow		Maximum Pressure	
	Hp		kW		cfm (m³h)		"H₂O (m bar)	
F20A	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz
		20	20	15	15	650 (1104)	539 (916)	121 (302)

To convert "H₂O to psi, multiply "H₂O x 0.03613.

DIMENSIONS



Mounting in all planes is acceptable.



50760-F25 BLOWER ASSEMBLY



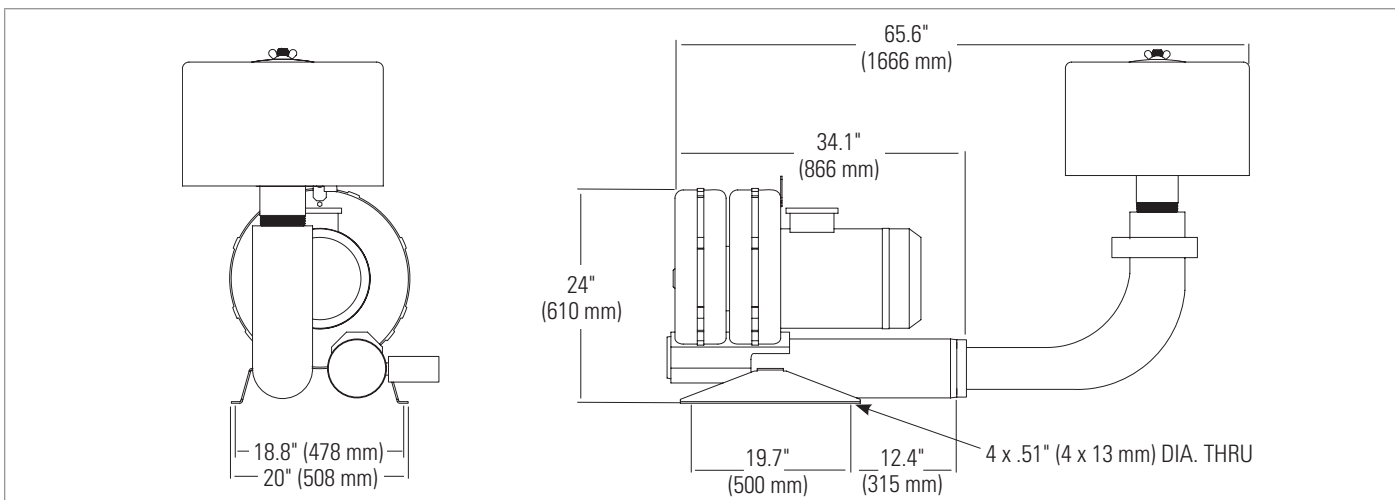
Recommended NEMA Starter Size	3/2
Net Weight	432 lbs. (196 kg)
Conn. Size	6" dia. (152.4 mm)

PERFORMANCE DATA

Model	Power Rating				Maximum Free Air Flow		Maximum Pressure	
	Hp		kW		cfm (m³h)		"H ₂ O (m bar)	
	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz
F25	25	25	18.5	18.5	941 (1599)	780 (1325)	110 (274)	141 (351)

To convert "H₂O to psi, multiply "H₂O x 0.03613.

DIMENSIONS



Mounting in all planes is acceptable.

50760-F30 BLOWER ASSEMBLY



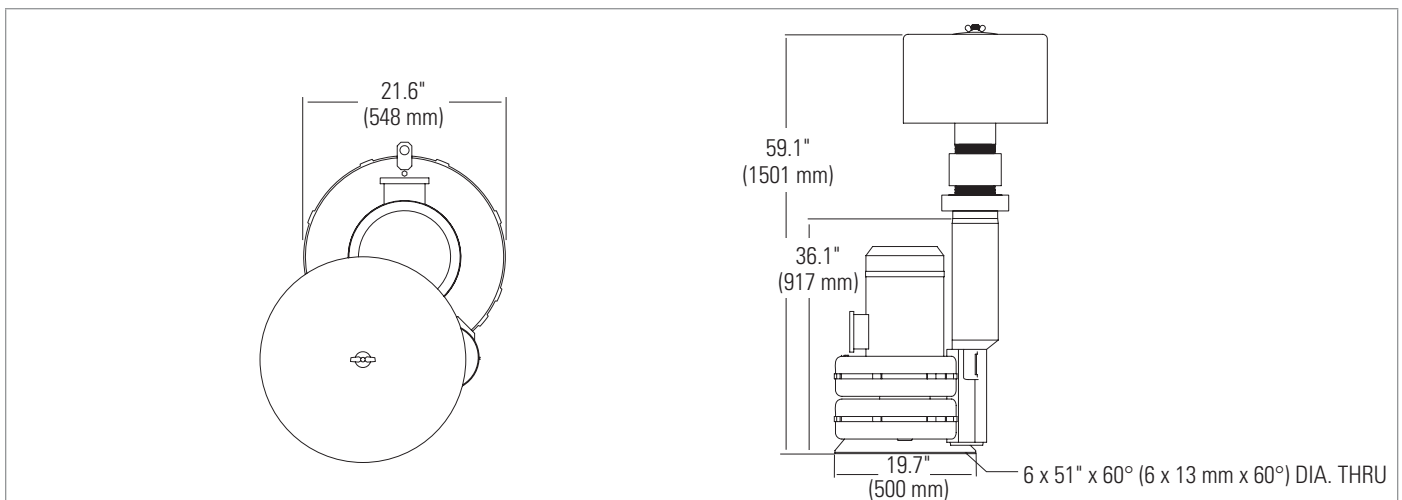
Recommended NEMA Starter Size	3/3
Net Weight	475 lbs. (216 kg)
Conn. Size	6" dia. (152.4 mm)

PERFORMANCE DATA

Model	Power Rating				Maximum Free Air Flow		Maximum Pressure	
	Hp		kW		cfm (m³h)		"H ₂ O (m bar)	
F30	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz
		30	30	22.3	22.3	1254 (2131)	1039 (1765)	70 (174)

To convert "H₂O to psi, multiply "H₂O x 0.03613.

DIMENSIONS

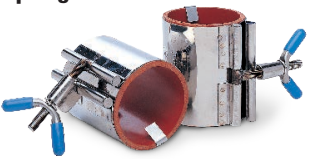




Mounting in vertical plane only.



ENSURE EFFICIENT AIR DELIVERY FROM THE BLOWER TO THE KNIVES

All necessary accessories for mounting and implementing the product into your applications are included in the air knife package. Accessories vary by package.

<p>Mounting Brackets</p> 	<p>These 100% stainless steel adjustable brackets are used for conveniently mounting air knives. Two specialized mounting plates connect to each end cap on the air knife.</p> <p>Request data sheets 50040 and 55158 for dimensions.</p>
<p>Flexible Tubing</p> 	<p>High-temperature, steel-reinforced flexible tubing available in 3" and 6" (76.2 and 152.4 mm) diameters and comes in lengths of 10' (3 m). High-torque, worm-gear clamps are available to attach the flexible tubing.</p>
<p>Couplings</p> 	<p>Unique, easy to use 3" and 6" (76.2 and 152.4 mm) couplings – stainless steel outside, high temperature silicon rubber inside. The couplings compress for use between any rigid connections to prevent air leakage and to add support for the connections. A single built-in clamp is tightened by hand; no special tools are necessary.</p>
<p>Manifolds</p> 	<p>Constructed from high-strength, high-temperature thermoplastic, manifolds allow a single air outlet on the blower to be divided for multiple knives in various ways.</p> <ul style="list-style-type: none"> • Y-divider: Allows for single inlet to be divided into two outlets. Available in both 3" and 6" (76.2 and 152.4 mm) inlet OD, with 3" (76.2 mm) outlet OD • 3-port: Allows for single inlet to be divided into three outlets. Available in both 3" and 6" (76.2 and 152.4 mm) inlet OD, with 3" (76.2 mm) outlet OD. Designed with mounting holes for support • 4-port* (shown): Allows for single inlet to be divided into four outlets. Available in both 3" and 6" (76.2 and 152.4 mm) inlet OD, with 3" (76.2 mm) outlet OD. Designed with mounting holes for support <p><small>*Not available in stainless steel.</small></p> <p>Request data sheets 50773 and 50774 for additional dimensions of manifolds. Stainless steel manifolds also available.</p>
<p>Noise Reduction Options</p> 	<p>Sound Enclosure (shown): Insulating hoods reduce noise by 10 dBA. Metal construction for easy washdown. (Not available for Model F30)</p> <p>Request data sheet 50218.</p>



COMPRESSED AIR PRODUCTS

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OVERVIEW: WINDJET AIR NOZZLES

Air nozzles convert a low-pressure volume of compressed air into a targeted high-velocity concentrated air stream, flat fan or curtain of high-impact air. Ideal for use in many applications, WindJet air nozzles come in a variety of types, capacities, sizes and materials.

WindJet nozzles are widely used for moving materials and cleaning, drying and cooling parts. The high impact provided by these nozzles ensures effective drying and blow-off even for round or oddly shaped products.



The benefits WindJet air nozzles provide:

- A significant reduction in compressed air consumption compared to open pipes. (See Figure 1.)
- Up to 60% reduction in perceived noise level, depending on the initial air pressure. At 100 psig (7 bar), for example, an open pipe would produce a noise level of 98 dBa while an air nozzle would produce 85 dBa, a reduction of 13 dBa and a perceived noise reduction of 60% (See Figure 2.)
- Improved safety. The design of WindJet air nozzles prevents dead-ending should the nozzle accidentally be placed against a flat surface
- The targeted air stream delivered by the nozzles can improve the effectiveness and efficiency of drying and blow-off. More complete drying, even in cracks and crevices is commonly achieved

FIGURE 1.

Air Consumption: Open Pipe vs. Air Nozzles

Open Pipe		Equivalent Impact Using Flat Fan or Round Spray Pattern Air Nozzles	Air Consumption Reduction %	Annual Air Cost Savings* (USD)
Size in. (mm)	Air Consumption SCFM (Nlpm)			
5/32 (4)	19 (538)	1	25%	\$593
1/4 (6)	41 (1161)	2	28%	\$1,432
5/16 (8)	94 (2662)	4	33%	\$3,872
1/2 (12)	177 (5012)	7	35%	\$7,731
5/8 (16)	309 (8750)	12	36%	\$13,833

*Data is based on AA727 and AA707 WindJet air nozzles. Assumes a 16 hour work day, 5 days a week and an operating cost of \$0.50 per 1000 cubic feet of air.

FIGURE 2.

Noise Comparison: Open Pipe vs. Air Nozzles

Air Pressure psig (bar)	Noise Level		Noise Reduction	Perceived Noise Reduction
	5/32" (4 mm) open pipe at a distance of 5 ft. (1.5 m)	Flat Fan or Round Spray Pattern Air Nozzles		
15 (1)	70 dBa	63 dBa	7 dBa	38%
30 (2)	80 dBa	70 dBa	10 dBa	50%
60 (4)	88 dBa	76 dBa	12 dBa	56%
70 (5)	92 dBa	80 dBa	12 dBa	56%
100 (7)	98 dBa	85 dBa	13 dBa	60%

Note: Data is based on AA727 and AA707 WindJet air nozzles.



OVERVIEW: WINDJET LOW FLOW AIR KNIVES

When space is limited and the process cannot tolerate any increase in temperature, WindJet low flow compressed air knives are an excellent option. High velocity, uniform air flows across the entire length of the knife. Drying and blow-off are fast and efficient and minimal air is used. Compared to a 3” (8 cm) pipe with three drilled holes, a 3” (8 cm) WindJet low flow air knife will use approximately 92% less air. Noise level is under 70 dBa in many applications – lower than many compressed air options.



Designed for small areas, low flow air knives are typically mounted close to the target. Maximum knife length (or combined length of all knives) is limited to less than 2’ (61 cm). Applications that only require one or two air knives can experience significant operating cost reductions by using WindJet low flow models.

Benefits of low flow air knives include:

- Efficient – minimal air use
- High velocity, uniform air flow
- Low noise level
- Low profile for ease of mounting

Air Consumption: Open Pipe vs. Low Flow Air Knives

Open Pipe/Drilled Holes in Pipe*			Equivalent Impact Using Low-Flow Air Knives	Air Consumption Reduction %	Annual Air Cost Savings** (USD)
Quantity	Size in. (mm)	Air Consumption scfm (NI/min)			
3	5/32 (4)	57 (1614)	1 (57070-3)	92%	\$6,544
6	5/32 (4)	114 (3228)	1 (57070-6)		\$13,090
12	5/32 (4)	228 (6456)	1 (57070-12)		\$26,178
18	5/32 (4)	342 (9684)	1 (57070-18)		\$39,268
6	1/4 (6)	246 (6966)	1 (57070-6)	89%	\$27,324
12	1/4 (6)	492 (13932)	1 (57070-12)		\$54,648

OVERVIEW: WINDJET AIR AMPLIFIERS

WindJet variable air amplifiers produce a constant, high velocity air stream for very targeted drying and blow-off applications. Efficiency is maximized because additional free air is pulled through the unit along with the compressed air.



Variable air amplifiers typically provide coverage in the 3/4 to 4” (19.1 to 101.6 mm) range at a distance of 6” (152.4 mm). Commonly used for spot drying, blow-off and exhaust operations, WindJet variable air amplifiers are ideally suited to robotic applications as well.

Benefits of using WindJet variable air amplifiers include:

- Extremely efficient use of compressed air – up to 90% less than open pipes and 60% less than air nozzles
- Delivers higher volumes of air and operates at higher pressures than air nozzles for fast drying and blow-off
- Low noise

Air Consumption: Open Pipe vs. Air Amplifiers

Open Pipe		Equivalent Capacity Using Air Amplifiers	Air Consumption Reduction %	Annual Air Cost Savings** (USD)
Size in. (mm)	Air Consumption SCFM (NIpm)			
5/32 (4)	19 (538)	1 (57080-075)	78%	\$1,851
1/4 (6)	41 (1161)	1 (57080-075)	86%	\$4,398
5/16 (8)	94 (2662)	1 (57080-125)	87%	\$10,206
3/8 (10)	118 (3341)	1 (57080-125)	89%	\$13,106
1/2 (12)	177 (5012)	1 (57080-200)	89%	\$19,660
5/8 (16)	309 (8750)	1 (57080-400)	90%	\$34,708

* Spaced at 1” intervals.

** Based on a sixteen-hour, five-day work week, with operating cost of \$0.50 USD per 1000 cubic feet of air.



FEATURES AND BENEFITS

AA727 WINDJET NOZZLES

- Generate efficient, controlled flat fan air pattern for a uniform spray distribution
- Designed to maintain spray pattern integrity
- Available in materials that withstand high temperatures
- Recessed orifices protect against external damage and offer air escape should the nozzles accidentally be placed against a flat surface
- Low noise levels
- Can be mounted side-by-side for air curtain applications



AA707 WINDJET NOZZLES

- Produce tightly directed round spray pattern
- Low noise levels
- Color-coded aluminum caps for easy identification of flow rates
- Recessed orifices



Y767 COMPACT WINDJET NOZZLES

- Short profile – less than half the height of the AA727
- When installing multiple nozzles on a header, a uniform impact air stream is provided without lowering pressure
- Low noise levels



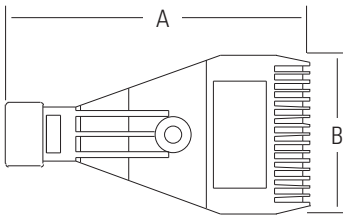
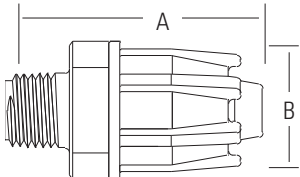
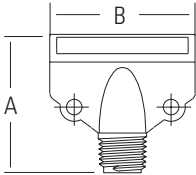
QUICK REFERENCE GUIDE

Model	Connection	Connection Size (in.)	Materials	Max. Operating Temperature
AA727	M	1/4	Polyphenylene sulfide (RY) Aluminum (AL)	At 100 psi (7 bar) 180°F (82°C) 450°F (230°C)
AA727	M or F	1/4	ABS plastic	At 100 psi (7 bar) 170°F (77°C)
AA727	M	1/4	Stainless steel (SS)	At 150 psi (10.3 bar) 500°F (260°C)
AA707	M	1/4	Polyphenylene sulfide (RY) PVDF (KY) Aluminum (AL) Stainless steel (SS) ABS plastic	At 125 psi (8.6 bar) 400°F (204°C) 220°F (104°C) 450°F (230°C) 450°F (230°C) 180°F (82°C)
Y767	M	1/4	ABS plastic	At 100 psi (7 bar) 180°F (82°C)

PERFORMANCE DATA

Inlet Conn. (in.)	Model	Capacity Size	Cap Color (Aluminum Only)	Capacity – scfm (NIpm)			
				10 psi (.7 bar)	30 psi (2 bar)	60 psi (4 bar)	90 psi (6 bar)
1/4 (M, F)	AA727 AA727-F	11	—	5.0 (142)	8.9 (246)	14.4 (396)	19.8 (549)
		15	—	6.8 (193)	12.8 (357)	21.3 (586)	29.6 (816)
		23	—	9.9 (280)	18.4 (510)	30.9 (852)	43.4 (1198)
1/4 (M)	AA707	11	green	5.2 (147)	9.6 (266)	16.0 (442)	22.3 (612)
		15	yellow	6.4 (181)	12.4 (345)	21.0 (578)	29.4 (810)
		23	red	10.4 (294)	19.2 (530)	32.3 (889)	45.0 (1237)
1/4 (M)	Y767	15	—	6.8 (193)	12.8 (357)	21.3 (586)	29.6 (816)

DIMENSIONS AND WEIGHTS

	Model	A in. (mm)	B in. (mm)	Net Weight oz. (kg.)
	AA727 (M)	3-9/16 (91)	2 (51)	4.1 (.12)
	AA727-F (F)	3-9/16 (91)	2 (51)	0.7 (.02)
	AA707 (M)	1-7/8 (48)	1 (25)	1.6 (.05)
	Y767 (M)	1-5/8 (43)	1-11/16 (41)	.25 (.01)

Based on largest/heaviest version of each type.

ORDERING INFORMATION

WINDJET AIR NOZZLES

Nozzle Type	–	Inlet Connection	–	Material	–	Capacity Size
<p>Example: AA707 – 1/4 – SS – 11</p>						

BSPT connections require the addition of a "B". Example: AAB707.

Material Code	
None = ABS plastic	SS = Stainless steel
AL = Aluminum	KY = PVDF (AA707 only)
RY = Polyphenylene sulfide	



FEATURES AND BENEFITS

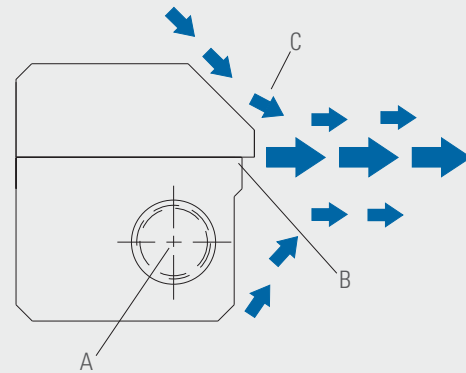
WINDJET LOW FLOW AIR KNIVES

- Ideal for applications using 1 or 2 air knives
- Provide a uniform air flow across the entire length of the knife
- Deliver a high velocity, constant air stream for fast drying and blow-off
- Reduce energy use
- No temperature increase
- Use minimal air
- Maintenance-free; no moving parts
- Lower noise levels, 69 dBa for most applications
- Easy to install and maintain
- Compact and designed for small areas
- 316 stainless steel available for sanitary applications
- Available shim sets to adjust air force and flow. Shim set includes three sizes in PET or 316 stainless steel
- Automatic drain filter available with a 40 micron filter element sized properly for flow



HOW IT WORKS

WindJet Low Flow Air Knives produce a high velocity, constant air stream for optimal performance of your drying and blow-off process. Compressed air flows through an inlet (A) where it is directed to the orifice. The primary air flow exits the thin slotted nozzle orifice across the length of the knife (B) creating a uniform sheet of air. For added force, secondary air is entrained along the edge of the knife (C). The end result is a highly uniform, constant air stream with hard-hitting force.



QUICK REFERENCE GUIDE

Air Knife Standard Lengths in. (cm)	Connection Size (in.)	Shims in. (mm)	Materials	Max. Operating Temperature
3, 6, 12, 18 and 24 (8, 15, 30, 46, and 61)	1/4	Standard Installed .002 (.05) Available In Extra Kit .001 (.03) .003 (.08) .004 (.10)	Aluminum (AL) with Plastic (PETP) shim 316 stainless steel (316SS) with 316SS shim	At 200 psi (13.8 bar) 140°F (60°C) 200°F (93°C)

PERFORMANCE DATA

Supply Pressure psi (bar)	Air Consumption per Inch (25 mm) – scfm (Nlpm)	Velocity @ 6" (150 mm) from orifice – fpm (m/s)	Impact per Inch (25 mm) @ 6" (150 mm) from target – oz. (g.)
20 (1.4)	0.9 (26)	5300 (26.9)	0.5 (15)
40 (2.8)	1.6 (45)	7000 (35.6)	1.1 (31)
60 (4.1)	2.3 (65)	9800 (48.8)	1.9 (53)
80 (5.5)	3.0 (85)	12500 (63.5)	2.6 (75)
100 (6.9)	3.7 (105)	14200 (72.1)	3.4 (95)

WindJet Low Flow Air Knife with .002" thick shim installed.

DIMENSIONS

	Shim Sizes in. (mm)	A in.	B in. (mm)	C in. (mm)	D in. (mm)											
	.001 (.03) .002 (.05) .003 (.08) .004 (.10)	1/4 NPT or BSPT	1.65 (42)	3 (76)	1.53 (39)	1.65 (42)	6 (152)	1.53 (39)	1.65 (42)	12 (305)	1.53 (39)	1.65 (42)	18 (457)	1.53 (39)	1.65 (42)	24 (610)

ORDERING INFORMATION

WINDJET LOW FLOW AIR KNIFE

Part No.	–	Knife Length	–	Material
Example		57070	–	12 – 316SS

BSPT connections require the addition of a "B". Example: B57070.

Material Code

AL = Aluminum

316SS = 316 stainless steel

PETP = Plastic

WINDJET LOW FLOW AIR KNIFE KIT

Part No.	–	Knife Length	–	Material
Example		57060	–	12 – 316SS

Includes an air knife, shim set, filter, pressure regulator and pressure gauge.

Length Code

3 = 3" (8 cm)

6 = 6" (15 cm)

12 = 12" (30 cm)

18 = 18" (46 cm)

24 = 24" (61 cm)

SHIM SET

Part No.	–	Knife Length	–	Material
Example		57075	–	12 – PETP

Includes one each of .001" (.03 mm), .003" (.08 mm) and .004" (.10 mm) thick shims.



FEATURES AND BENEFITS

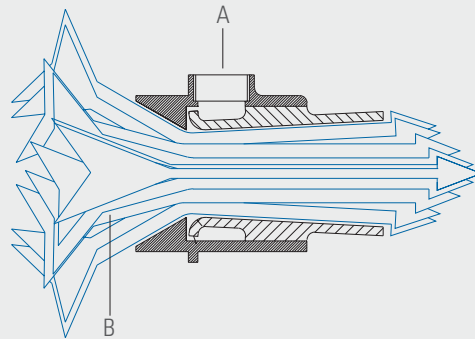
WINDJET VARIABLE AIR AMPLIFIERS

- Ideal for spot drying, blow-off and exhaust applications
- Deliver a targeted high volume, high velocity amplified air stream for fast drying and blow-off
- Save on air consumption while providing higher volumes of air
- Maintenance-free; no moving parts
- Low noise levels – meets OSHA pressure and noise requirements
- Easy to install and maintain
- Adjustable model available for easier maintenance and setting of air amplification
- Kits available with an automatic drain filter with a 50 micron filter element sized properly for flows
- Pressure regulator sized properly for flow is available



HOW IT WORKS

Intensifying precise amounts of compressed air, WindJet Variable Air Amplifiers produce a constant, high velocity air stream for very targeted drying and blow-off applications. Along with the compressed air (A), additional free air (B) is pulled through the unit, resulting in maximum air amplification.



QUICK REFERENCE GUIDE

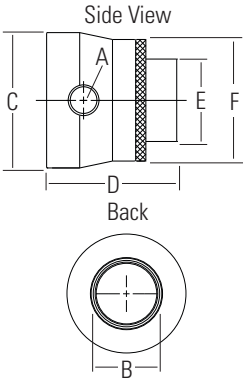
Model	Connection	Connection Size (in.)	Outlet ODs in. (mm)	Materials
57080-075	F	1/8	3/4 (19)	Aluminum (AL), 316 stainless steel (316SS)
57080-125	F	1/4	1-1/4 (32)	Aluminum (AL), 316 stainless steel (316SS)
57080-200	F	3/8	2 (51)	Aluminum (AL), 316 stainless steel (316SS)
57080-400	F	1/2	4 (102)	Aluminum (AL), 316 stainless steel (316SS)

PERFORMANCE DATA

Model	Inlet Connection Size (in.)	Air Consumption scfm (Nlpm)	Amplification Ratio	Air Volume at Outlet scfm (Nlpm)
57080-075	1/8 NPT	9.3 (263)	10	93 (2634)
57080-125	1/4 NPT	13.1 (370)	16	209 (5919)
57080-200	3/8 NPT	21.4 (606)	20	428 (12121)
57080-400	1/2 NPT	50.3 (1424)	24	1207 (34182)

WindJet Variable Amplifier Performance at 80 psi (5.5 bar).

DIMENSIONS AND WEIGHTS

Side View 	Part No.	A (in.)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	F in. (mm)
	57080-075	1/8 NPT	0.45 (11.4)	1.50 (38.1)	2.25 (57.2)	0.75 (19.1)	1.25 (31.8)
57080-125	1/4 NPT	0.85 (21.6)	2.00 (50.8)	2.90 (73.7)	1.25 (31.8)	1.75 (44.5)	
57080-200	3/8 NPT	1.65 (41.9)	3.13 (79.4)	3.25 (82.6)	2.00 (50.8)	2.75 (69.9)	
57080-400	1/2 NPT	3.00 (76.2)	5.00 (127)	5.00 (127)	4.00 (101.6)	4.50 (114.3)	

ORDERING INFORMATION

WINDJET AIR AMPLIFIERS

Part No.	—	Material	Example
			57080 - 075 — 316SS

WINDJET AIR AMPLIFIER KIT

Part No.	—	Connection Code	—	Material	Example
					57085 — 075 — 316SS

WindJet Air Amplifier Kit includes air amplifier, filter, pressure regulator and pressure gauge. BSPT connections require the addition of a "B". Example: B57085.



Air Amplifier Kit

Material Code	Connection Code	
AL = Aluminum	1/8" NPT = 075	3/8" NPT = 200
316SS = 316 stainless steel	1/4" NPT = 125	1/2" NPT = 400

FEATURES AND BENEFITS

UNIJET NOZZLES

- Deliver a wide, uniform flat spray pattern



QUICK REFERENCE GUIDE

Tip Type	Connection	Connection Size (in.)	Materials
L	M or F	1/8, 1/4, 3/8	Brass (none), Stainless steel (SS)
P	M or F		
Q	M or F		
R	M or F		
U	M or F		
V	M or F		

PERFORMANCE DATA

Inlet Conn. (in.)	Tip Type	Width of slot in. (mm)	Capacity scfm (Nlpm)				Coverage at 6" (150 mm)	
			10 psi (.7 bar)	25 psi (2 bar)	50 psi (4 bar)	100 psi (6 bar)	10 psi (1 bar)	50 psi (4 bar)
1/8, 1/4, 3/8 (M or F)	L	.008 (.20)	.60 (17)	1.3 (41)	2.1 (68)	3.6 (93)	10 (275)	16.5 (419)
	P	.013 (.33)	1.2 (34)	2.0 (63)	3.1 (101)	5.4 (140)	5.5 (152)	10 (254)
	Q	.023 (.58)	2.2 (62)	3.9 (123)	6.2 (201)	10.7 (278)	8.5 (228)	13 (330)
	R	.045 (1.1)	3.9 (110)	6.4 (207)	11.0 (357)	19.0 (493)	6 (158)	9.5 (241)
	U	.045 (1.1)	6.3 (178)	11.0 (354)	18.5 (595)	31 (807)	10.5 (275)	14.5 (368)
	V	.091 (2.3)	12.5 (354)	23 (724)	37 (1184)	61 (1591)	9 (238)	13.5 (343)

DIMENSIONS AND WEIGHTS

	Nozzle Type	A in. (mm)	B in. (mm)	Weight oz. (kg.)
	T + Tip	1-13/16 (48)	13/16 (21)	2-1/4 (.06)
TT + Tip	1-7/8 (48)	13/16 (21)	2-1/4 (.06)	

Based on largest/heaviest version of each type.

ORDERING INFORMATION

UNIJET BLOW-OFF NOZZLE

Inlet Conn.

Body Type

-

Material

+

Tip Type

-

Material

Example

1/4

T

-

SS

+

L

-

SS

BSPT connections require the addition of a "B" prior to the nozzle body inlet connection.

UNIJET BLOW-OFF TIP ONLY

Tip Prefix

Tip Type

-

Material

Example

TB

L

-

SS

Material Code

(none) = Brass

SS = Stainless steel

FEATURES AND BENEFITS

STAY-N-PLACE HOSES AND MAGNETIC MOUNTING BASES

- Easy-to-use, flexible source of targeted air that is changeable from application to application
- Complete control for targeted, precise air blow-off
- Once the hose is positioned in place, it will not move or relax its position
- Build your own configuration to fit your unique applications
- Work with a variety of air control and standard spray nozzles
- The magnetic base, with built-in valves, can be mounted vertically or horizontally
- Use only with air



QUICK REFERENCE GUIDE – STAY-N-PLACE HOSES

Model	Connection	Connection Size (in.)	Hose Lengths in. (cm)	Max. Operating Temperature	Max. Operating Pressure psi (bar)	Max. Operating Flow
57025	M x M	1/4 x 1/4	6, 12, 18, 24, 30 and 36 (15, 30, 46, 61, 76 and 91)	Air: 250°F (121°C)	250 (17.2)	At 250 psi (17.2 bar) 33 scfm (934 Nlpm)
57020	M x F	1/4 x 1/4				

ORDERING INFORMATION

STAY-N-PLACE HOSES



BSPT connections require the addition of a "B". Example: B57020.

MAGNETIC MOUNTING BASE



Single (001) or double (002) outlet models available.
BSPT connections require the addition of a "B". Example: B57045.

FEATURES AND BENEFITS

MODEL 11438 AIR LINE FILTER

- Removes liquid and solid contaminants from air lines
- Automatic or manual drain
- Protects equipment from corrosion and excessive wear
- Maximum operating pressure: 150 psi (10 bar)
- Maximum temperature: 125°F (50°C)



FEATURES AND BENEFITS

MODEL 26383 AND 26385 PRESSURE GAUGES

- Offer stable, accurate needle readings up to the rated maximum pressure
- Bottom inlet or center back inlet connection – 1/8" or 1/4" NPT (M)
- Maximum pressure ranges: 60 to 300 psi (4.2 to 21 bar)



PERFORMANCE DATA –

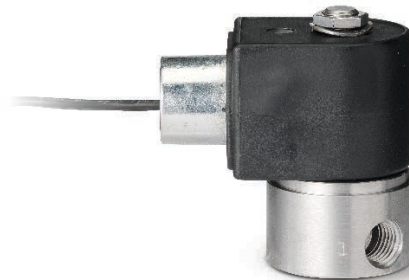
MODEL 26383 AND 26385 PRESSURE GAUGES

Gauge Type	Inlet Conn. (M)	Pressure Rating psi (bar)	Optimum Operating Range psi (bar)
26383	1/4	60 (4.2)	15-45 (1.0-3.1)
		100 (6.9)	25-75 (1.7-5.2)
		160 (11.0)	40-120 (2.8-8.3)
26385	1/4	60 (4)	15 – 45 (1.0 – 3.1)
		100 (7)	25 – 75 (1.7 – 5.2)
		160 (11)	40 – 120 (2.8 – 8.3)
		300 (21)	75 – 225 (5.2 – 15.5)

FEATURES AND BENEFITS

2-WAY SOLENOID VALVE

- Designed for automatically operated systems requiring on/off flow
- Air and liquid temperature ranges: 40°F to 165°F (5°C to 75°C)
- Features UL and CSA approved ten-watt, class "F" coils for continuous duty
- Ambient operating temperatures: 15°F to 122°F (-10°C to 50°C)
- Coils rated for dual frequency operation and international use
- Resists high humidity and fungus growth
- Electric connection: 1/2" NPT



PERFORMANCE DATA – 2-WAY SOLENOID VALVE

Main Port NPT (F) in.	Model	Valve Type	Valve Action	Max. Pressure psi (bar)	Orifice Size in. (mm)	Cv Factor**	Body Material	Seal Material	
1/4	11438-20	2-Way	Direct Acting	60* (4)	3/16 (4.8)	.40	Stainless steel	Viton®	
1/4	11438-21		Poppet	205* (14)	1/8 (3.2)	.28			
3/8	11438-22		Pilot-Operated	Diaph.	150* (10)	7/16 (11)	2.5	Forged or cast brass	Buna-N
1/2	11438-23				150* (10)	5/8 (16)	4.0		
3/4	11438-24				230 (16)	3/4 (19)	9.5		
1	11438-25				230 (16)	1 (25)	13.0		

* For maximum pressures of coils "C" and "D", ask for Data Sheet 11438 - Solenoid (1). ** For use of Cv Factor, ask for Data Sheet 11438 - Solenoid (2). Viton® is a registered trademark of DuPont Performance Elastomers. Kel-F® is a registered trademark of 3M Company.



FEATURES AND BENEFITS

MODEL 36275 ADJUSTABLE BALL FITTING

- Provides adjustable positioning of nozzle for more exact control of spray direction
- Permits accurate pipe alignment and nozzle positioning without disturbing the pipe connection
- Enables easy removal and cleaning of nozzles
- Small fitting diameter enables use in applications requiring a compact size
- Maximum pressure rating: 300 psi (21 bar)



PERFORMANCE DATA – MODEL 36275 ADJUSTABLE BALL FITTING

Adjustable Ball Fitting	Total Included Angle of Adjustment	Inlet Conn. (M) in.	Outlet Conn. (F) in.
36275	45°	1/8	1/8
		1/4	1/4
		1/4	1/8
		3/8	3/8
		3/8	1/4
		1/2	1/2
		1/2	1/4
		1/2	3/8
		3/4	3/4

FEATURES AND BENEFITS

MODEL 11438 AIR PRESSURE REGULATOR

- Diaphragm-type air pressure regulator
- Balanced valve design in two styles: relieving and non-relieving
- Relieving automatically relieves excessive pressure in a regulated air line
- Non-relieving requires some other means of relief to reduce trapped pressure
- Body and bonnet material: die cast aluminum, zinc or stainless steel



PERFORMANCE DATA – MODEL 11438 AIR PRESSURE REGULATOR

Main Port NPT (F) in.	Gauge Ports NPT (F) in.	Model	
		Relieving	Non-Relieving
1/4	1/4	11438-45	11438-35
3/8	1/4	11438-46	11438-36
1/2	1/4	11438-47	11438-37
3/4	1/4	11438-48	11438-38
1	1/4	11438-49	11438-39



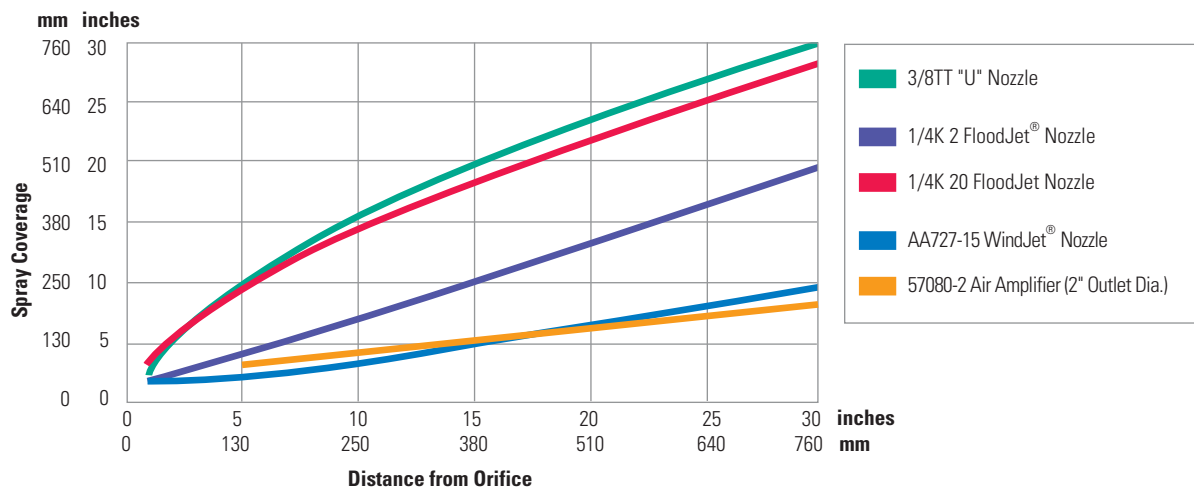
OPTIMIZATION BEGINS WITH PROPER SELECTION

There are four main characteristics that should be considered when selecting air nozzles – effective spray coverage, sound level, lineal impact force and specific impact force. The following information provides selection guidelines but it is always best to consult with a local sales engineer.

EFFECTIVE SPRAY COVERAGE

Spray coverage is the width of the spray pattern for a flat fan air nozzle. Effective spray coverage is the width of the fan, which comprises a minimum spray force measurement. This coverage can be used as a guide for spacing nozzles. Effective spray coverage varies for different types of air nozzles. In general, effective coverage generally increases as distance from the nozzle increases.

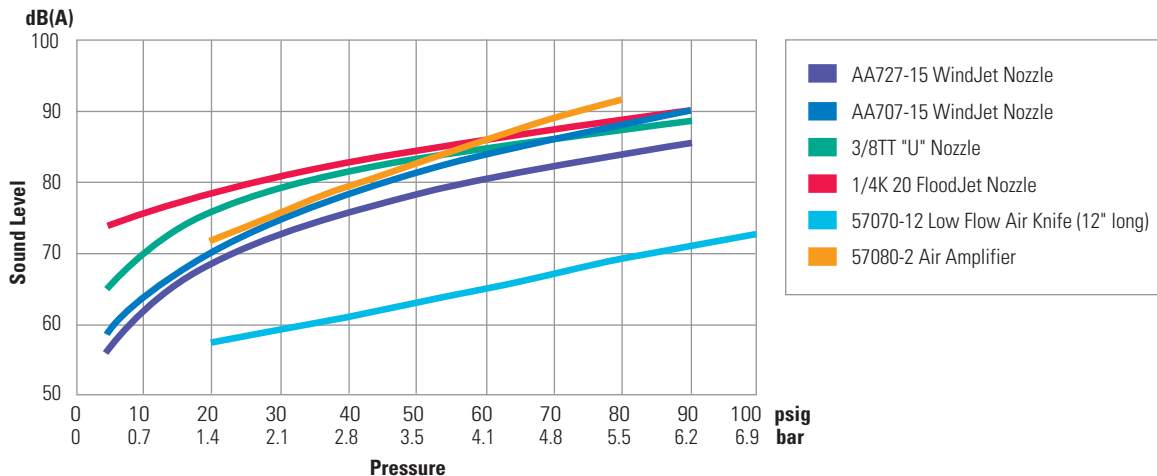
EFFECTIVE SPRAY COVERAGE AT 40 PSIG (2.8 BAR) SELECTED AIR NOZZLES



SOUND LEVEL

Capacity, air pressure and how the nozzle is positioned all impact noise. Higher flow rates and higher pressures generally increase noise levels. Obstructions in the nozzle’s path or spraying against objects will also increase sound levels.

SOUND LEVEL AT 3 FEET (0.9M) SELECTED AIR PRODUCTS



LINEAL AND SPECIFIC IMPACT FORCE

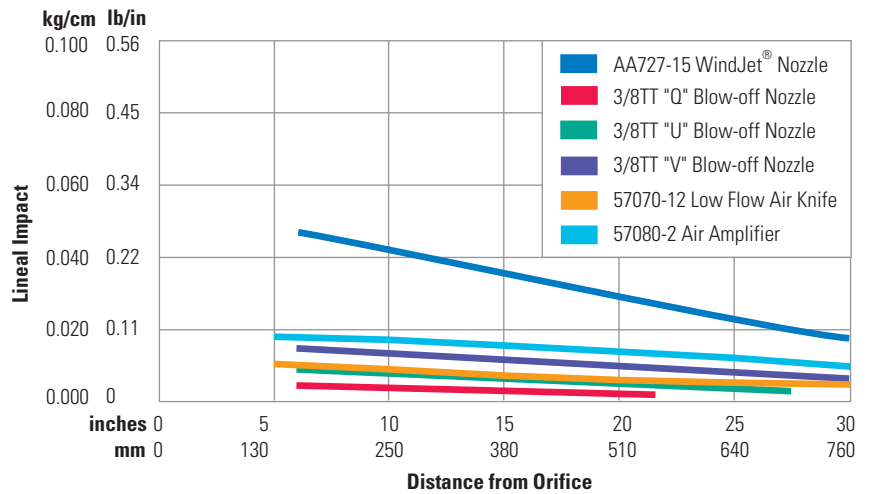
There are two types of impact to consider when selecting air nozzles: lineal impact and maximum specific impact.

Lineal impact indicates relative force per unit distance across the spray width. Flat spray patterns have fairly uniform impact distribution across the effective spray coverage. Spacing of nozzles in a header according to the effective spray coverage will provide consistent lineal impact across the entire target surface.

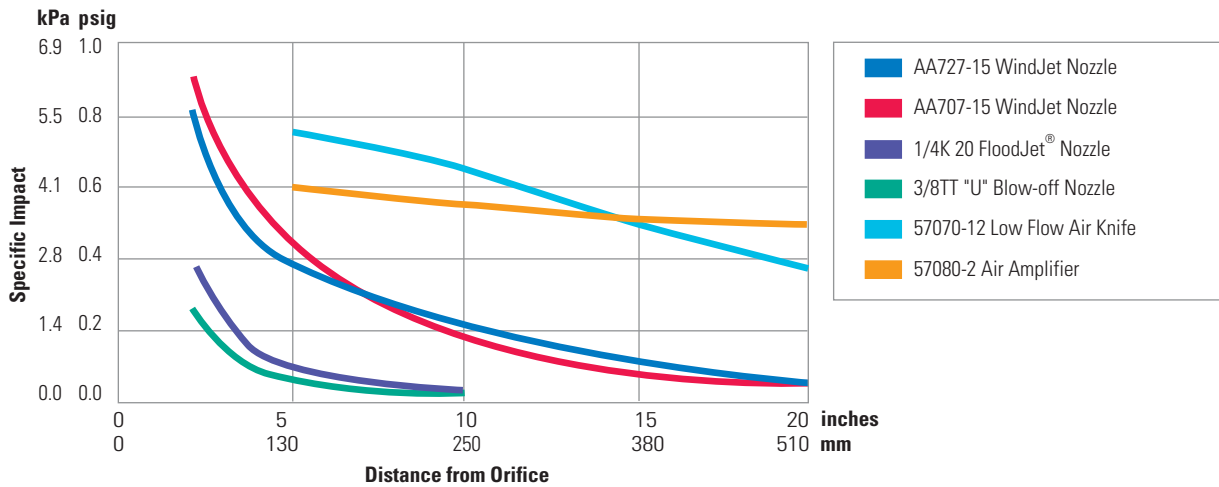
Maximum specific impact is a direct indication of spray intensity applied to a surface. It provides maximum force per unit area information, which can be used to compare spray effectiveness under various conditions.

In general, both lineal and specific impact increase with pressure. A nozzle with a narrower coverage will have greater impact than one with a wider coverage.

LINEAL IMPACT AT 40PSIG (2.8 BAR) SELECTED AIR PRODUCTS



MAXIMUM SPECIFIC IMPACT AT 40PSIG (2.8 BAR) SELECTED AIR NOZZLES



PERFORMANCE-ENHANCING TIPS

- To minimize air consumption and reduce noise, specify the lowest-flow nozzle
- To reduce noise caused by air impacting its target, increase the distance between the nozzle and the target when possible
- To reduce the number of nozzles required, position nozzles to swipe sideways across a moving target at a comparatively shallow angle
- When creating an air curtain, place nozzles up to 12" (305 mm) apart
- When using air nozzles for cleaning, angle the nozzles 15° to 45° to ensure contaminant removal
- Proper filtration of compressed air is important. Use a filter/separator to remove excess oil and water just prior to the nozzles
- Use a pressure regulator and gauge on the air line to keep pressure as low as possible to minimize operating costs and noise and improve safety
- For simple, accurate adjustment of nozzle orientation, install adjustable ball joints with air nozzles

LITERATURE

Industrial Spray Products, Catalogs 75-HYD and 76 AA-AUTO

Technical data and problem solving ideas for industry-leading range of hydraulic spray products, automatic nozzles and air atomizing nozzles.



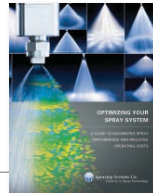
Quick-Connect Nozzle Systems, Bulletin 513D

Detailing our line of quick-connect nozzles, this brochure covers the time-saving installation and maintenance features of these nozzles including a “snap-on” pipe connection, easy-to-install and replace spray tips and double clamp assemblies. Performance data, assembly options and ordering information are included.



Optimizing Your Spray System, Technical Manual 410

Educational handbook explains how to evaluate your spray system, uncover and solve costly problems, improve quality, reduce maintenance time and more.



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