



BEX Spray Nozzles

Catalogue 61

Spray Nozzles, Eductors, Air Atomizers, Accessories



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SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE. Visit www.BEX.com for updated spec data, or contact us.

**This catalogue lists the most popular BEX products. Many others are available, often in specialty materials.*



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Technical Information

Spray Nozzles

Spray nozzles are used to control various aspects of liquid streams, such as flow rate, speed, direction, mass, shape, and pressure. The choice of nozzle type depends on the specific application and desired outcome.

When designing a spraying system, there are numerous factors to consider. BEX has a team of experts who can provide recommendations to help you save time, money, and effort. However, this section

of the catalogue is intended to give our customers a better understanding of the key factors to consider when building or improving a spraying system.

If you require further assistance, please don't hesitate to contact BEX's customer support team. We will be more than happy to help you directly.



Selecting the Right Material

BEX offers its products in a variety of materials to suit different applications. Choosing the right material for a nozzle depends on various factors, such as the level of abrasion, chemical resistance, temperature resistance, and cost required for the specific application.

While there are some industry standards to follow, such as the use of 316SS or PVDF for food-related applications to meet FDA inspection standards, or PVDF preferred in the printed circuit board industry to handle etching liquid, the most commonly used materials in industrial applications are Brass, 303SS, and 316SS.



Standard Alloys

The alloys listed as standard materials are used in the majority of BEX products, and are available for purchase in our online store.

Material	Material Code	Abrasion Resistance	Temp. Resistance	Corrosion Resistance	Food Grade
B Brass	B				✗
I Steel	I				✗
3 303SS	3				✗
6 316SS	6				✓

NOTE: The color coded system for standard materials in these tables are not always indicative of the color of the part.

Brass: Cost effective solution, capable of performing in most industrial applications.

Steel: Not all BEX products are available in this grade of steel. (Material code I references Steel in Spray Nozzles, and Cast Iron in Educators.)

303 Stainless Steel: An austenitic stainless steel, capable of performing in most industrial applications.

316 Stainless Steel: An austenitic stainless steel, and a standard material used in food and pharmaceutical applications.

Plastics

Most standard BEX nozzles are readily available in a variety of plastic materials. Plastic nozzles are typically listed separately from their Stainless steel counterparts. See “Injection Molded” parts.

Material	Material Code	Abrasion Resistance	Temp. Resistance	Chemical Resistance	Food Grade
V PVC	V	● ● ○ ○ ○	● ● ○ ○ ○	● ● ○ ○ ○	✗
A CPVC	A	● ● ○ ○ ○	● ● ● ○ ○	● ● ● ○ ○	✗
L LL Polypropylene	L	● ● ○ ○ ○	● ● ○ ○ ○	● ● ● ○ ○	✗
K KK PVDF	K	● ● ● ● ○	● ● ○ ○ ○	● ● ● ○ ○	✓
T Teflon	T	● ● ○ ○ ○	● ● ● ● ○	● ● ● ● ●	✓
KN Nat. PVDF	KN	● ● ● ● ○	● ● ○ ○ ○	● ● ● ○ ○	✓
LN Nat. Polypropylene	LN	● ● ○ ○ ○	● ● ○ ○ ○	● ● ● ○ ○	✗

PVC (Polyvinyl Chloride): A cost effective, readily available material.

CPVC: Very similar to PVC, but provides significantly better chemical and temperature resistance.

Polypropylene: The most common plastic material in BEX’s catalogue. A thermoplastic polymer, excellent for caustic cleaning and powder coating applications.

PVDF (Kynar): A reliable thermoplastic typically used in applications which require resistance to solvents, acids, hydrocarbons and sunlight. This material cannot be used for caustic cleaning.

Teflon: Typically used in food and pharmaceutical applications, extremely chemically resistant.

Specialty Materials

In addition to the commonly used materials, BEX is also capable of using specialty alloys and plastics to meet specific needs in unique applications. However, these materials are not listed in the online store, and customers are

advised to contact a BEX representative or the customer support team if they require a part made in a specialty material. BEX is committed to providing customized solutions to customers in all industries.



Material	Material Code	Abrasion Resistance	Temp. Resistance	Corrosion Resistance	Food Grade
4 304 SS	4	● ● ● ● ○	● ● ● ● ○	● ● ● ○ ○	✗
R 316L SS	R	● ● ● ● ○	● ● ● ● ○	● ● ● ● ○	✓
416 416 SS	416	● ● ● ● ●	● ● ● ● ●	● ● ● ○ ○	✓
E Hastelloy	E	● ● ● ● ○	● ● ● ● ○	● ● ● ● ●	✗
N Titanium	N	● ● ● ○ ○	● ● ● ● ●	● ● ● ● ●	✗
O Monel	O	● ● ● ● ○	● ● ● ● ○	● ● ● ● ●	✗
C Carpenter 20	C	● ● ● ● ○	● ● ● ● ○	● ● ● ● ○	✗

304 Stainless Steel: An austenitic stainless steel typically used in our split eyelet assemblies.

316L Stainless Steel: Very similar to 316SS, but it is a low-carbon material which is ideal for welding.

416 Stainless Steel: Up to four times more abrasion resistant than 316 when hardened.

Hastelloy: A nickel-based steel alloy. A good choice in chemical applications due to its ability to prevent oxidization of the metal.

Titanium: Typically used in aerospace technologies. It is less dense than steel, which makes it slightly less resistance to abrasions.

Monel: Ideal for chemical plants using sulfuric acid and hydrofluoric acid.

Carpenter 20: A material developed to prevent corrosion in sulfuric acid applications.

Selecting The Right Connection

BEX offers innovative solutions for connecting our Spray Nozzles to pipes, allowing for ease-of-use and compatibility with practically any system.

Threaded Connection

Refer to page 12

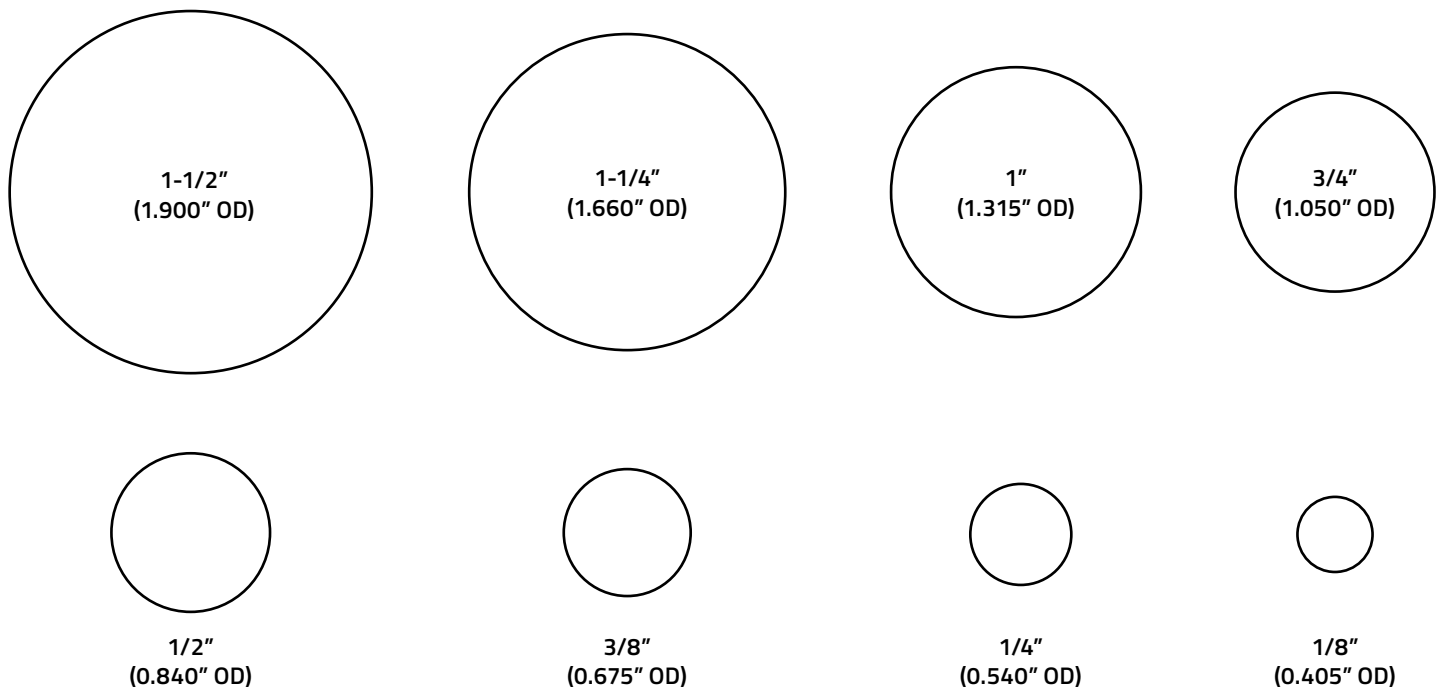
Threaded nozzles provide a simple connection method by screwing a tapered nozzle into a pipe thread. BEX provides all nozzles with either NPT or BSPT threads, in various sizes. It is important to note that NPT and BSPT threads are not compatible with each other, and confusing these thread styles could result in leaky products or damaged threads. It is essential to select the correct thread style for your specific application to ensure proper operation of the nozzle.

National Pipe Thread (NPT) is the most common thread for pipes and nozzles in North America. It is different from the thread on a regular bolt and nut because the thread has a taper. These tapered threads are designed to lock together when tightened.

British Standard Pipe Thread (BSPT) is used mostly in Europe and the UK. BEX distinguishes our BSPT nozzles by machining a notch in the hex shaped part of the nozzle.



Standard threaded nozzles are available in the following common sizes.



*This image is to scale with the diameter of the thread

Zip-Tip Quick Disconnect

Refer to page 106



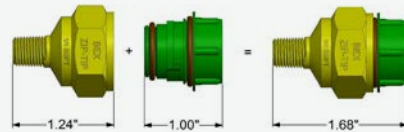
The quick disconnect, or Zip-Tip nozzle, is a two-piece system utilizing a nozzle body and a nozzle tip. The body threads into the source, and the nozzle tip is inserted by hand into the body with a quick, quarter turn clockwise. This allows for fast, tool free nozzle removal, making the system much easier to maintain and clean.

Zip-Tip series nozzles are available in metal and plastic materials, and can produce all standard spray patterns (flat, full cone, hollow cone, and solid stream). Zip-Tips are indicated with a "Z" before the Model ID (ie. ZFL is the Zip-Tip variation of the threaded FL nozzle).



ZF Nozzle

Zip Tip Nozzle Body
Standard O-Rings
Zip Tip Nozzle Tip

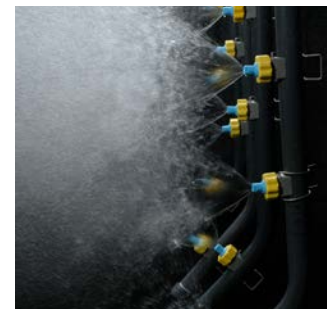


Clip-On Connection

Refer to page 142

The K-Ball Clip On Connection System is a versatile mounting method used to install a wide variety of nozzles. The main benefits are easy installation and replacing, as well as added flexibility with the spray orientation. Installation is done by drilling a 9/16" diameter hole into the

pipe. A body and spring clip combination fits into the hole and snaps around the pipe. Ball and socket design allow for easy removal and positioning of the nozzle or educator. K-Balls are available in multiple variations, allowing for many different spray patterns.



Alternative Connection Options

Refer to pages 147-149



Threaded Body

Adapter which allows a K-Ball to be tightened into a threaded hole.



Threaded Adapter

A Clip-On body with a female threaded connection.



KBD Adapter

Used in a K-Ball Assembly to accept a threaded nozzle.



KZBD Adapter

Used in a K-Ball Assembly to accept a Zip-Tip nozzle.

Spray Characteristics

Spray Pattern

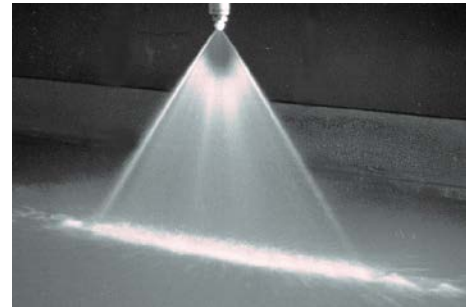
The most common spray patterns in most industrial applications are flat, full cone, hollow cone and solid stream. Each pattern offers its own advantages with respect to atomization, impact, and other properties.

Flat Fan

A Flat Fan spray is a common pattern for spray nozzles. It produces a narrow, straight spray with tapered edges, which allows overlapping of spray patterns. The spray can be produced in one of two methods: by making the orifice elliptical in shape (F series), or by deflecting the spray off a ramp (FP or FL series).

Fan-shaped sprays are commonly used in applications where the target is moving past the spray, such as on a chain conveyor or in a car wash. These sprays concentrate the impact of the spray in a small area, resulting in higher impact and effective cleaning.

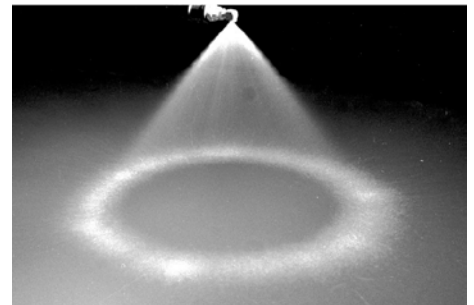
Typical applications for fan-shaped sprays include parts cleaning, metal washing, foam control, asphalt spraying, car washes, and dishwashers, among others.



Hollow Cone

Hollow cone spray nozzles create a circular spray pattern with low impact, and they are designed to swirl the liquid stream. The swirling action is generated either by directing the flow around a swirl chamber (H series), or by using a deflection ramp that allows the liquid to deflect 360° (YH series).

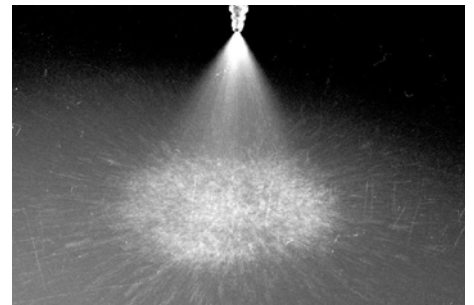
Hollow cone nozzles are commonly used for applications such as dust suppression and humidity control due to their ability to create small droplets.



Full Cone

Full cone spray patterns are used to produce a full and even round spray. They are created in a few different ways, with the most common method using an insert inside the nozzle to create a swirling action. Full cone patterns can also be achieved by deflecting a stream of water off a tapered spiral.

These nozzles are commonly used for rinsing stationary targets such as in printed circuit board etching, as well as in washing, chemical processing, casting, gas scrubbing, and pollution control applications. BEX also offers products that produce a square spray pattern.



Solid Stream

A solid stream spray delivers a straight and high-impact spray. Unlike other spray patterns, a solid stream concentrates all of the impact in a small spot, resulting in a focused area of impact with high kinetic energy.

Solid stream sprays are commonly used for high impingement applications such as fiber cutting, metal washing, agitation, mixing, and other industrial processes that require precise and powerful water jets.



Flow Rate

The term “flow rate” refers to the amount of liquid that a nozzle can spray within a specific time period. BEX offers a range of spray nozzles that can handle flow rates from as low as 0.45 US Gallons Per Hour (GPH) up to models capable of 968 US Gallons Per Minute (GPM). For context, spraying water at 0.45 GPH will take a significant amount of time just for an object to get wet, while one nozzle with a flow rate of 968 GPM can fill an Olympic size swimming pool in just under twelve hours.

The flow rate of a nozzle is affected by three primary factors: operating pressure, viscosity, and specific gravity.

Operating Pressure

In this catalogue, operating pressure is measured in PSI. The values given in the capacity tables for each product are the most commonly used pressure ranges.

The flow rate of a liquid is proportional to the square root of the pressure difference between the pressure liquid and external conditions (usually atmospheric). This means that a higher pressure generally results in finer spray atomization, greater spray impact, and greater spraying distance. To find the flow rate at a different pressure compared to what you know, the following formula is used:

$$\frac{\text{Flow A}}{\text{Flow B}} = \frac{\sqrt{\text{Pressure A}}}{\sqrt{\text{Pressure B}}}$$

Viscosity

Viscosity measures how much a fluid resists flowing or changing its shape. BEX tables list flow rates based on the viscosity of water.

When a fluid has low viscosity, it will create a wider spray angle and produce higher velocity and impact. However, this may cause the nozzle to wear down more quickly, and result in smaller droplets being produced.

On the other hand, fluids with high viscosity will create a reduced spray angle and flow rate, while also distorting the spray pattern. This results in larger droplets being produced, while velocity and impact decrease.



Specific Gravity

The specific gravity of a liquid is the ratio of its density to the density of water. It has a significant impact on flow rate. The flow rates listed in this catalogue are based on the assumption that water, with a specific gravity of 1.0, is being used. If a liquid with a different specific gravity is being used, its flow rate can be calculated using the following formula:

$$\text{Flow} = \text{Water Flow} \times \frac{1}{\sqrt{\text{Spec. gravity}}}$$

For assistance in understanding how these concepts may affect your application, please contact your local BEX representative.

Impact

Spray impingement, or spray impact, can be measured in various ways. The commonly used metric to evaluate nozzle performance is “impact per square inch,” which depends on the spray pattern and angle. To calculate the impact per square inch of a specific nozzle, you need to determine the theoretical total impact by using the formula given below:

Theoretical Total Impact Spraying Water (pound-force) =

$$.0526 \times (\text{gpm at spraying pressure}) \times \sqrt{\text{spraying pressure, psi}}$$

Impact in pounds per square inch is attained by solid stream nozzles and can be calculated using the formula:

$$1.9 \times \text{Spraying Pressure(PSI)}$$

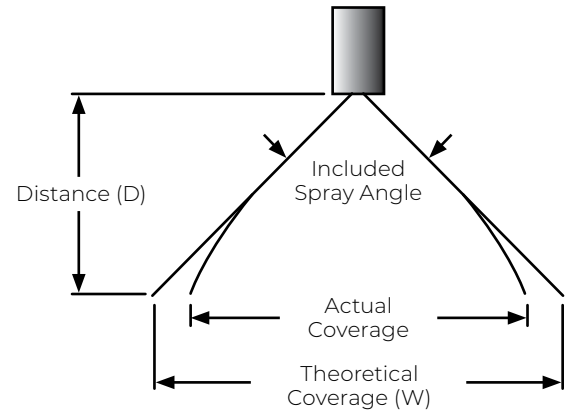
Spray Pattern Type	Spray Angle	Percent Impact per sq. in. of Theoretical Total Impact
Flat Fan	15°	30%
	25°	20%
	35°	15%
	40°	12%
	50°	10%
	65°	7%
Full Cone	80°	5%
	15°	10%
	30°	2%
	50°	1%
	65°	0.5%
	80°	0.2%
Hollow Cone	100°	0.1%
	70°	1.5%

Spray Angle and Coverage

The width of the spray, and the distance from the spray target, are both important factors to consider in any spraying system. Understanding how these two factors relate to each other can help optimize your application to achieve maximum effectiveness.

The spray angles listed in this catalogue are measured near the orifice under controlled conditions using water. Under low pressure, the sides of the spray may curve inward due to the acceleration of gravity. Spray angles may also be reduced due to the tendency of spray patterns to interfere with themselves or with overlapping spray patterns from adjacent nozzles.

For this reason, when multiple nozzles are spraying in succession, having a little bit of overlap between the spray fans can be beneficial when trying to achieve a consistent distribution of liquid.



INCLUDED SPRAY ANGLE	W/D RATIO	Theoretical coverage (W) at various distances (D) from the nozzle									
		Distance (D) inches									
		2	3	4	6	8	12	16	24	34	48
5°	0.087	0.2	0.3	0.3	0.5	0.7	1.0	1.4	2.1	3.0	4.2
10°	0.175	0.3	0.5	0.7	1.0	1.4	2.1	2.8	4.2	5.9	8.4
15°	0.263	0.5	0.8	1.1	1.6	2.1	3.2	4.2	6.3	9.0	12.6
20°	0.353	0.7	1.1	1.4	2.1	2.8	4.2	5.6	8.5	12.0	16.9
25°	0.443	0.9	1.3	1.8	2.7	3.5	5.3	7.1	10.6	15.1	21.3
30°	0.536	1.1	1.6	2.1	3.2	4.3	6.4	8.6	12.9	18.2	25.7
35°	0.631	1.3	1.9	2.5	3.8	5.0	7.6	10.1	15.1	21.4	30.3
40°	0.728	1.5	2.2	2.9	4.4	5.8	8.7	11.6	17.5	24.7	34.9
45°	0.828	1.7	2.5	3.3	5.0	6.6	9.9	13.3	19.9	28.2	39.8
50°	0.933	1.9	2.8	3.7	5.6	7.5	11.2	14.9	22.4	31.7	45
55°	1.04	2.1	3.1	4.2	6.2	8.3	12.5	16.7	25.0	35.4	50
60°	1.15	2.3	3.5	4.6	6.9	9.2	13.9	18.5	27.7	39.3	55
65°	1.27	2.5	3.8	5.1	7.6	10.2	15.3	20.4	30.6	43	61
70°	1.40	2.8	4.2	5.6	8.4	11.2	16.8	22.4	33.6	48	67
75°	1.53	3.1	4.6	6.1	9.2	12.3	18.4	24.6	36.8	52	74
80°	1.68	3.4	5.0	6.7	10.1	13.4	20.1	26.9	40	57	81
85°	1.83	3.7	5.5	7.3	11.0	14.7	22.0	29.3	44	62	88
90°	2.00	4.0	6.0	8.0	12.0	16.0	24.0	32.0	48	68	96
95°	2.18	4.4	6.5	8.7	13.1	17.5	26.2	34.9	52	74	105
100°	2.38	4.8	7.2	9.5	14.3	19.1	28.6	38.1	57	81	114
110°	2.86	5.7	8.6	11.4	17.1	22.9	34.3	46	69	97	137
120°	3.46	6.9	10.4	13.9	20.8	27.7	42	55	83	118	166
130°	4.29	8.6	12.9	17.2	25.7	34.3	51	69	103	146	206
140°	5.49	11.0	16.5	22.0	33.0	44	66	88	132	187	264
150°	7.46	14.9	22.4	29.9	45	60	90	119	179	254	358

To find the width of a spray (W) at any distance (D), multiply the W/D ratio by the distance.

Atomization/Droplet Size

Atomization refers to the size of droplets that are sprayed from a nozzle. These droplets are measured in microns. The size of droplets can vary depending on the operating pressure and viscosity.

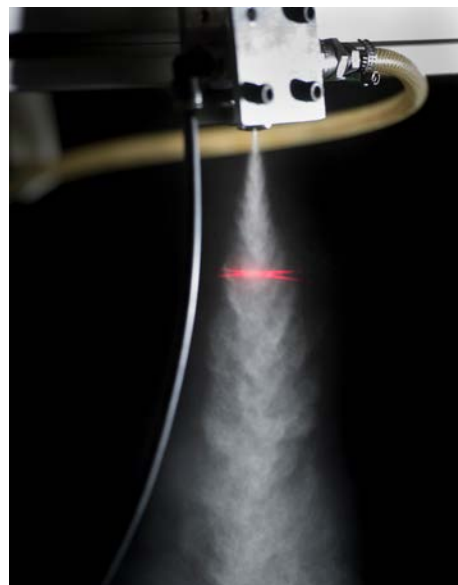
Atomization levels can also differ within a spray pattern, resulting in a range of particle sizes with some average value that changes based on the conditions. Spray

droplet sizes are not listed in this catalogue, but if you require this information for critical applications, BEX can provide measurements using our in-house laser doppler anemometry equipment.

Spray Drop Size (Atomization)

One Inch = 24,000 Microns

- 500 Microns
- 1,200 Microns
- 5,500 Microns



Troubleshooting Nozzle Maintenance Tips

The longevity of BEX nozzles is almost completely determined by how they are being used, and how frequently they are being maintained. Following these tips will maintain peak performance and reduce potential problems, saving you money and time.

- ▶ **Use the Right Material for your Application:** Certain materials are more suitable than others based on the nature of the application. Using the wrong material can result in rapid wear and tear due to corrosion and erosion caused by specific chemicals, temperatures, or pressures. To determine the best nozzle material for your application, refer to page 3 for guidelines, or consult with your chemical supplier and/or system designer.
- ▶ **Clean Nozzles Regularly:** Regular nozzle inspection will help identify nozzles which need cleaning. Frequently bathing nozzles in a cleaning solution, such as CLR, can help to improve their longevity. Be careful to clean nozzles only with soft tools, since the orifice or other important edges and surfaces could be damaged.
- ▶ **Decrease Operating Pressures or Temperatures:** Higher pressures and temperatures can significantly reduce the lifespan of plastic nozzles. It may be necessary to operate under these conditions for your specific process, but reducing pressure or temperature could help extend the life of the nozzle.
- ▶ **Reduce the Amount of Abrasives in the System:** Filters are sometimes necessary to prevent unexpected abrasives from entering the fluid system which causes excessive wear on spray nozzles, piping, and pumps.
- ▶ **Change Nozzle Type or Size:** If troubleshooting is unsuccessful, it is recommended that a different style of nozzle be used.
- ▶ **Replace Nozzles:** Due to the nature of how nozzles are used, they will eventually expire. Spray nozzle turnover will be different for every application, and can vary from minutes to years depending on all the factors discussed in this section of the catalogue.



Common Nozzle Problems

Spray nozzles may deteriorate due to a variety of reasons, even under normal operating conditions. Here are some common examples of problems that can occur.

- ▶ **Corrosion:** Nozzle corrosion can occur due to chemical reactions between the nozzle material and process chemicals, leading to wear and degradation. If wear occurs more quickly than expected, it's important to check with the chemical supplier or system designer to explore alternative nozzle material options. (Figure 1)
- ▶ **Temperature:** Hot temperatures can lead to physical damage or melting of nozzles made of materials that are not suitable for such high temperatures. (Figure 2)
- ▶ **Clogging:** Clogging can occur when particles larger than the nozzle's maximum free passage are present in the fluid, which can be caused by many chemical compounds. (Figure 3)
- ▶ **Caking:** Chemical buildup on nozzle surfaces can also cause clogging over time by gradually restricting the flow, leading to the eventual blockage of the nozzle orifice or internal passages. (Figure 4)
- ▶ **Incorrect Assembly:** Care must be taken when reassembling a nozzle. Internal components must be installed correctly or the nozzle will not perform as intended. (Figure 5)
- ▶ **Mechanical Damage:** Mechanical damage can occur to a spray nozzle due to cross threading, over tightening, or stripping the hex. It's important to inspect a damaged nozzle, and if difficult to remove, it may become even more challenging to replace. (Figure 6)
- ▶ **Erosion/Wear:** As fluid passes through the orifice and internal passages of the nozzle, the critical surfaces can become worn, leading to poor quality spray.
- ▶ **Low Flow Rate:** Low flow rate can significantly impact the performance of the nozzle. To ensure optimal nozzle performance, check for blockages in the piping system between the pump and the nozzle, and ensure that the pump has the capacity for the system. It is recommended to measure pressure directly at the nozzle for the most accurate reading.



Assessing Spray Nozzle Performance

Measuring these performance factors will help you determine how far your nozzles are through their lifespan, and whether they have expired, or will require replacing soon.

Flow rate

The flow rate can be measured either by connecting a flow meter in series with the nozzle, or by collecting the output from the nozzle in a container of known volume over a measured period of time. If the flow rate is higher than the nozzle specifications then it is possible that the orifice has partially corroded or eroded away. If the flow rate is lower than specified then the nozzle could be clogged or caked. Such problems are often accompanied by a change in spray pattern or distribution.

Pressure

A decrease in your system pressure could indicate excessive nozzle wear, due to corrosion or erosion. An increase in pressure could indicate clogging of your spray nozzles.

Distribution

All nozzles have a specified spray pattern, distribution, and spray angle. If any one of these is not as you expect it could indicate that the nozzles are worn or clogged.

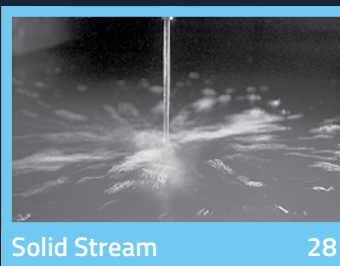
Spray Nozzles: Threaded Nozzles

Threaded nozzles offer the most basic connection by tightening a tapered nozzle into a pipe thread. BEX offers all nozzles with either NPT and BSPT threads in a variety of sizes.



Flat Fan Nozzles

13



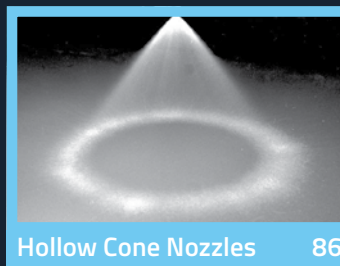
Solid Stream

28



Full Cone Nozzles

56



Hollow Cone Nozzles

86

Flat Fan Nozzles

FV Series.....	13
F Series.....	19
F00 Series.....	28
FT Series.....	30
F INJ Molded Series.....	36
DF Series.....	47
STF Series.....	49
FL Series.....	51
FLT Series.....	53
FP Series.....	55

Full Cone Nozzles

S Series.....	57
SW Series.....	58
SQ Series.....	59
SWSQ Series.....	60
GS Series.....	61
GSW Series.....	62
GSQ Series.....	63
HGS Series.....	64
HGSW Series.....	65
ST Series.....	66
STW Series.....	67
STQ Series.....	68
S INJ Molded Series.....	69
SW INJ Molded Series.....	70
SQ INJ Molded Series.....	71
YS Series.....	72

S15 Series.....	74
S30 Series.....	75
HNS Series.....	77
CCS Series.....	78
FS Series.....	79
PS Series.....	81

Hollow Cone Nozzles

H Series.....	87
HW Series.....	89
ILH Series.....	90
YH Series.....	91
PH Series.....	93
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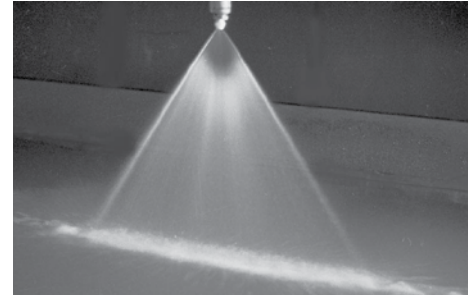
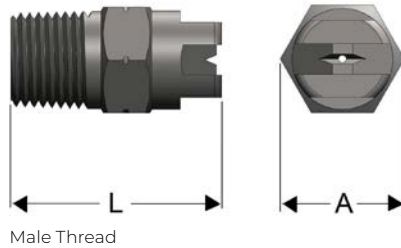
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FT Series assembly, page 30.

FV Series



Spray Characteristics

FV-Series low flow rate spray nozzles produce a flat, fan-shaped spray pattern, with spray angles available from 0° to 110°. Spray density tapers off toward the edge of the pattern, to permit overlapping of spray patterns while maintaining uniform spray density. Suitable for a variety of washing and spraying applications.

Construction

The models listed are machined from bar stock and are one piece construction.

Standard Materials

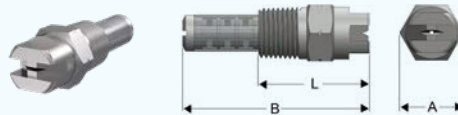
- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Typical Applications:

- ▶ Metal Washing
- ▶ Foam Control
- ▶ Wetting
- ▶ Vehicle Washing
- ▶ Fertilizer Spraying
- ▶ Food Processing

Accessory Option

This nozzle has an extremely small orifice, which makes it prone to clogging. To prevent clogs, FV nozzles are often sold with a strainer accessory. The strainer accessory comes in mesh sizes 50, 100, and 200.



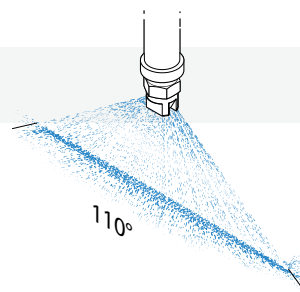
FVL nozzles feature an internal thread for attaching a mesh strainer (L50, L100, or L200)

Nozzle Size	Dim. 'L' (inches)	Dim. 'A' (inches)	Internal Thread	Dim. B (with strainer assy) (inches)
1/8FV	13/16	7/16 HEX	1/4-32 UNEF	1.34
1/4FV	15/16	9/16 HEX	3/8-24 UNF	1.68

FV110

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 110° at 40 PSI.



Scan to Order

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM												Spray Angles			
		5 psi	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	200 psi	300 psi	500 psi		20 psi	40 psi	80 psi	200 psi
1/8FV11001	0.025	0.035	0.050	0.071	0.087	0.100	0.122	0.141	0.158	0.224	0.274	0.35		94°	110°	118°	119°
1/4FV11001	0.025	0.035	0.050	0.071	0.087	0.100	0.122	0.141	0.158	0.224	0.274	0.35		94°	110°	118°	119°
1/8FV110015	0.030	0.053	0.075	0.106	0.130	0.150	0.184	0.212	0.237	0.34	0.41	0.53		94°	110°	118°	119°
1/4FV110015	0.030	0.053	0.075	0.106	0.130	0.150	0.184	0.212	0.237	0.34	0.41	0.53		94°	110°	118°	119°
1/8FV11002	0.035	0.071	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.71		96°	110°	118°	120°
1/4FV11002	0.035	0.071	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.71		96°	110°	119°	120°

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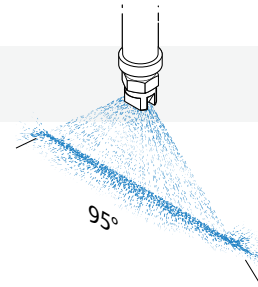
FV110 Continued

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM											Spray Angles			
		5 psi	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	200 psi	300 psi	500 psi	20 psi	40 psi	80 psi	200 psi
1/8FV11003	0.043	0.106	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	1.06	96°	110°	118°	120°
1/4FV11003	0.043	0.106	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	1.06	96°	110°	118°	120°
1/8FV11004	0.050	0.141	0.200	0.283	0.35	0.40	0.49	0.57	0.63	0.89	1.10	1.41	90°	110°	112°	114°
1/4FV11004	0.050	0.141	0.200	0.283	0.35	0.40	0.49	0.57	0.63	0.89	1.10	1.41	90°	110°	112°	114°
1/8FV11005	0.056	0.177	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.77	96°	110°	114°	118°
1/4FV11005	0.056	0.177	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.77	96°	110°	114°	118°
1/8FV11006	0.061	0.212	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	2.12	97°	110°	115°	120°
1/4FV11006	0.061	0.212	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	2.12	97°	110°	115°	120°
1/8FV11008	0.071	0.283	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.83	100°	110°	115°	120°
1/4FV11008	0.071	0.283	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.83	100°	110°	115°	120°

FV95

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 95° at 40 PSI.



Scan to Order

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM											Spray Angles			
		5 psi	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	200 psi	300 psi	500 psi	20 psi	40 psi	80 psi	200 psi
1/8FV9501	0.025	0.035	0.050	0.071	0.087	0.100	0.122	0.141	0.158	0.224	0.274	0.35	82°	95°	104°	112°
1/4FV9501	0.025	0.035	0.050	0.071	0.087	0.100	0.122	0.141	0.158	0.224	0.274	0.35	82°	95°	104°	112°
1/8FV95015	0.030	0.053	0.075	0.106	0.130	0.150	0.184	0.212	0.237	0.34	0.41	0.53	82°	95°	104°	112°
1/4FV95015	0.030	0.053	0.075	0.106	0.130	0.150	0.184	0.212	0.237	0.34	0.41	0.53	82°	95°	104°	112°
1/8FV9502	0.035	0.071	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.71	82°	95°	103°	112°
1/4FV9502	0.035	0.071	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.71	82°	95°	103°	112°
1/8FV9503	0.043	0.106	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	1.06	84°	95°	103°	114°
1/4FV9503	0.043	0.106	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	1.06	84°	95°	103°	114°
1/8FV9504	0.050	0.141	0.200	0.283	0.35	0.40	0.49	0.57	0.63	0.89	1.10	1.41	84°	95°	100°	114°
1/4FV9504	0.050	0.141	0.200	0.283	0.35	0.40	0.49	0.57	0.63	0.89	1.10	1.41	84°	95°	100°	114°
1/8FV9505	0.056	0.177	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.77	86°	95°	101°	115°
1/4FV9505	0.056	0.177	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.77	86°	95°	101°	115°
1/8FV9506	0.061	0.212	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	2.12	86°	95°	101°	115°
1/4FV9506	0.061	0.212	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	2.12	86°	95°	101°	115°
1/8FV95065	0.063	0.230	0.32	0.46	0.56	0.65	0.80	0.92	1.03	1.45	1.78	2.30	86°	95°	101°	115°
1/4FV95065	0.063	0.230	0.32	0.46	0.56	0.65	0.80	0.92	1.03	1.45	1.78	2.30	86°	95°	101°	115°
1/8FV9508	0.071	0.283	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.83	86°	95°	100°	115°
1/4FV9508	0.071	1.08	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.83	86°	95°	100°	115°

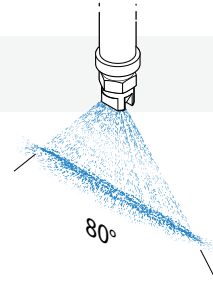
FV80



Scan to Order

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 80° at 40 PSI.



Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM											Spray Angles			
		5 psi	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	200 psi	300 psi	500 psi	20 psi	40 psi	80 psi	200 psi
1/8FV8001	0.025	0.135	0.050	0.071	0.087	0.100	0.122	0.141	0.158	0.224	0.274	0.35	70°	80°	82°	90°
1/4FV8001	0.025	0.035	0.050	0.071	0.087	0.100	0.122	0.141	0.158	0.224	0.274	0.35	70°	80°	82°	90°
1/8FV80015	0.030	0.053	0.075	0.106	0.130	0.150	0.184	0.212	0.237	0.34	0.41	0.53	70°	80°	82°	90°
1/4FV80015	0.030	0.053	0.075	0.106	0.130	0.150	0.184	0.212	0.237	0.34	0.41	0.53	70°	80°	82°	90°
1/8FV8002	0.035	0.071	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.71	71°	80°	82°	92°
1/4FV8002	0.035	0.071	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.71	71°	80°	82°	92°
1/8FV8003	0.043	0.106	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	1.06	72°	80°	82°	92°
1/4FV8003	0.043	0.106	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	1.06	72°	80°	82°	92°
1/8FV8005	0.056	0.177	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.77	74°	80°	83°	95°
1/4FV8005	0.056	0.177	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.77	74°	80°	83°	95°
1/8FV8006	0.061	0.212	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	2.12	74°	--	83°	95°
1/4FV8006	0.061	0.212	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	2.12	74°	80°	83°	95°
1/8FV8008	0.071	0.283	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.83	75°	80°	83°	96°
1/4FV8008	0.071	0.283	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.83	75°	80°	83°	96°

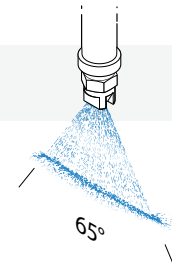
FV65



Scan to Order

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 65° at 40 PSI.



Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM											Spray Angles			
		5 psi	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	200 psi	300 psi	500 psi	20 psi	40 psi	80 psi	200 psi
1/8FV6501	0.025	0.135	0.050	0.071	0.087	0.100	0.122	0.141	0.158	0.224	0.274	0.35	48°	65°	73°	78°
1/4FV6501	0.025	0.035	0.050	0.071	0.087	0.100	0.122	0.141	0.158	0.224	0.274	0.35	48°	65°	73°	78°
1/8FV65015	0.030	0.053	0.075	0.106	0.130	0.150	0.184	0.212	0.237	0.34	0.41	0.53	48°	65°	73°	78°
1/4FV65015	0.030	0.053	0.075	0.106	0.130	0.150	0.184	0.212	0.237	0.34	0.41	0.53	48°	65°	73°	78°
1/8FV6502	0.035	0.071	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.71	48°	65°	73°	79°
1/4FV6502	0.035	0.071	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.71	48°	65°	73°	79°

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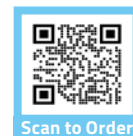
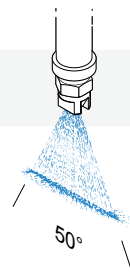
FV65 Continued

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM											Spray Angles			
		5 psi	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	200 psi	300 psi	500 psi	20 psi	40 psi	80 psi	200 psi
1/8FV65025	0.039	0.088	0.125	0.177	0.216	0.250	0.306	0.35	0.40	0.56	0.68	0.88	48°	65°	73°	79°
1/4FV65025	0.039	0.088	0.125	0.177	0.216	0.250	0.306	0.35	0.40	0.56	0.68	0.88	48°	65°	73°	79°
1/8FV6503	0.043	0.106	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	1.06	50°	65°	70°	78°
1/4FV6503	0.043	0.106	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	1.06	50°	65°	70°	78°
1/8FV6504	0.050	0.141	0.200	0.283	0.35	0.40	0.49	0.57	0.63	0.89	1.10	1.41	50°	65°	78°	80°
1/4FV6504	0.050	0.141	0.200	0.283	0.35	0.40	0.49	0.57	0.63	0.89	1.10	1.41	50°	65°	78°	80°
1/8FV6505	0.056	0.177	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.77	53°	65°	72°	81°
1/4FV6505	0.056	0.177	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.77	53°	65°	72°	81°
1/8FV6506	0.061	0.212	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	2.12	54°	65°	72°	81°
1/4FV6506	0.061	0.212	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	2.12	54°	65°	72°	81°
1/8FV6508	0.071	0.283	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.83	55°	65°	71°	82°
1/4FV6508	0.071	0.283	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.83	55°	65°	71°	82°

FV50

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 50° at 40 PSI.



Scan to Order

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM											Spray Angles			
		5 psi	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	200 psi	300 psi	500 psi	20 psi	40 psi	80 psi	200 psi
1/8FV5001	0.025	0.135	0.050	0.071	0.087	0.100	0.122	0.141	0.158	0.224	0.274	0.35	40°	50°	53°	63°
1/4FV5001	0.025	0.035	0.050	0.071	0.087	0.100	0.122	0.141	0.158	0.224	0.274	0.35	40°	50°	53°	63°
1/8FV5002	0.035	0.071	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.71	40°	50°	53°	61°
1/4FV5002	0.035	0.071	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.71	40°	50°	53°	61°
1/8FV5003	0.043	0.106	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	1.06	42°	50°	54°	62°
1/4FV5003	0.043	0.106	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	1.06	42°	50°	54°	62°
1/8FV5004	0.050	0.141	0.200	0.283	0.35	0.40	0.49	0.57	0.63	0.89	1.10	1.41	43°	50°	54°	62°
1/4FV5004	0.050	0.141	0.200	0.283	0.35	0.40	0.49	0.57	0.63	0.89	1.10	1.41	43°	50°	54°	62°
1/8FV5005	0.056	0.177	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.77	44°	50°	56°	60°
1/4FV5005	0.056	0.177	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.77	44°	50°	56°	60°
1/8FV5006	0.061	0.212	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	2.12	45°	50°	56°	60°
1/4FV5006	0.061	0.212	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	2.12	45°	50°	56°	60°
1/8FV5008	0.071	0.283	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.83	45°	50°	56°	60°
1/4FV5008	0.071	0.283	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.83	45°	50°	56°	60°

FV40



Scan to Order

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 40° at 40 PSI.



Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM											Spray Angles			
		5 psi	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	200 psi	300 psi	500 psi	20 psi	40 psi	80 psi	200 psi
1/8FV4001	0.025	0.135	0.050	0.071	0.087	0.100	0.122	0.141	0.158	0.224	0.274	0.35	26°	40°	51°	58°
1/4FV4001	0.025	0.035	0.050	0.071	0.087	0.100	0.122	0.141	0.158	0.224	0.274	0.35	26°	40°	51°	58°
1/8FV40015	0.030	0.053	0.075	0.106	0.130	0.150	0.184	0.212	0.237	0.34	0.41	0.53	27°	40°	50°	58°
1/4FV40015	0.030	0.053	0.075	0.106	0.130	0.150	0.184	0.212	0.237	0.34	0.41	0.53	27°	40°	50°	58°
1/8FV4002	0.035	0.071	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.71	27°	40°	49°	56°
1/4FV4002	0.035	0.071	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.71	27°	40°	49°	56°
1/8FV4003	0.043	0.106	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	1.06	28°	40°	49°	50°
1/4FV4003	0.043	0.106	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	1.06	28°	40°	49°	50°
1/8FV4004	0.050	0.141	0.200	0.283	0.35	0.40	0.49	0.57	0.63	0.89	1.10	1.41	28°	40°	50°	50°
1/4FV4004	0.050	0.141	0.200	0.283	0.35	0.40	0.49	0.57	0.63	0.89	1.10	1.41	28°	40°	50°	50°
1/8FV4005	0.056	0.177	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.77	26°	40°	46°	53°
1/4FV4005	0.056	0.177	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.77	26°	40°	46°	53°
1/8FV4006	0.061	0.212	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	2.12	37°	40°	44°	52°
1/4FV4006	0.061	0.212	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	2.12	37°	40°	44°	52°
1/8FV4008	0.071	0.283	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.83	35°	40°	43°	53°
1/4FV4008	0.071	0.283	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.83	35°	40°	43°	53°

FV25



Scan to Order

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 25° at 40 PSI.



Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM											Spray Angles			
		5 psi	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	200 psi	300 psi	500 psi	20 psi	40 psi	80 psi	200 psi
1/8FV2501	0.025	0.135	0.050	0.071	0.087	0.100	0.122	0.141	0.158	0.224	0.274	0.35	14°	25°	34°	41°
1/4FV2501	0.025	0.035	0.050	0.071	0.087	0.100	0.122	0.141	0.158	0.224	0.274	0.35	14°	25°	34°	41°
1/8FV2502	0.034	0.071	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.71	14°	25°	33°	40°
1/4FV2502	0.034	0.071	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.71	14°	25°	33°	40°
1/8FV2503	0.043	0.106	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	1.06	18°	25°	30°	37°
1/4FV2503	0.043	0.106	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	1.06	18°	25°	30°	37°
1/8FV2505	0.056	0.177	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.77	20°	25°	31°	37°
1/4FV2505	0.056	0.177	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.77	20°	25°	31°	37°
1/8FV2506	0.061	0.212	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	2.12	17°	25°	31°	38°
1/4FV2506	0.061	0.212	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	2.12	17°	25°	31°	38°
1/8FV2508	0.071	0.283	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.83	16°	25°	31°	38°
1/4FV2508	0.071	0.283	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.83	16°	25°	31°	38°

FV15



Scan to Order

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 15° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM											Spray Angles			
		5 psi	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	200 psi	300 psi	500 psi	20 psi	40 psi	80 psi	200 psi
1/8FV1501	0.025	0.135	0.050	0.071	0.087	0.100	0.122	0.141	0.158	0.224	0.274	0.35	--	--	22°	25°
1/4FV1501	0.025	0.035	0.050	0.071	0.087	0.100	0.122	0.141	0.158	0.224	0.274	0.35	--	--	22°	25°
1/8FV1502	0.035	0.071	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.71	6°	15°	21°	24°
1/4FV1502	0.035	0.071	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.71	6°	15°	21°	24°
1/8FV1503	0.043	0.106	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	1.06	7°	15°	19°	22°
1/4FV1503	0.043	0.106	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	1.06	7°	15°	19°	22°
1/8FV1504	0.050	0.141	0.200	0.283	0.35	0.40	0.49	0.57	0.63	0.89	1.10	1.41	8°	15°	19°	22°
1/4FV1504	0.050	0.141	0.200	0.283	0.35	0.40	0.49	0.57	0.63	0.89	1.10	1.41	8°	15°	19°	22°
1/8FV1505	0.056	0.177	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.77	10°	15°	20°	25°
1/4FV1505	0.056	0.177	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.77	10°	15°	20°	25°
1/8FV1506	0.061	0.212	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	2.12	11°	15°	24°	28°
1/4FV1506	0.061	0.212	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	2.12	11°	15°	24°	28°
1/8FV1508	0.071	0.283	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.83	11°	15°	21°	26°
1/4FV1508	0.071	0.283	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.83	11°	15°	21°	26°

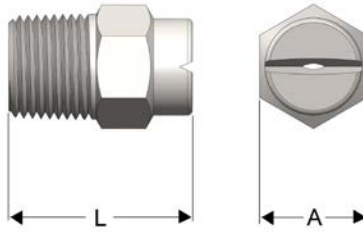
FVL Assembly

FVL Assemblies offer a built-in strainer, which helps to prevent clogging.

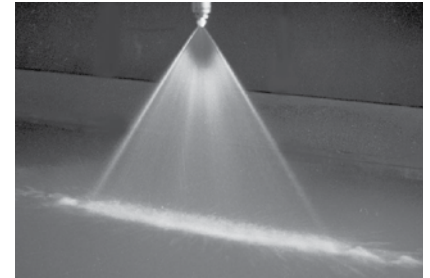
See [page 13](#) for more details.



F Series



Male Thread



Spray Characteristics

F-Series spray nozzles produce a flat, fan-shaped spray pattern, with spray angles available from 5° to 110°. Spray density tapers off toward the outside of these sprays, to permit overlapping of spray patterns while maintaining uniform spray density. Suitable for a variety of washing and spraying applications.

Nozzle Size	Dim. 'L' (inches)	Dim. 'A' (inches)
1/8F	13/16	7/16 HEX
1/4F	15/16	9/16 HEX
3/8F	1 3/16	1 1/16 HEX
1/2F	1 5/16	7/8 HEX
3/4F	1 11/16	1 1/16 HEX
1F	2 1/2	1 3/8 HEX
1-1/4F	3	1 3/4 HEX

Construction

The models listed are machined from bar stock and are one-piece construction.

Standard Materials

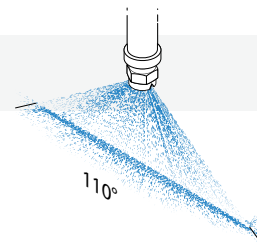
- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Refer to pages 36-44 for plastic models

Typical Applications:

- ▶ Parts Cleaning
- ▶ Metal Washing
- ▶ Foam Control
- ▶ Gravel Washing
- ▶ Vehicle Washing
- ▶ Fertilizer Spraying
- ▶ Dishwashers

F110



Scan to Order

Spray Characteristics

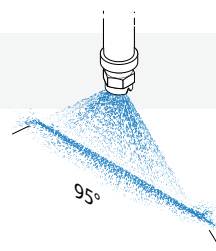
A medium/high flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 110° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
1/8F11010	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	102°	110°	115°
1/4F11010	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	102°	110°	115°
1/8F11015	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	102°	110°	116°
1/4F11015	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	102°	110°	115°
1/8F11020	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	103°	110°	112°
1/4F11020	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	103°	110°	112°
1/4F11030	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	101°	110°	112°
1/4F11040	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	103°	110°	112°
1/4F11050	0.172	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	107°	110°	116°

F95



Scan to Order

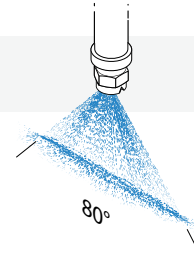


Spray Characteristics

A medium/high flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 95° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
1/8F9510	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	88°	95°	99°
1/4F9510	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	88°	95°	99°
1/8F9515	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	90°	95°	100°
1/4F9515	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	90°	95°	100°
1/8F9520	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	89°	95°	99°
1/4F9520	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	89°	95°	99°
1/8F9530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	90°	95°	101°
1/4F9530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	90°	95°	101°
3/8F9530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	90°	95°	101°
1/4F9540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	90°	95°	100°
3/8F9540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	90°	95°	100°
1/4F9550	0.172	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	91°	95°	101°
3/8F9550	0.172	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	91°	95°	101°
1/4F9560	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	92°	95°	102°
3/8F9560	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	92°	95°	102°
1/2F9560	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	91°	95°	102°
1/4F9570	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	92°	95°	103°
3/8F9570	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	90°	95°	101°
1/2F9570	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	90°	95°	101°
1/2F95100	0.243	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	92°	95°	103°
1/2F95150	0.297	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	92°	95°	102°

F80



Spray Characteristics

A medium/high flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 80° at 40 PSI.

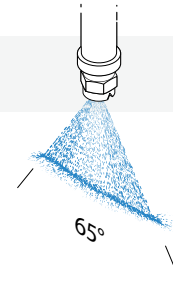
Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
1/8F8010	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	75°	80°	83°
1/4F8010	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	75°	80°	83°
3/8F8010	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	75°	80°	83°
1/8F8015	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	74°	80°	86°
1/4F8015	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	74°	80°	86°
3/8F8015	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	75°	80°	86°
1/8F8020	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	74°	80°	85°
1/4F8020	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	74°	80°	85°
3/8F8020	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	74°	80°	85°
1/8F8030	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	75°	80°	86°
1/4F8030	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	75°	80°	86°
3/8F8030	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	75°	80°	86°
1/8F8040	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	76°	80°	85°
1/4F8040	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	76°	80°	85°
3/8F8040	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	76°	80°	85°
1/4F8050	0.172	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	77°	80°	84°
3/8F8050	0.172	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	77°	80°	84°
1/4F8060	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	77°	80°	84°
3/8F8060	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	78°	80°	84°
1/4F8070	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	78°	80°	89°
3/8F8070	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	78°	80°	89°
1/2F8070	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	78°	80°	89°
1/4F8080	0.217	2.83	3.3	4.0	4.9	5.7	6.9	8.0	8.9	9.8	11.3	12.6	15.5	21.9	78°	80°	88°
3/8F8080	0.217	2.83	3.3	4.0	4.9	5.7	6.9	8.0	8.9	9.8	11.3	12.6	15.5	21.9	78°	80°	88°
1/2F8080	0.217	2.83	3.3	4.0	4.9	5.7	6.9	8.0	8.9	9.8	11.3	12.6	15.5	21.9	78°	80°	88°
3/8F80100	0.243	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	75°	80°	83°
1/2F80100	0.243	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	75°	80°	83°
3/8F80150	0.297	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	73°	80°	84°
1/2F80150	0.297	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	73°	80°	84°
1/2F80200	0.343	7.1	8.4	10.0	12.2	14.1	17.3	20.0	22.4	24.5	28.3	32	39	55	74°	80°	82°
3/4F80200	0.343	7.1	8.4	10.0	12.2	14.1	17.3	20.0	22.4	24.5	28.3	32	39	55	74°	80°	82°
3/4F80400	0.485	14.1	16.7	20.0	24.5	28.3	35	40	45	49	57	63	77	110	74°	80°	82°

F65



Spray Characteristics

A medium/high flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 65° at 40 PSI.

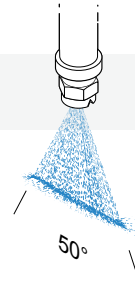


Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
1/8F6510	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	57°	65°	73°
1/4F6510	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	57°	65°	73°
1/8F6512	0.084	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.34	1.47	1.70	1.90	2.32	3.3	57°	65°	73°
1/8F6515	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	57°	65°	73°
1/4F6515	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	59°	65°	71°
3/8F6515	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	60°	65°	72°
1/8F6520	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	59°	65°	72°
1/4F6520	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	59°	65°	72°
3/8F6520	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	60°	65°	72°
1/8F6530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	61°	65°	72°
1/4F6530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	61°	65°	72°
3/8F6530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	61°	65°	72°
1/8F6540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	62°	65°	72°
1/4F6540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	62°	65°	72°
3/8F6540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	62°	65°	74°
1/4F6550	0.172	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	63°	65°	73°
3/8F6550	0.172	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	63°	65°	73°
1/2F6550	0.172	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	63°	65°	74°
1/4F6560	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	63°	65°	73°
3/8F6560	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	63°	65°	73°
1/2F6560	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	63°	65°	73°
1/4F6570	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	63°	65°	74°
3/8F6570	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	63°	65°	74°
1/2F6570	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	63°	65°	75°
3/8F65100	0.243	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	59°	65°	69°
1/2F65100	0.243	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	59°	65°	70°
1/2F65150	0.297	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	59°	65°	68°
1/2F65200	0.343	7.1	8.4	10.0	12.2	14.1	17.3	20.0	22.4	24.5	28.3	32	39	55	60°	65°	67°
3/4F65200	0.343	7.1	8.4	10.0	12.2	14.1	17.3	20.0	22.4	24.5	28.3	32	39	55	60°	65°	67°
3/4F65300	0.420	10.6	12.5	15.0	18.4	21.2	26.0	30.0	34	37	42	47	58	82	60°	65°	68°
3/4F65400	0.485	14.1	16.7	20.0	24.5	28.3	35	40	45	49	57	63	77	110	60°	65°	68°

F50

Spray Characteristics

A medium/high flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 50° at 40 PSI.



Scan to Order

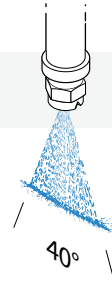
Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
1/8F5010	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	43°	50°	55°
1/4F5010	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	43°	50°	55°
3/8F5010	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	43°	50°	55°
1/8F5015	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	43°	50°	55°
1/4F5015	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	43°	50°	55°
3/8F5015	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	43°	50°	55°
1/8F5020	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	43°	50°	55°
1/4F5020	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	43°	50°	55°
3/8F5020	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	43°	50°	55°
1/8F5030	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	43°	50°	54°
1/4F5030	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	43°	50°	55°
3/8F5030	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	43°	50°	54°
1/8F5040	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	43°	50°	54°
1/4F5040	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	43°	50°	54°
3/8F5040	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	43°	50°	54°
1/4F5050	0.172	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	43°	50°	53°
3/8F5050	0.172	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	43°	50°	53°
1/4F5060	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	43°	50°	53°
3/8F5060	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	43°	50°	53°
1/2F5060	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	44°	50°	53°
1/4F5070	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	44°	50°	53°
3/8F5070	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	44°	50°	53°
1/2F5070	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	44°	50°	53°
3/8F50100	0.243	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	44°	50°	52°
1/2F50100	0.243	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	44°	50°	52°
3/8F50120	0.266	4.2	5.0	6.0	7.3	8.5	10.4	12.0	13.4	14.7	17.0	19.0	23.2	33	44°	50°	53°
1/2F50120	0.266	4.2	5.0	6.0	7.3	8.5	10.4	12.0	13.4	14.7	17.0	19.0	23.2	33	44°	50°	53°
3/8F50150	0.297	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	45°	50°	52°
1/2F50150	0.297	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	45°	50°	52°
1/2F50200	0.343	7.1	8.4	10.0	12.2	14.1	17.3	20.0	22.4	24.5	28.3	32	39	55	46°	50°	52°
3/4F50200	0.343	7.1	8.4	10.0	12.2	14.1	17.3	20.0	22.4	24.5	28.3	32	39	55	46°	50°	52°
3/4F50400	0.485	14.1	16.7	20.0	24.5	28.3	35	40	45	49	57	63	77	110	47°	50°	54°
1F50500	0.543	17.7	20.9	25.0	30.6	35	43	50	56	61	71	79	97	137	46°	50°	55°
1-1/4F50500	0.543	17.7	20.9	25.0	30.6	35	43	50	56	61	71	79	97	137	46°	50°	55°
1-1/4F50750	0.664	26.5	31.4	38	46	53	65	75	84	92	106	119	145	205	46°	50°	54°
1-1/4F501000	0.767	35	42	50	61	71	87	100	112	122	141	158	194	274	46°	50°	55°

F40



Spray Characteristics

A medium/high flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 40° at 40 PSI.



Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
1/8F4010	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	30°	40°	43°
1/4F4010	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	30°	40°	43°
1/8F4015	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	35°	40°	41°
1/4F4015	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	35°	40°	41°
1/8F4020	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	33°	40°	43°
1/4F4020	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	33°	40°	43°
3/8F4020	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	33°	40°	43°
1/8F4030	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	34°	40°	45°
1/4F4030	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	34°	40°	45°
3/8F4030	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	34°	40°	45°
1/8F4040	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	33°	40°	43°
1/4F4040	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	33°	40°	43°
3/8F4040	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	33°	40°	43°
1/4F4050	0.172	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	35°	40°	46°
3/8F4050	0.172	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	35°	40°	46°
1/4F4060	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	37°	40°	48°
3/8F4060	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	37°	40°	48°
1/2F4060	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	37°	40°	48°
1/4F4070	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	35°	40°	46°
3/8F4070	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	35°	40°	46°
1/2F4070	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	35°	40°	44°
3/8F40100	0.243	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	33°	40°	44°
1/2F40100	0.243	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	33°	40°	44°
3/4F40100	0.243	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	36°	40°	44°
1/2F40120	0.266	4.2	5.0	6.0	7.3	8.5	10.4	12.0	13.4	14.7	17.0	19.0	23.2	33	36°	40°	43°
1/2F40150	0.297	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	37°	40°	44°
3/4F40150	0.297	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	37°	40°	44°
1/2F40200	0.343	7.1	8.4	10.0	12.2	14.1	17.3	20.0	22.4	24.5	28.3	32	39	55	38°	40°	43°
3/4F40200	0.343	7.1	8.4	10.0	12.2	14.1	17.3	20.0	22.4	24.5	28.3	32	39	55	38°	40°	43°
3/4F40300	0.420	10.6	12.5	15.0	18.4	21.2	26.0	30.0	34	37	42	47	58	82	38°	40°	44°
3/4F40350	0.454	12.4	14.6	17.5	21.4	24.7	30.3	35	39	43	49	55	68	96	37°	40°	44°
3/4F40400	0.485	14.1	16.7	20.0	24.5	28.3	35	40	45	49	57	63	77	110	38°	40°	44°

F25



Spray Characteristics

A medium/high flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 25° at 40 PSI.



Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
1/8F2510	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	17°	25°	31°
1/4F2510	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	17°	25°	31°
1/8F2515	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	18°	25°	30°
1/4F2515	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	18°	25°	30°
1/8F2520	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	18°	25°	28°
1/4F2520	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	18°	25°	28°
1/8F2530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	19°	25°	29°
1/4F2530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	19°	25°	29°
3/8F2530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	19°	25°	29°
1/8F2540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	22°	25°	32°
1/4F2540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	22°	25°	32°
3/8F2540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	22°	25°	32°
1/4F2550	0.172	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	20°	25°	32°
3/8F2550	0.172	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	20°	25°	32°
1/4F2560	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	18°	25°	28°
3/8F2560	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	18°	25°	28°
1/4F2570	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	19°	25°	27°
3/8F2570	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	19°	25°	27°
1/4F2580	0.211	2.83	3.3	4.0	4.9	5.7	6.9	8.0	8.9	9.8	11.3	12.6	15.5	21.9	20°	25°	26°
3/8F25100	0.243	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	21°	25°	28°
1/2F25100	0.243	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	21°	25°	28°
1/2F25150	0.297	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	18°	25°	27°
1/2F25200	0.343	7.1	8.4	10.0	12.2	14.1	17.3	20.0	22.4	24.5	28.3	32	39	55	19°	25°	27°

F15



Spray Characteristics

A medium/high flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 15° at 40 PSI.



Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
1/8F1510	0.079	1.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	13°	15°	16°
1/4F1510	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	13°	15°	16°
1/8F1515	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	11°	15°	20°
1/4F1515	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	11°	15°	20°
3/8F1515	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	11°	15°	20°
1/8F1520	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	11°	15°	20°
1/4F1520	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	11°	15°	20°
3/8F1520	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	11°	15°	18°
1/8F1530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	11°	15°	18°
1/4F1530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	12°	15°	18°
3/8F1530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	12°	15°	18°
1/4F1540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	12°	15°	18°
3/8F1540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	12°	15°	19°
1/4F1550	0.172	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	12°	15°	19°
3/8F1550	0.172	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	12°	15°	19°
1/4F1560	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	12°	15°	17°
3/8F1560	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	12°	15°	17°
1/4F1570	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	12°	15°	19°
3/8F1570	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	12°	15°	19°
1/4F1580	0.211	2.83	3.3	4.0	4.9	5.7	6.9	8.0	8.9	9.8	11.3	12.6	15.5	21.9	12°	15°	19°
3/8F15100	0.243	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	12°	15°	19°
1/2F15100	0.243	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	12°	15°	19°
3/8F15120	0.266	4.2	5.0	6.0	7.3	8.5	10.4	12.0	13.4	14.7	17.0	19.0	23.2	33	12°	15°	19°
1/2F15120	0.266	4.2	5.0	6.0	7.3	8.5	10.4	12.0	13.4	14.7	17.0	19.0	23.2	33	12°	15°	18°
3/8F15150	0.297	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	12°	15°	18°
1/2F15150	0.297	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	12°	15°	18°
1/2F15200	0.343	7.1	8.4	10.0	12.2	14.1	17.3	20.0	22.4	24.5	28.3	32	39	55	13°	15°	17°

F05



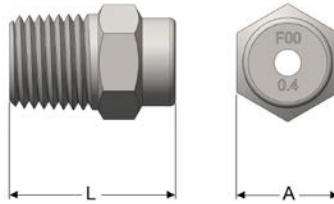
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Spray Characteristics

A medium/high flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 5° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
1/8F0510	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	5°	5°	8°
1/4F0510	0.079	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	5°	5°	8°
1/8F0515	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	5°	5°	9°
1/4F0515	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	5°	5°	9°
3/8F0515	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	5°	5°	9°
1/8F0520	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	5°	5°	9°
1/4F0520	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	5°	5°	9°
3/8F0520	0.112	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	5°	5°	9°
1/8F0530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	5°	5°	9°
1/4F0530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	5°	5°	9°
3/8F0530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	5°	5°	9°
1/4F0540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	5°	5°	9°
3/8F0540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	5°	5°	9°
1/4F0550	0.172	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	5°	5°	10°
3/8F0550	0.172	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	5°	5°	10°
1/4F0560	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	5°	5°	10°
3/8F0560	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	5°	5°	10°
1/4F0570	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	5°	5°	10°
3/8F0570	0.203	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	5°	5°	10°
3/8F05100	0.243	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	5°	5°	19°
3/8F05120	0.266	4.2	5.0	6.0	7.3	8.5	10.4	12.0	13.4	14.7	17.0	19.0	23.2	33	5°	5°	19°
3/8F05200	0.343	7.1	8.4	10.0	12.2	14.1	17.3	20.0	22.4	24.5	28.3	32	39	55	5°	5°	18°

F00 Series



Male Thread



Spray Characteristics

A high impact solid stream. For situations where maximum impact is required over a very small target area:

Construction

The models listed are machined from bar stock and are one piece construction.

Typical Applications:

- ▶ Metal Washing
- ▶ Agitation
- ▶ Mixing

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Refer to page 45 for plastic models.

Model #	Orifice Diameter inches	Capacities at Various Pressures USGPM												
		5 psi	7 psi	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	200 psi	300 psi	400 psi	500 psi
1/8F0002	0.034	0.071	0.084	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.63	0.71
1/8F0003	0.041	0.106	0.126	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	0.95	1.06
1/4F0003	0.041	0.106	0.126	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	0.95	1.06
1/8F0004	0.047	0.141	0.167	0.200	0.283	0.35	0.40	0.49	0.57	0.63	0.89	1.10	1.26	1.41
1/4F0004	0.047	0.141	0.167	0.200	0.283	0.35	0.40	0.49	0.57	0.63	0.89	1.10	1.26	1.41
1/8F0005	0.053	0.177	0.209	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.58	1.77
1/4F0005	0.053	0.177	0.209	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.58	1.77
1/8F0006	0.058	0.212	0.251	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	1.90	2.12
1/8F0008	0.067	0.283	0.33	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.53	2.83
1/4F0008	0.067	0.283	0.33	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.53	2.83
1/8F0010	0.075	0.35	0.42	0.50	0.71	0.87	1.00	1.22	1.41	1.58	2.24	2.74	3.2	3.5
1/4F0010	0.075	0.35	0.42	0.50	0.71	0.87	1.00	1.22	1.41	1.58	2.24	2.74	3.2	3.5
1/8F0015	0.091	0.53	0.63	0.75	1.06	1.30	1.50	1.84	2.12	2.37	3.4	4.1	4.7	5.3
1/4F0015	0.091	0.53	0.63	0.75	1.06	1.30	1.50	1.84	2.12	2.37	3.4	4.1	4.7	5.3
1/8F0020	0.105	0.71	0.84	1.00	1.41	1.73	2.00	2.45	2.83	3.2	4.5	5.5	6.3	7.1
1/4F0020	0.105	0.71	0.84	1.00	1.41	1.73	2.00	2.45	2.83	3.2	4.5	5.5	6.3	7.1
1/8F0030	0.129	1.06	1.26	1.50	2.12	2.60	3.00	3.7	4.2	4.7	6.7	8.2	9.5	10.6
1/4F0030	0.129	1.06	1.26	1.50	2.12	2.60	3.00	3.7	4.2	4.7	6.7	8.2	9.5	10.6
1/8F0040	0.149	1.41	1.67	2.00	2.83	3.5	4.0	4.9	5.7	6.3	8.9	11.0	12.6	14.1
1/4F0040	0.149	1.41	1.67	2.00	2.83	3.5	4.0	4.9	5.7	6.3	8.9	11.0	12.6	14.1

Continues on Next Page ▶

F00 Series Continued

Model #	Orifice Diameter inches	Capacities at Various Pressures USGPM												
		5 psi	7 psi	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	200 psi	300 psi	400 psi	500 psi
3/8F0040	0.149	1.41	1.67	2.00	2.83	3.5	4.0	4.9	5.7	6.3	8.9	11.0	12.6	14.1
1/4F0050	0.167	1.77	2.09	2.50	3.5	4.3	5.0	6.1	7.1	7.9	11.2	13.7	15.8	17.7
3/8F0050	0.167	1.77	2.09	2.50	3.5	4.3	5.0	6.1	7.1	7.9	11.2	13.7	15.8	17.7
1/4F0060	0.182	2.12	2.51	3.00	4.2	5.2	6.0	7.3	8.5	9.5	13.4	16.4	19.0	21.2
3/8F0060	0.182	2.12	2.51	3.00	4.2	5.2	6.0	7.3	8.5	9.5	13.4	16.4	19.0	21.2
1/4F0070	0.197	2.47	2.93	3.5	4.9	6.1	7.0	8.6	9.9	11.1	15.7	19.2	22.1	24.7
3/8F0070	0.197	2.47	2.93	3.5	4.9	6.1	7.0	8.6	9.9	11.1	15.7	19.2	22.1	24.7
1/4F0080	0.211	2.83	3.3	4.0	5.7	6.9	8.0	9.8	11.3	12.6	17.9	21.9	25.3	28.3
3/8F0080	0.211	2.83	3.3	4.0	5.7	6.9	8.0	9.8	11.3	12.6	17.9	21.9	25.3	28.3
3/8F00100	0.236	3.5	4.2	5.0	7.1	8.7	10.0	12.2	14.1	15.8	22.4	27.4	32	35
3/8F00120	0.258	4.2	5.0	6.0	8.5	10.4	12.0	14.7	17.0	19.0	26.8	33	38	42
1/2F00120	0.258	4.2	5.0	6.0	8.5	10.4	12.0	14.7	17.0	19.0	26.8	33	38	42
1/2F00150	0.289	5.3	6.3	7.5	10.6	13.0	15.0	18.4	21.2	23.7	34	41	47	53
1/2F00200	0.333	7.1	8.4	10.0	14.1	17.3	20.0	24.5	28.3	32	45	55	63	71
3/4F00250	0.373	8.8	10.5	12.5	17.7	21.7	25.0	30.6	35	40	56	68	79	88
3/4F00350	0.441	12.4	14.6	17.5	24.7	30.3	35	43	49	55	78	96	111	124
3/4F00400	0.471	14.1	16.7	20.0	28.3	35	40	49	57	63	89	110	126	141
3/4F00500	0.527	17.7	20.9	25.0	35	43	50	61	71	79	112	137	158	177
3/4F00700	0.623	24.7	29.3	35	49	61	70	86	99	111	157	192	221	247
1F001000	0.745	35	42	50	71	87	100	122	141	158	224	274	316	354

FT Series



A CAP



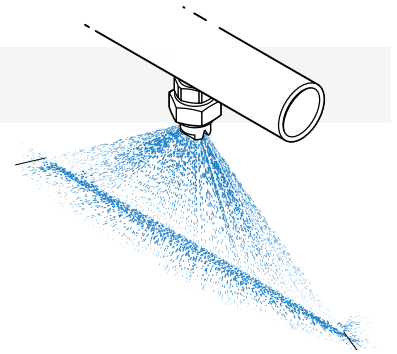
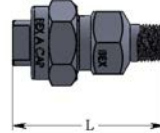
AL STRAINER



FT TIP



A BODY



"A" Series Assembly

FT Tips are designed to work with our "A" series assemblies, which come with easily replaceable spray tips and a removeable strainer. This design is particularly suitable for low-flow applications as the strainer is designed to protect the nozzle orifice from getting clogged and damaged by small debris present in the liquid, such as those commonly found in recirculated liquids. The strainer can be removed for cleaning and reuse. The "A" bodies are available in three different sizes, and FT tips are compatible with all of them.

Spray Characteristics

BEX FT series spray nozzle produces a flat spray pattern with spray angles of 0° to 110° at 40 PSI.

A-Body Model	Thread Size	Length (L) FT tip & Body
1/8ABD	1/8	1.63
1/4ABD	1/4	1.77
3/8ABD	3/8	1.90

Construction

"A" series assemblies consist of an "A"-body, AL Strainer, FT Nozzle tip, and "A"-cap.



Typical Applications:

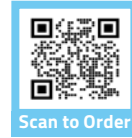
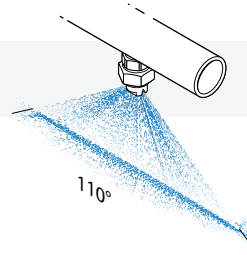
- ▶ Metal Washing
- ▶ Foam Control
- ▶ Wetting
- ▶ Vehicle Washing
- ▶ Fertilizer Spraying
- ▶ Food Processing

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel



FT110



Full Assembly



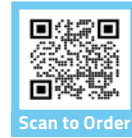
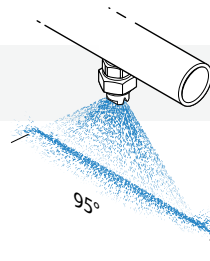
Tip Replacement

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 110° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
FT11002	0.035	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	96°	110°	118°
FT11003	0.043	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	96°	110°	118°
FT11004	0.050	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	90°	110°	112°
FT11005	0.056	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	96°	110°	114°
FT11006	0.061	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	97°	110°	115°
FT11007	0.066	0.248	0.293	0.35	0.43	0.50	0.61	0.70	0.78	0.86	0.99	1.11	1.36	1.92	98°	110°	115°
FT11008	0.071	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	100°	110°	115°
FT11010	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	102°	110°	115°
FT11015	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	102°	110°	115°
FT11020	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	102°	110°	112°
FT11030	0.129	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	103°	110°	112°
FT11040	0.149	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	103°	110°	112°
FT11050	0.167	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	107°	110°	116°
FT11060	0.182	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	107°	110°	116°
FT11070	0.197	0.248	0.293	0.35	0.43	0.50	0.61	0.70	0.78	0.86	0.99	1.11	1.36	1.92	108°	110°	117°

FT95



Full Assembly



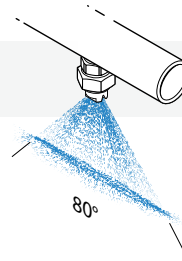
Tip Replacement

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 95° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
FT9502	0.035	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	82°	95°	103°
FT9503	0.043	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	84°	95°	103°
FT9504	0.050	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	84°	95°	100°
FT9505	0.056	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	86°	95°	101°
FT9506	0.061	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	86°	95°	101°
FT9507	0.066	0.248	0.293	0.35	0.43	0.50	0.61	0.70	0.78	0.86	0.99	1.11	1.36	1.92	86°	95°	100°
FT9508	0.071	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	86°	95°	100°
FT9510	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	88°	95°	99°
FT9515	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	88°	95°	100°
FT9520	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	90°	95°	100°
FT9530	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	89°	95°	99°
FT9540	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	91°	95°	101°
FT9550	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	91°	95°	101°
FT9570	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	92°	95°	102°

FT80



Scan to Order

Full Assembly



Scan to Order

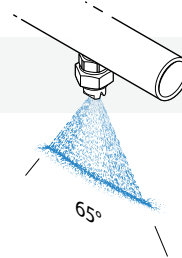
Tip Replacement

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 80° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
FT8002	0.035	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	71°	80°	92°
FT8003	0.043	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	72°	80°	92°
FT8004	0.050	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	74°	80°	92°
FT8005	0.056	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	74°	80°	95°
FT8006	0.061	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	74°	80°	95°
FT8007	0.066	0.248	0.293	0.35	0.43	0.50	0.61	0.70	0.78	0.86	0.99	1.11	1.36	1.92	74°	80°	95°
FT8008	0.071	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	75°	80°	96°
FT8010	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	75°	80°	83°
FT8015	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	75°	80°	83°
FT8020	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	74°	80°	86°
FT8030	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	74°	80°	85°
FT8040	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	75°	80°	85°
FT8050	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	75°	80°	86°
FT8060	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	76°	80°	85°
FT8070	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	78°	80°	87°

FT65



Scan to Order

Full Assembly



Scan to Order

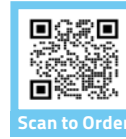
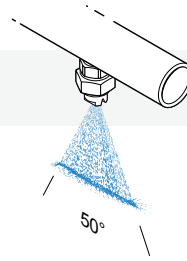
Tip Replacement

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 65° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
FT6502	0.035	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	48°	65°	79°
FT6503	0.043	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	50°	65°	79°
FT6504	0.050	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	50°	65°	80°
FT6505	0.056	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	53°	65°	91°
FT6506	0.061	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	54°	65°	91°
FT6507	0.066	0.248	0.293	0.35	0.43	0.50	0.61	0.70	0.78	0.86	0.99	1.11	1.36	1.92	54°	65°	91°
FT6508	0.071	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	55°	65°	82°
FT6510	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	57°	65°	73°
FT6515	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	59°	65°	72°
FT6520	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	59°	65°	72°
FT6530	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	61°	65°	73°
FT6540	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	61°	65°	73°
FT6550	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	62°	65°	73°
FT6560	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	63°	65°	73°
FT6570	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	63°	65°	75°

FT50



Scan to Order
Full Assembly



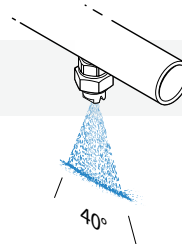
Scan to Order
Tip Replacement

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 50° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
FT5002	0.035	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	43°	50°	63°
FT5003	0.043	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	43°	50°	61°
FT5004	0.050	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	43°	50°	62°
FT5005	0.056	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	43°	50°	60°
FT5006	0.061	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	43°	50°	60°
FT5007	0.066	0.248	0.293	0.35	0.43	0.50	0.61	0.70	0.78	0.86	0.99	1.11	1.36	1.92	44°	50°	60°
FT5008	0.071	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	45°	50°	60°
FT5010	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	43°	50°	55°
FT5015	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	43°	50°	55°
FT5020	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	43°	50°	55°
FT5030	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	43°	50°	54°
FT5040	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	43°	50°	54°
FT5050	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	43°	50°	53°
FT5060	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	43°	50°	53°
FT5070	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	43°	50°	53°

FT40



Scan to Order
Full Assembly



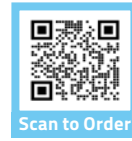
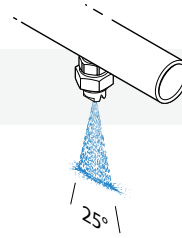
Scan to Order
Tip Replacement

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 40° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
FT4002	0.035	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	27°	40°	56°
FT4003	0.043	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	28°	40°	50°
FT4004	0.050	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	28°	40°	50°
FT4005	0.056	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	26°	40°	53°
FT4006	0.061	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	37°	40°	52°
FT4007	0.066	0.248	0.293	0.35	0.43	0.50	0.61	0.70	0.78	0.86	0.99	1.11	1.36	1.92	36°	40°	52°
FT4008	0.071	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	35°	40°	53°
FT4010	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	30°	40°	43°
FT4015	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	35°	40°	41°
FT4020	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	33°	40°	43°
FT4030	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	34°	40°	45°
FT4040	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	33°	40°	43°
FT4050	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	35°	40°	46°
FT4060	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	37°	40°	48°
FT4070	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	35°	40°	46°

FT25



Scan to Order
Full Assembly



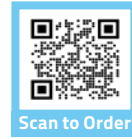
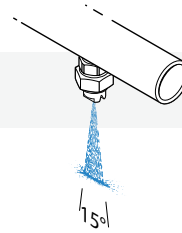
Scan to Order
Tip Replacement

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 25° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
FT2502	0.025	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	14°	25°	40°
FT2503	0.043	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	18°	25°	37°
FT2504	0.050	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	18°	25°	37°
FT2505	0.056	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	20°	25°	37°
FT2506	0.061	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	17°	25°	38°
FT2507	0.066	0.248	0.293	0.35	0.43	0.50	0.61	0.70	0.78	0.86	0.99	1.11	1.36	1.92	16°	25°	38°
FT2508	0.071	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	16°	25°	38°
FT2510	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	17°	25°	31°
FT2515	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	18°	25°	30°
FT2520	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	18°	25°	28°
FT2530	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	19°	25°	29°
FT2540	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	22°	25°	32°
FT2550	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	20°	25°	32°
FT2560	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	18°	25°	28°
FT2570	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	19°	25°	27°

FT15



Scan to Order
Full Assembly



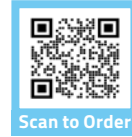
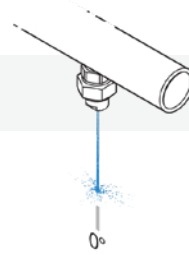
Scan to Order
Tip Replacement

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 15° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
FT1502	0.035	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	6°	15°	24°
FT1503	0.043	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	7°	15°	22°
FT1504	0.050	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	8°	15°	22°
FT1505	0.056	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	10°	15°	25°
FT1506	0.056	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	11°	15°	28°
FT1507	0.066	0.248	0.293	0.35	0.43	0.50	0.61	0.70	0.78	0.86	0.99	1.11	1.36	1.92	11°	15°	27°
FT1508	0.071	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	11°	15°	26°
FT1510	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	13°	15°	16°
FT1515	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	11°	15°	20°
FT1520	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	11°	15°	20°
FT1530	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	12°	15°	18°
FT1540	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	12°	15°	18°
FT1550	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	12°	15°	19°
FT1560	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	12°	15°	17°
FT1570	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	12°	15°	19°

FT00



Scan to Order
Full Assembly



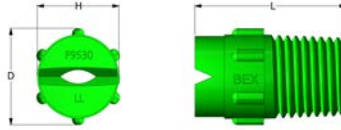
Scan to Order
Tip Replacement

Spray Characteristics

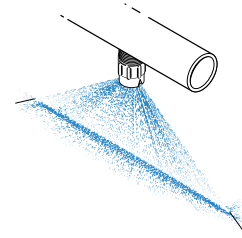
A low/medium flow rate spray nozzle. Produces a high impact solid stream for situations where maximum impact is required over a small target area.

Model Number	Orifice Diameter inches	Capacities at Various Pressures USGPM												
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi
FT0003	0.041	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82
FT0004	0.050	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10
FT0005	0.056	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37
FT0006	0.061	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64
FT0008	0.071	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19
FT0010	0.750	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74
FT0015	0.910	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1
FT0020	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5
FT0040	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0
FT0050	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7
FT0060	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4
FT0070	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2

Injection Molded F-Series



Male Thread



Spray Characteristics

F-Series spray nozzles produce a flat, fan-shaped spray pattern, with spray angles available from 0° to 110°. Spray density tapers off toward the outside of these sprays, to permit overlapping of spray patterns while maintaining uniform spray density. Suitable for a variety of washing and spraying applications.

Nozzle Size	Dim 'D'	Dim 'H'	Dim 'L'
1/8F	0.62	9/16	0.8
1/4F	0.62	9/16	1.0
3/8F	0.77	11/16	1.0

All dimensions are in inches

Construction

Each BEX molded nozzle is designed with a series of "knobs" which makes them easier to finger tighten than a hex, especially when wet. The design feature of a small starter barrel greatly reduces the tendency to strip or cross-thread the nozzle during the installation.

Standard Materials

- LL Polypropylene
- KK PVDF
- KN Nat. PVDF
- LN Nat. Polypropylene

Refer to pages 19-27 for metal models

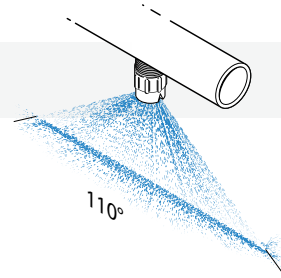
Typical Applications:

- ▶ Printed Circuit Board Washing
- ▶ PCB-Etching/Developing
- ▶ Semiconductor Manufacturing
- ▶ Pressure Washer
- ▶ Car Washing
- ▶ Street Sweeping
- ▶ Carpet Cleaning
- ▶ Fruit and Vegetable Washing
- ▶ Plating Process
- ▶ Dust Suppression
- ▶ Acid Spraying
- ▶ Degreasing
- ▶ Coating Applications
- ▶ Foam Control
- ▶ Metal Washing
- ▶ Chemical Spraying
- ▶ Rinsing Parts

BEX Injection Molded Nozzles are manufactured in-house using cutting-edge injection molding technology.



F110 Injection Molded

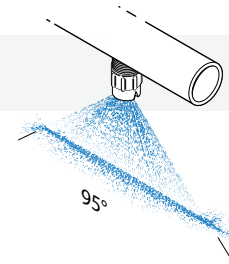


Spray Characteristics

F110 Series spray nozzles produce a flat, fan-shaped spray pattern, with a spray angle of 110° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
1/8F11002	0.034	0.269	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	104°	110°	119°
1/4F11002	0.034	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	104°	110°	119°
1/8F110025	0.038	0.088	0.105	0.125	0.153	0.177	0.216	0.250	0.280	0.306	0.35	0.40	0.48	0.68	104°	110°	119°
1/8F11003	0.042	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	96°	110°	118°
1/4F11003	0.054	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	92°	110°	118°
1/8F11004	0.048	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	90°	110°	112°
1/4F11004	0.048	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	90°	110°	112°
1/8F11005	0.054	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	96°	110°	114°
1/4F11005	0.054	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	96°	110°	114°
1/8F11006	0.059	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	97°	110°	115°
1/4F11006	0.059	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	97°	110°	115°
1/4F11008	0.068	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	100°	110°	115°
1/8F11010	0.076	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	102°	110°	115°
1/4F11010	0.076	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	102°	110°	115°
3/8F11010	0.076	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	102°	110°	115°
1/4F11015	0.094	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	102°	110°	115°
3/8F11015	0.094	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	102°	110°	115°
1/4F11020	0.108	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	103°	110°	112°
3/8F11020	0.108	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	103°	110°	112°
1/4F11030	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	101°	110°	112°
3/8F11030	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	101°	110°	112°
1/4F11040	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	103°	110°	112°
3/8F11040	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	103°	110°	112°
1/4F11050	0.171	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	107°	110°	116°
3/8F11050	0.171	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	107°	110°	116°
1/4F11060	0.187	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	107°	110°	116°
3/8F11060	0.187	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	107°	110°	116°
1/4F11070	0.202	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	107°	110°	116°
3/8F11070	0.202	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	107°	110°	116°

F95 Injection Molded



Spray Characteristics

F95 Series spray nozzles produce a flat, fan-shaped spray pattern, with a spray angle of 95° at 40 PSI.

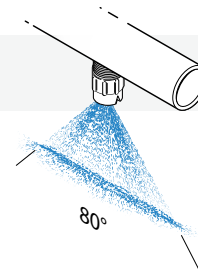
Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
1/8F9502	0.034	--	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	80°	95°	100°
1/4F9502	0.034	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	80°	95°	100°
1/8F95025	0.038	0.088	0.105	0.125	0.153	0.177	0.216	0.250	0.280	0.306	0.35	0.40	0.48	0.68	80°	95°	100°
1/8F9503	0.042	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	81°	95°	104°
1/4F9503	0.042	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	81°	95°	104°
1/8F9504	0.048	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	81°	95°	104°
1/4F9504	0.048	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	81°	95°	104°
1/8F9505	0.054	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	86°	95°	101°
1/4F9505	0.054	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	87°	95°	101°
1/8F9506	0.059	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	86°	95°	101°
1/4F9506	0.059	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	86°	95°	101°
1/4F9508	0.068	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	85°	95°	100°
1/4F9510	0.076	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	88°	95°	99°
3/8F9510	0.076	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	88°	95°	99°
1/4F9515	0.094	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	88°	95°	99°
3/8F9515	0.094	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	90°	95°	100°
1/4F9520	0.108	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	89°	40°	95°
3/8F9520	0.108	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	89°	95°	99°
1/4F9530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	90°	95°	101°
3/8F9530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	90°	95°	101°
1/4F9540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	90°	95°	100°
3/8F9540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	90°	95°	100°
1/4F9550	0.171	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	91°	95°	101°
3/8F9550	0.171	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	91°	95°	101°
1/4F9560	0.187	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	92°	95°	102°
3/8F9560	0.187	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	92°	95°	102°
1/4F9570	0.202	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	92°	95°	103°
3/8F9570	0.202	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	90°	95°	101°

F80 Injection Molded



Spray Characteristics

F80 Series spray nozzles produce a flat, fan-shaped spray pattern, with a spray angle of 80° at 40 PSI.



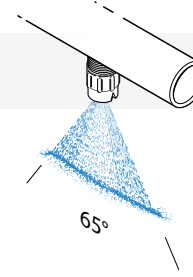
Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM														Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi	
1/8F8002	0.034	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	74°	80°	99°	
1/4F8002	0.034	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	74°	80°	79°	
1/8F80025	0.038	0.088	0.105	0.125	0.153	0.177	0.216	0.250	0.280	0.306	0.35	0.40	0.48	0.68	74°	80°	79°	
1/8F8003	0.042	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	71°	80°	83°	
1/4F8003	0.042	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	71°	80°	83°	
1/8F8004	0.048	0.141	0.044	0.052	0.064	0.074	0.091	0.105	0.117	0.129	0.149	0.166	0.203	0.288	67°	80°	84°	
1/4F8004	0.048	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	67°	80°	84°	
1/8F8005	0.054	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	74°	80°	83°	
1/4F8005	0.054	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	74°	80°	83°	
1/8F8006	0.059	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	74°	80°	83°	
1/4F8006	0.059	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	74°	80°	83°	
1/4F8008	0.068	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	75°	80°	83°	
1/4F8010	0.076	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	75°	80°	83°	
3/8F8010	0.076	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	75°	80°	83°	
1/4F8015	0.094	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	74°	80°	86°	
3/8F8015	0.094	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	74°	80°	86°	
1/4F8020	0.108	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	74°	80°	85°	
3/8F8020	0.108	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	74°	80°	85°	
1/4F8030	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	75°	80°	86°	
3/8F8030	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	75°	80°	86°	
1/4F8040	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	76°	80°	85°	
3/8F8040	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	76°	80°	85°	
1/4F8050	0.171	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	77°	80°	84°	
3/8F8050	0.171	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	77°	80°	84°	
1/4F8060	0.187	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	77°	80°	84°	
3/8F8060	0.187	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	78°	80°	84°	
1/4F8070	0.202	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	78°	80°	89°	
3/8F8070	0.202	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	78°	80°	89°	

F65 Injection Molded



Spray Characteristics

F65 Series spray nozzles produce a flat, fan-shaped spray pattern, with a spray angle of 65° at 40 PSI.



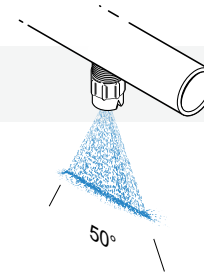
Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
1/8F6502	0.034	0.269	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	38°	65°	77°
1/4F6502	0.034	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	38°	65°	77°
1/8F65025	0.038	0.088	0.105	0.125	0.153	0.177	0.216	0.250	0.280	0.306	0.35	0.40	0.48	0.68	38°	65°	77°
1/8F6503	0.042	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	64°	65°	76°
1/4F6503	0.042	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	64°	65°	76°
1/8F6504	0.048	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	44°	65°	74°
1/4F6504	0.048	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	44°	65°	74°
1/8F6505	0.054	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	53°	65°	72°
1/4F6505	0.054	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	53°	65°	72°
1/8F6506	0.059	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	54°	65°	72°
1/4F6506	0.059	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	54°	65°	72°
1/4F6508	0.068	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	55°	65°	71°
1/4F6510	0.076	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	57°	65°	73°
3/8F6510	0.076	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	57°	65°	73°
1/4F6515	0.094	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	59°	65°	71°
3/8F6515	0.097	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	60°	65°	72°
1/4F6520	0.108	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	59°	65°	72°
3/8F6520	0.108	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	60°	65°	72°
1/4F6530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	61°	65°	72°
3/8F6530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	61°	65°	72°
1/4F6540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	62°	65°	72°
3/8F6540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	62°	65°	74°
1/4F6550	0.171	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	63°	65°	73°
3/8F6550	0.171	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	63°	65°	73°
1/4F6560	0.188	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	63°	65°	73°
3/8F6560	0.187	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	63°	65°	65°
3/8F6570	0.202	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	63°	65°	74°

F50 Injection Molded



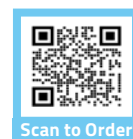
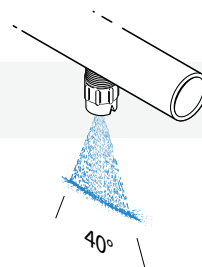
Spray Characteristics

F50 Series spray nozzles produce a flat, fan-shaped spray pattern, with a spray angle of 50° at 40 PSI.



Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
1/8F5002	0.034	0.269	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	42°	50°	72°
1/4F5002	0.034	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	42°	50°	72°
1/8F50025	0.038	0.088	0.105	0.125	0.153	0.177	0.216	0.250	0.280	0.306	0.35	0.40	0.48	0.68	42°	50°	72°
1/8F5003	0.042	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	45°	50°	58°
1/4F5003	0.042	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	45°	50°	58°
1/8F5004	0.048	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	44°	50°	64°
1/4F5004	0.048	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	44°	50°	64°
1/8F5005	0.054	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	44°	50°	68°
1/4F5005	0.054	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	44°	50°	68°
1/8F5006	0.059	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	44°	50°	68°
1/4F5006	0.059	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	44°	50°	68°
1/4F5008	0.068	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	45°	50°	68°
1/4F5010	0.076	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	43°	50°	55°
3/8F5010	0.076	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	43°	50°	55°
1/4F5015	0.094	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	43°	50°	55°
3/8F5015	0.094	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	43°	50°	55°
1/4F5020	0.108	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	43°	50°	55°
3/8F5020	0.108	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	43°	50°	55°
1/4F5030	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	43°	50°	55°
3/8F5030	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	43°	50°	55°
1/4F5040	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	43°	50°	54°
3/8F5040	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	43°	50°	54°
1/4F5050	0.171	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	43°	50°	53°
3/8F5050	0.171	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	43°	50°	53°
1/4F5060	0.187	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	43°	50°	53°
3/8F5060	0.187	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	43°	50°	53°
1/4F5070	0.202	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	43°	50°	53°
3/8F5070	0.202	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	43°	50°	53°

F40 Injection Molded

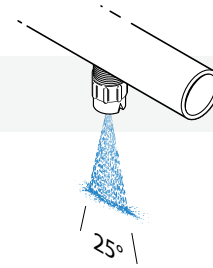


Spray Characteristics

F40 Series spray nozzles produce a flat, fan-shaped spray pattern, with a spray angle of 40° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
1/8F4002	0.034	0.269	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	26°	40°	53°
1/4F4002	0.034	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	26°	40°	53°
1/8F40025	0.038	0.088	0.105	0.125	0.153	0.177	0.216	0.250	0.280	0.306	0.35	0.40	0.48	0.68	26°	40°	56°
1/8F4003	0.042	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	39°	40°	56°
1/4F4003	0.042	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	39°	40°	56°
1/8F4004	0.048	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	40°	40°	59°
1/4F4004	0.048	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	40°	40°	59°
1/8F4005	0.054	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	26°	40°	46°
1/4F4005	0.054	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	26°	40°	46°
1/8F4006	0.059	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	37°	40°	44°
1/4F4006	0.059	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	37°	40°	44°
1/4F4008	0.068	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	35°	40°	43°
1/4F4010	0.076	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	30°	40°	43°
3/8F4010	0.076	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	30°	40°	43°
1/4F4015	0.094	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	35°	40°	41°
3/8F4015	0.094	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	34°	40°	41°
1/4F4020	0.108	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	33°	40°	43°
3/8F4020	0.108	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	33°	40°	43°
1/4F4030	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	34°	40°	45°
3/8F4030	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	34°	40°	45°
1/4F4040	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	33°	40°	43°
3/8F4040	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	33°	40°	43°
1/4F4050	0.171	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	35°	40°	46°
3/8F4050	0.171	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	35°	40°	46°
1/4F4060	0.187	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	37°	40°	48°
3/8F4060	0.187	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	37°	40°	48°
1/4F4070	0.202	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	35°	40°	46°
3/8F4070	0.202	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	35°	40°	46°

F25 Injection Molded

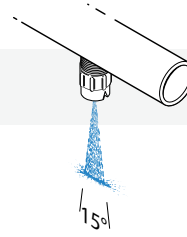


Spray Characteristics

F25 Series spray nozzles produce a flat, fan-shaped spray pattern, with a spray angle of 25° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
1/8F2502	0.034	0.269	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	19°	25°	33°
1/4F2502	0.034	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	19°	25°	33°
1/8F25025	0.038	0.088	0.105	0.125	0.153	0.177	0.216	0.250	0.280	0.306	0.35	0.40	0.48	0.68	19°	25°	33°
1/8F2503	0.042	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	19°	25°	33°
1/4F2503	0.042	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	19°	25°	33°
1/8F2504	0.048	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	18°	25°	34°
1/4F2504	0.048	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	18°	25°	34°
1/8F2505	0.054	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	20°	25°	31°
1/4F2505	0.054	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	20°	25°	31°
1/8F2506	0.059	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	17°	25°	31°
1/4F2506	0.059	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	17°	25°	31°
1/4F2508	0.068	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	16°	25°	32°
1/4F2510	0.076	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	17°	25°	31°
3/8F2510	0.076	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	17°	25°	31°
1/4F2515	0.094	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	18°	25°	30°
3/8F2515	0.094	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	18°	25°	30°
1/4F2520	0.108	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	18°	25°	28°
3/8F2520	0.108	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	18°	25°	28°
1/4F2530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	19°	25°	29°
3/8F2530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	19°	25°	29°
1/4F2540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	22°	25°	32°
3/8F2540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	22°	25°	32°
1/4F2550	0.171	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	20°	25°	32°
3/8F2550	0.171	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	20°	25°	32°
1/4F2560	0.187	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	18°	25°	28°
3/8F2560	0.187	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	18°	25°	28°
1/4F2570	0.202	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	19°	25°	27°
3/8F2570	0.202	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	19°	25°	27°

F15 Injection Molded

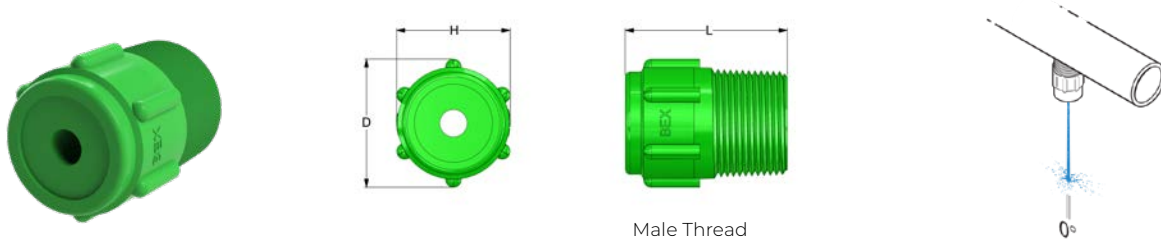


Spray Characteristics

F15 Series spray nozzles produce a flat, fan-shaped spray pattern, with a spray angle of 15° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
1/8F1502	0.034	0.269	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	10°	15°	23°
1/4F1502	0.034	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	10°	15°	23°
1/8F15025	0.038	0.088	0.105	0.125	0.153	0.177	0.216	0.250	0.280	0.306	0.35	0.40	0.48	0.68	11°	15°	20°
1/8F1503	0.042	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	11°	15°	20°
1/4F1503	0.042	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	11°	15°	20°
1/8F1504	0.048	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	11°	15°	20°
1/4F1504	0.048	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	11°	15°	20°
1/8F1505	0.054	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	10°	15°	20°
1/4F1505	0.054	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	10°	15°	20°
1/8F1506	0.059	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	11°	15°	24°
1/4F1506	0.059	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	11°	15°	24°
1/4F1508	0.068	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	11°	15°	21°
1/4F1510	0.076	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	13°	15°	16°
3/8F1510	0.076	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	13°	15°	16°
1/4F1515	0.094	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	11°	15°	20°
3/8F1515	0.094	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	11°	15°	20°
1/4F1520	0.108	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	11°	15°	20°
3/8F1520	0.108	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	11°	15°	18°
1/4F1530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	12°	15°	18°
3/8F1530	0.133	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	12°	15°	18°
1/4F1540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	12°	15°	18°
3/8F1540	0.153	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	12°	15°	19°
1/4F1550	0.171	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	12°	15°	19°
3/8F1550	0.171	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	12°	15°	19°
1/4F1560	0.187	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	12°	15°	17°
3/8F1560	0.187	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	12°	15°	17°
1/4F1570	0.202	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	12°	15°	19°
3/8F1570	0.202	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	12°	15°	19°

F00 Injection Molded



Spray Characteristics

A high impact solid stream. For situations where maximum impact is required over a very small target area:

Construction

Each BEX molded nozzle is designed with a series of "knobs" which makes them easier to finger tighten than a hex, especially when wet. The design feature of a small starter barrel greatly reduces the tendency to strip or cross-thread the nozzle during the installation.

Typical Applications:

- ▶ Metal Washing
- ▶ Agitation
- ▶ Mixing

Standard Materials

- LL** Polypropylene
- KK** PVDF
- KN** Nat. PVDF
- LN** Nat. Polypropylene

Refer to page 28-29 for metal models.

Model #	Orifice Diameter inches	Capacities at Various Pressures USGPM												
		5 psi	7 psi	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	200 psi	300 psi	400 psi	500 psi
1/8F0002	0.034	0.269	0.084	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.63	0.71
1/4F0002	0.034	0.071	0.084	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.63	0.71
1/8F00025	0.038	0.088	0.105	0.125	0.177	0.216	0.250	0.306	0.35	0.40	0.56	0.68	0.79	0.88
1/8F0003	0.042	0.106	0.126	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	0.95	1.06
1/4F0003	0.042	0.106	0.126	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	0.95	1.06
1/8F0004	0.048	0.141	0.167	0.200	0.283	0.35	0.40	0.49	0.57	0.63	0.89	1.10	1.26	1.41
1/4F0004	0.048	0.141	0.167	0.200	0.283	0.35	0.40	0.49	0.57	0.63	0.89	1.10	1.26	1.41
1/8F0005	0.054	0.177	0.209	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.58	1.77
1/4F0005	0.054	0.177	0.209	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.58	1.77
1/8F0006	0.059	0.212	0.251	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	1.90	2.12
1/4F0006	0.059	0.212	0.251	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	1.90	2.12
1/4F0008	0.068	0.283	0.33	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.53	2.83
1/8F0010	0.076	0.35	0.42	0.50	0.71	0.87	1.00	1.22	1.41	1.58	2.24	2.74	3.2	3.5
1/4F0010	0.076	0.35	0.42	0.50	0.71	0.87	1.00	1.22	1.41	1.58	2.24	2.74	3.2	3.5
3/8F0010	0.076	0.35	0.42	0.50	0.71	0.87	1.00	1.22	1.41	1.58	2.24	2.74	3.2	3.5
1/4F0015	0.094	0.53	0.63	0.75	1.06	1.30	1.50	1.84	2.12	2.37	3.4	4.1	4.7	5.3
3/8F0015	0.094	0.53	0.63	0.75	1.06	1.30	1.50	1.84	2.12	2.37	3.4	4.1	4.7	5.3

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Injection Molded F00 Series Continued

Model #	Orifice Diameter inches	Capacities at Various Pressures USGPM												
		5 psi	7 psi	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	200 psi	300 psi	400 psi	500 psi
1/4F0020	0.108	0.71	0.84	1.00	1.41	1.73	2.00	2.45	2.83	3.2	4.5	5.5	6.3	7.1
3/8F0020	0.011	0.71	0.84	1.00	1.41	1.73	2.00	2.45	2.83	3.2	4.5	5.5	6.3	7.1
1/4F0030	0.133	1.06	1.26	1.50	2.12	2.60	3.00	3.7	4.2	4.7	6.7	8.2	9.5	10.6
3/8F0030	0.133	1.06	1.26	1.50	2.12	2.60	3.00	3.7	4.2	4.7	6.7	8.2	9.5	10.6
1/4F0040	0.153	1.41	1.67	2.00	2.83	3.5	4.0	4.9	5.7	6.3	8.9	11.0	12.6	14.1
3/8F0040	0.153	1.41	1.67	2.00	2.83	3.5	4.0	4.9	5.7	6.3	8.9	11.0	12.6	14.1
1/4F0050	0.171	1.77	2.09	2.50	3.5	4.3	5.0	6.1	7.1	7.9	11.2	13.7	15.8	17.7
3/8F0050	0.171	1.77	2.09	2.50	3.5	4.3	5.0	6.1	7.1	7.9	11.2	13.7	15.8	17.7
1/4F0060	0.187	2.12	2.51	3.00	4.2	5.2	6.0	7.3	8.5	9.5	13.4	16.4	19.0	21.2
3/8F0060	0.187	2.12	2.51	3.00	4.2	5.2	6.0	7.3	8.5	9.5	13.4	16.4	19.0	21.2
1/4F0070	0.202	2.47	2.93	3.5	4.9	6.1	7.0	8.6	9.9	11.1	15.7	19.2	22.1	24.7
3/8F0070	0.202	2.47	2.93	3.5	4.9	6.1	7.0	8.6	9.9	11.1	15.7	19.2	22.1	24.7

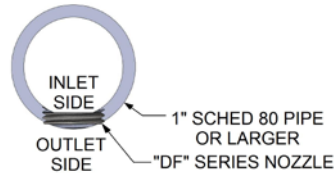
DF Series



Outlet side



Inlet Side



5/8-18 UNF THREAD



Spray Characteristics

The DF-Series spray nozzles produce a flat, fan-shaped spray pattern at operating pressures up to 150 PSI. The spray density tapers off towards the edges of the pattern to allow for overlapping while maintaining uniform spray density. These thin-disc flat spray nozzles are suitable for various washing and spraying applications and are used in situations where the nozzle must not extend beyond the wall of the header pipe. A thread seal is recommended to prevent leaking.

Construction

The models listed are machined from bar stock and are one-piece construction. Minimum recommended pipe size is 1" schedule 80. Optimum thread engagement occurs on pipes of 1-1/4" schedule 80 and larger.

Standard Materials

- 3 303 Stainless Steel
- 6 316 Stainless Steel

Manifolds

BEX offers a range of Spray Manifolds that can be used with the DF series. The spray Manifolds come in two standardized lengths - 24" and 48" - and are equipped with evenly spaced nozzles in quantities 2, 4, 6 and 8.



Model #	Equiv. Orifice Diameter	Capacities at Various Pressures USGPM									Spray Angle @ 40 PSI
		10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	
DF35054	0.056	1.03	0.33	0.38	0.47	0.54	0.66	0.76	0.85	1.05	35°
DF3513	0.087	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	35°
DF3524	0.119	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	35°
DF3533	0.139	1.65	2.02	2.33	2.86	3.3	4.0	4.7	5.2	6.4	35°
DF4013	0.087	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	40°
DF4047	0.166	2.35	2.88	3.3	4.1	4.7	5.8	6.6	7.4	9.1	40°
DF4313	0.087	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	43°
DF5013	0.087	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	50°
DF55054	0.056	0.270	0.33	0.38	0.47	0.54	0.66	0.76	0.85	1.05	55°
DF55084	0.070	0.42	0.51	0.59	0.73	0.84	1.03	1.19	1.33	1.63	55°
DF5513	0.087	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	55°

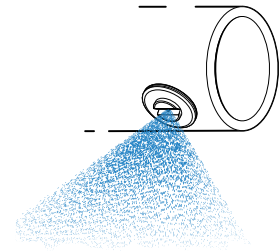
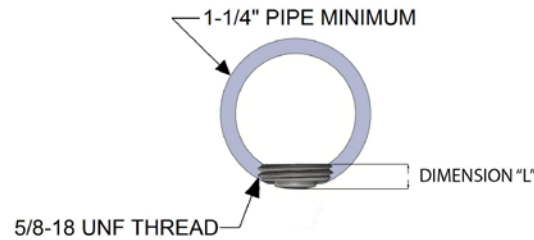
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DF Series Continued

Model #	Equiv. Orifice Diameter	Capacities at Various Pressures USGPM									Spray Angle @ 40 PSI
		10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	
DF5824	0.119	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	58°
DF5833	0.139	1.65	2.02	2.33	2.86	3.3	4.0	4.7	5.2	6.4	58°
DF6022	0.113	1.10	1.35	1.56	1.91	2.20	2.69	3.11	3.5	4.3	60°
DF65054	0.056	0.270	0.33	0.38	0.47	0.54	0.66	0.76	0.85	1.05	65°
DF6513	0.087	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	65°
DF6515	0.094	0.75	0.92	1.06	1.30	1.50	1.84	2.12	2.37	2.90	65°
DF6519	0.105	0.95	1.16	1.34	1.65	1.90	2.33	2.69	3.00	3.7	65°
DF6524	0.119	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	65°
DF6840	0.153	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	70°
DF70054	0.056	0.270	0.33	0.38	0.47	0.54	0.66	0.76	0.85	1.05	70°
DF80054	0.056	0.270	0.33	0.38	0.47	0.54	0.66	0.76	0.85	1.05	80°
DF80084	0.070	0.42	0.51	0.59	0.73	0.84	1.03	1.19	1.33	1.63	80°
DF8013	0.087	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	80°
DF8019	0.105	0.95	1.16	1.34	1.65	1.90	2.33	2.69	3.00	3.7	80°
DF8024	0.119	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	80°
DF8033	0.139	1.65	2.02	2.33	2.86	3.3	4.0	4.7	5.2	6.4	80°
DF90018	0.032	0.090	0.110	0.127	0.156	0.180	0.220	0.255	0.285	0.35	90°
DF90054	0.056	0.270	0.33	0.38	0.47	0.54	0.66	0.76	0.85	1.05	90°
DF11006	0.059	0.300	0.37	0.42	0.52	0.60	0.73	0.85	0.95	1.16	110°



STF Series



Spray Characteristics

The STF spray nozzles produce a flat, fan-shaped spray pattern with spray angles ranging from 0° to 90°. The spray density tapers off towards the edges of the pattern to allow for overlapping while maintaining uniform spray density. The outer surface of the nozzle is typically flush with the outside of the header, although certain models may protrude slightly. A thread seal is recommended to prevent leaking.

Construction

The STF are disc-shaped, with a male 5/8-18 straight thread. They are machined from bar stock, and are one piece construction. Models range in length, and some may protrude slightly from the outside of the pipe depending on the length of the nozzle, and how deeply they have been threaded into the pipe. Most models with a length of 0.190" should be flush to the pipe.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Manifolds

BEX offers a range of Spray Manifolds that can be used with the STF series. The spray Manifolds come in two standardized lengths - 24" and 48" - and are equipped with evenly spaced nozzles in quantities 2, 4, 6 and 8.



Model #	Equiv. Orifice Diameter	Length "L" inches	Capacities at Various Pressures USGPM												Spray Angles		
			10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	200 psi	250 psi	300 psi	20 psi	40 psi	80 psi
STF0003	0.042	0.190	0.57	0.184	0.212	0.260	0.300	0.37	0.42	0.47	0.58	0.67	0.75	0.82	0°	0°	0°
STF0007	0.064	0.190	0.35	0.43	0.50	0.61	0.70	0.86	0.99	1.11	1.36	1.57	1.75	1.92	0°	0°	0°
STF2507	0.064	0.190	0.35	0.43	0.50	0.61	0.70	0.86	0.99	1.11	1.36	1.57	1.75	1.92	19°	25°	26°
STF50084	0.070	0.190	0.42	0.51	0.59	0.73	0.84	1.03	1.19	1.33	1.63	1.88	2.10	2.30	42°	50°	57°
STF5013	0.087	0.190	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	2.91	3.2	3.6	44°	50°	56°
STF5019	0.105	0.190	0.95	1.16	1.34	1.65	1.90	2.33	2.69	3.00	3.7	4.2	4.8	5.2	45°	50°	54°
STF6003	0.042	0.190	0.150	0.184	0.212	0.260	0.300	0.37	0.42	0.47	0.58	0.67	0.75	0.82	50°	60°	65°
STF60054	0.056	0.190	0.270	0.33	0.38	0.47	0.54	0.66	0.76	0.85	1.05	1.21	1.35	1.48	52°	60°	64°
STF60093	0.074	0.190	0.46	0.57	0.66	0.81	0.93	1.14	1.32	1.47	1.80	2.08	2.32	2.55	56°	60°	66°
STF6013	0.087	0.190	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	2.91	3.2	3.6	55°	60°	64°
STF6020	0.108	0.190	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	4.5	5.0	5.5	55°	60°	63°
STF6024	0.119	0.190	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	5.4	6.0	6.6	58°	60°	66°
STF6033	0.139	0.265	1.65	2.02	2.33	2.86	3.3	4.0	4.7	5.2	6.4	7.4	8.2	9.0	58°	60°	64°
STF6040	0.153	0.265	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	8.9	10.0	11.0	57°	60°	62°
STF6047	0.166	0.35	2.35	2.88	3.3	4.1	4.7	5.8	6.6	7.4	9.1	10.5	11.8	12.9	58°	60°	62°
STF6088	0.227	0.35	4.4	5.4	6.2	7.6	8.8	10.8	12.4	13.9	17.0	19.7	22.0	24.1	58°	60°	62°
STF65054	0.056	0.190	0.270	0.33	0.38	0.47	0.54	0.66	0.76	0.85	1.05	1.21	1.35	1.48	55°	65°	72°
STF6513	0.087	0.190	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	2.91	3.2	3.6	57°	65°	70°

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STF Series Continued

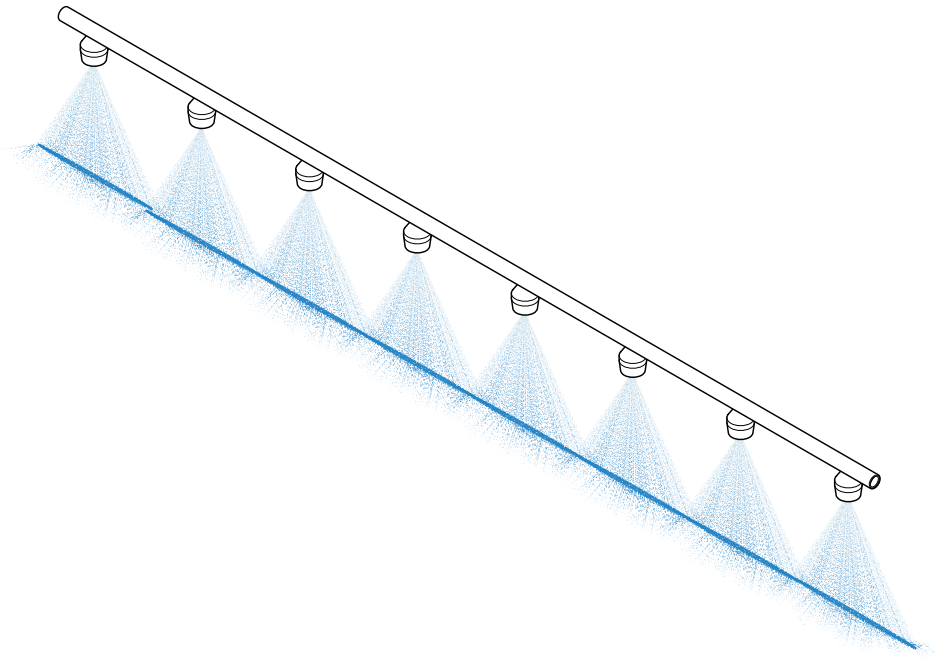
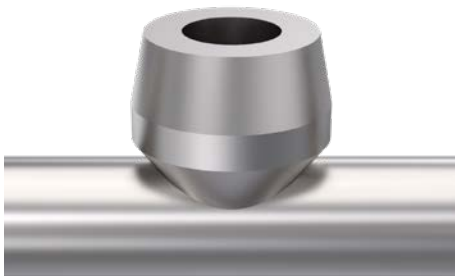
Model #	Equiv. Orifice Diameter	Length "L" inches	Capacities at Various Pressures USGPM												Spray Angles		
			10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	200 psi	250 psi	300 psi	20 psi	40 psi	80 psi
STF6519	0.105	0.190	0.95	1.16	1.34	1.65	1.90	2.33	2.69	3.00	3.7	4.2	4.8	5.2	60°	65°	69°
STF6520	0.108	0.190	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	4.5	5.0	5.5	62°	65°	69°
STF6524	0.119	0.190	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	5.4	6.0	6.6	62°	65°	67°
STF6588	0.227	0.35	4.4	5.4	6.2	7.6	8.8	10.8	12.4	13.9	17.0	19.7	22.0	24.1	61°	65°	69°
STF6824	0.119	0.35	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	5.4	6.0	6.6	65°	68°	70°
STF8004	0.048	0.190	0.200	0.245	0.283	0.35	0.40	0.49	0.57	0.63	0.77	0.89	1.00	1.10	75°	80°	84°
STF80054	0.056	0.190	0.270	0.33	0.38	0.47	0.54	0.66	0.76	0.85	1.05	1.21	1.35	1.48	72°	80°	87°
STF80084	0.070	0.190	0.42	0.51	0.59	0.73	0.84	1.03	1.19	1.33	1.63	1.88	2.10	2.30	76°	80°	84°
STF80093	0.074	0.190	0.46	0.57	0.66	0.81	0.93	1.14	1.32	1.47	1.80	2.08	2.32	2.55	74°	80°	84°
STF8010	0.076	0.190	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	2.24	2.50	2.74	75°	80°	86°
STF8013	0.087	0.190	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	2.91	3.2	3.6	76°	80°	85°
STF8024	0.119	0.190	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	5.4	6.0	6.6	75°	80°	83°
STF8033	0.139	0.265	1.65	2.02	2.33	2.86	3.3	4.0	4.7	5.2	6.4	7.4	8.2	9.0	76°	80°	82°
STF90054	0.056	0.190	0.270	0.33	0.38	0.47	0.54	0.66	0.76	0.85	1.05	1.21	1.35	1.48	82°	90°	96°
STF90093	0.074	0.190	0.46	0.57	0.66	0.81	0.93	1.14	1.32	1.47	1.80	2.08	2.32	2.55	83°	90°	95°
STF9013	0.087	0.190	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	2.91	3.2	3.6	85°	90°	93°

Spray Manifolds

Spray Manifolds offer a quick and easy solution for applications which require an array of spray nozzles.

BEX can customize spray manifolds to meet the unique needs of your application. A variety of materials and sizes are available.

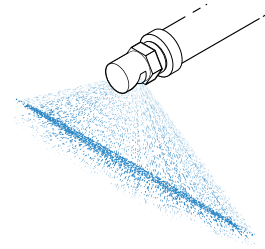
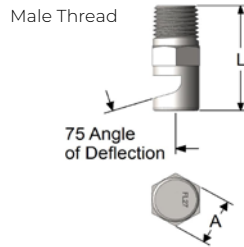
Manifolds are not available for online purchase. Please contact us directly for more information.



FL Series



Scan to Order



Spray Characteristics

A wide, flat fan-shaped spray with low impact. The spray is deflected 75° away from the centerline of the pipe connection, as shown

Construction

The models listed are machined from bar stock, and are one piece construction.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel
- LL** Polypropylene
- V** PVC
- A** CPVC
- T** Teflon

Typical Applications:

- ▶ Rinsing and Cooling
- ▶ Dishwashing
- ▶ Fertilizer Spraying
- ▶ Metal Wash



Air and Steam Applications

The FL nozzle can also be used for dispensing air and steam.

See page pages 169-170 for details.

Model Number	Orifice Diameter inches	Dimensions		Capacities at Various Pressures USGPM										Spray Angle					
		Hex Size (A)	Length (L)	3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	3 psi	5 psi	7 psi	10 psi	20 psi	60 psi	
1/8FL.25	0.017	0.44	0.56	--	--	--	0.030	0.037	0.042	0.052	0.060	0.074	--	--	--	90°	106°	120°	
1/8FL.50	0.024	0.44	0.56	--	--	0.042	0.050	0.061	0.071	0.087	0.100	0.122	--	--	65°	78°	99°	120°	
1/8FL.75	0.029	0.44	0.81	--	--	0.063	0.075	0.092	0.106	0.130	0.150	0.184	--	--	72°	85°	112°	140°	
1/8FL1	0.033	0.44	0.81	--	--	0.084	0.100	0.122	0.141	0.173	0.200	0.245	--	--	90°	97°	135°	148°	
1/8FL1.3	0.038	0.44	0.81	--	0.092	0.109	0.130	0.159	0.184	0.225	0.260	0.32	--	73°	80°	92°	115°	134°	
1/8FL1.5	0.042	0.44	0.81	0.082	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.37	57°	69°	75°	87°	104°	125°	
1/8FL2	0.047	0.44	0.81	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	60°	73°	82°	86°	104°	125°	
1/8FL2.5	0.055	0.44	0.81	0.137	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.61	79°	87°	92°	101°	112°	130°	
1/8FL3	0.059	0.44	0.81	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	84°	97°	106°	115°	130°	140°	
1/8FL4	0.070	0.44	0.94	0.219	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.98	74°	87°	89°	101°	116°	127°	
1/8FL5	0.076	0.44	0.94	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	78°	89°	97°	103°	113°	132°	
1/8FL7.5	0.094	0.44	0.94	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	98°	105°	112°	120°	132°	144°	
1/8FL10	0.110	0.44	0.94	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	116°	125°	135°	137°	144°	150°	
1/8FL12	0.120	0.56	1.06	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	98°	105°	109°	118°	134°	139°	
1/8FL15	0.129	0.56	1.06	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	100°	110°	115°	124°	131°	139°	
1/8FL18	0.147	0.56	1.06	0.99	1.27	1.51	1.80	2.20	2.55	3.12	3.6	4.4	100°	112°	116°	124°	135°	137°	
1/8FL20	0.154	0.56	1.06	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	115°	125°	128°	134°	142°	147°	
1/4FL1.3	0.038	0.56	0.94	0.071	0.092	0.109	0.130	0.159	0.184	0.225	0.260	0.32	52°	62°	71°	81°	97°	116°	
1/4FL1.5	0.042	0.56	0.94	0.082	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.37	57°	70°	77°	85°	103°	122°	
1/4FL2	0.047	0.56	0.94	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	62°	76°	84°	96°	110°	134°	
1/4FL2.5	0.055	0.56	0.94	0.137	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.61	88°	110°	114°	126°	145°	152°	
1/4FL3	0.059	0.56	0.94	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	77°	91°	99°	104°	128°	149°	
1/4FL4	0.070	0.56	1.00	0.219	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.98	65°	73°	82°	87°	96°	104°	

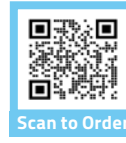
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FL Series Continued

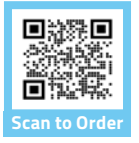
Model Number	Orifice Diameter inches	Dimensions		Capacities at Various Pressures USGPM									Spray Angle					
		Hex Size (A)	Length (L)	3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	3 psi	5 psi	7 psi	10 psi	20 psi	60 psi
1/4FL5	0.076	0.56	1.00	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	69°	84°	89°	97°	107°	124°
1/4FL7.5	0.094	0.56	1.00	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	90°	104°	122°	133°	145°	150°
1/4FL10	0.110	0.56	1.00	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	125°	130°	134°	137°	148°	156°
1/4FL12	0.120	0.56	1.31	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	110°	115°	122°	130°	141°	150°
1/4FL15	0.129	0.56	1.31	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	90°	98°	109°	125°	136°	144°
1/4FL18	0.147	0.56	1.31	0.99	1.27	1.51	1.80	2.20	2.55	3.12	3.6	4.4	104°	113°	118°	124°	134°	138°
1/4FL20	0.154	0.56	1.31	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	110°	119°	127°	131°	136°	144°
1/4FL22	0.161	0.56	1.31	1.20	1.56	1.84	2.20	2.69	3.11	3.8	4.4	5.4	97°	108°	114°	120°	128°	132°
1/4FL24	0.169	0.56	1.31	1.31	1.70	2.01	2.40	2.94	3.4	4.2	4.8	5.9	106°	118°	121°	127°	136°	154°
1/4FL27	0.177	0.56	1.31	1.48	1.91	2.26	2.70	3.3	3.8	4.7	5.4	6.6	110°	120°	124°	129°	139°	146°
3/8FL30	0.188	0.69	1.50	1.64	2.12	2.51	3.00	3.7	4.2	5.2	6.0	7.3	104°	116°	121°	127°	135°	138°
3/8FL35	0.196	0.69	1.50	1.92	2.47	2.93	3.5	4.3	4.9	6.1	7.0	8.6	104°	114°	118°	126°	130°	137°
3/8FL40	0.209	0.69	1.50	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	109°	115°	123°	126°	135°	136°
3/8FL45	0.228	0.69	1.50	2.46	3.2	3.8	4.5	5.5	6.4	7.8	9.0	11.0	117°	126°	134°	139°	142°	144°
1/2FL40	0.209	0.88	1.69	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	106°	111°	119°	124°	129°	133°
1/2FL50	0.242	0.88	1.69	2.74	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	106°	122°	130°	133°	139°	141°
1/2FL60	0.266	0.88	2.00	3.3	4.2	5.0	6.0	7.3	8.5	10.4	12.0	14.7	110°	120°	124°	128°	133°	138°
1/2FL70	0.290	0.88	2.00	3.8	4.9	5.9	7.0	8.6	9.9	12.1	14.0	17.1	105°	118°	119°	121°	124°	130°
1/2FL80	0.312	0.88	2.00	4.4	5.7	6.7	8.0	9.8	11.3	13.9	16.0	19.6	114°	116°	124°	126°	130°	135°
3/4FL90	0.316	1.06	2.38	4.9	6.4	7.5	9.0	11.0	12.7	15.6	18.0	22.0	104°	115°	120°	121°	125°	128°
3/4FL100	0.344	1.06	2.38	5.5	7.1	8.4	10.0	12.2	14.1	17.3	20.0	24.5	105°	113°	115°	118°	121°	125°
3/4FL110	0.348	1.06	2.38	6.0	7.8	9.2	11.0	13.5	15.6	19.1	22.0	26.9	106°	110°	116°	119°	120°	131°
3/4FL120	0.375	1.06	2.38	6.6	8.5	10.0	12.0	14.7	17.0	20.8	24.0	29.4	119°	125°	129°	131°	133°	135°
3/4FL140	0.402	1.06	2.62	7.7	9.9	11.7	14.0	17.1	19.8	24.2	28.0	34	115°	120°	128°	133°	137°	139°
3/4FL160	0.430	1.06	2.62	8.8	11.3	13.4	16.0	19.6	22.6	27.7	32	39	117°	122°	130°	135°	139°	140°
3/4FL180	0.460	1.06	2.62	9.9	12.7	15.1	18.0	22.0	25.5	31.2	36	44	117°	128°	131°	133°	136°	136°
3/4FL210	0.500	1.06	2.62	11.5	14.8	17.6	21.0	25.7	29.7	36	42	51	122°	127°	132°	135°	136°	136°
1FL140	0.402	1.38	2.81	7.7	9.9	11.7	14.0	17.1	19.8	24.2	28.0	34	117°	122°	126°	130°	133°	133°
1FL160	0.430	1.38	1.25	8.8	11.3	13.4	16.0	19.6	22.6	27.7	32	39	117°	127°	131°	135°	136°	136°
1FL180	0.460	1.38	1.25	9.9	12.7	15.1	18.0	22.0	25.5	31.2	36	44	115°	125°	128°	132°	135°	135°
1FL210	0.500	1.50	2.81	11.5	14.8	17.6	21.0	25.7	29.7	36	42	51	117°	122°	127°	130°	133°	134°
1FL300	0.578	1.38	3.4	16.4	21.2	25.1	30.0	37	42	52	60	73	114°	118°	120°	123°	124°	124°



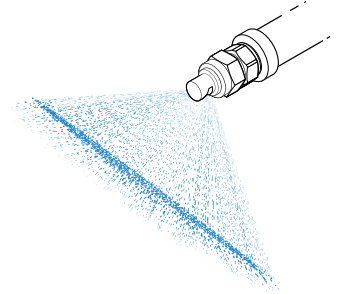
FLT Series



Scan to Order
Full Assembly



Scan to Order
Tip Replacement



"A" Series Assembly

FLT Tips are designed to work with our "A" series assemblies, which come with a removable strainer and replaceable spray tips. This design is particularly suitable for low-flow applications as the built-in strainer can protect the nozzle orifice from getting clogged and damaged by small debris present in the liquid, such as those commonly found in recirculated liquids. The "A" bodies are available in three different sizes, and FLT tips are compatible with all of them.

Construction

"A" series assemblies consist of an "A"-body, AL Strainer, FLT Nozzle tip, and "A"-cap.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Spray Characteristics

A wide, flat fan-shaped spray with low impact. The spray is deflected 75° away from the centerline of the pipe connection, as shown.

Typical Applications:

- ▶ Rinsing and Cooling
- ▶ Dishwashing
- ▶ Fertilizer Spraying
- ▶ Metal Wash

Air and Steam Applications

The FLT nozzle can also be used for dispensing air and steam.

See our website for more details.

Model Number	Orifice Diameter inches	Full Assembly Length (L) inches	Capacities at Various Pressures USGPM									Spray Angles					
			3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	3 psi	5 psi	7 psi	10 psi	20 psi	60 psi
1/8FLT.25	0.017	1.79	0.014	0.018	0.021	0.025	0.031	0.035	0.043	0.050	0.061	--	--	--	90°	106°	120°
1/4FLT.25	0.017	1.85	0.014	0.018	0.021	0.025	0.031	0.035	0.043	0.050	0.061	--	--	--	90°	106°	120°
1/8FLT.50	0.024	1.1875	0.027	0.035	0.042	0.050	0.061	0.071	0.087	0.100	0.122	--	--	65°	78°	99°	120°
1/4FLT.50	0.024	1.937	0.027	0.035	0.042	0.050	0.061	0.071	0.087	0.100	0.122	--	--	65°	78°	99°	120°
1/8FLT.75	0.029	1.875	0.041	0.053	0.063	0.075	0.092	0.106	0.130	0.150	0.184	--	--	72°	85°	112°	140°
1/4FLT.75	0.029	1.937	0.041	0.053	0.063	0.075	0.092	0.106	0.130	0.150	0.184	--	--	72°	85°	112°	140°
1/8FLT1	0.033	1.875	0.055	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.245	--	--	90°	97°	135°	148°
1/4FLT1	0.033	1.937	0.055	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.245	--	--	90°	97°	135°	148°
1/8FLT1.3	0.038	1.875	0.071	0.092	0.109	0.130	0.159	0.184	0.225	0.260	0.32	--	73°	80°	92°	115°	134°
1/4FLT1.3	0.038	1.937	0.071	0.092	0.109	0.130	0.159	0.184	0.225	0.260	0.32	--	73°	80°	92°	115°	134°
1/8FLT1.5	0.042	1.875	0.082	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.37	57°	69°	75°	87°	104°	125°
1/4FLT1.5	0.042	1.937	0.082	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.37	57°	69°	75°	87°	104°	125°
1/8FLT2	0.047	1.875	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	60°	73°	82°	86°	104°	125°
1/4FLT2	0.047	1.937	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	60°	73°	82°	86°	104°	125°

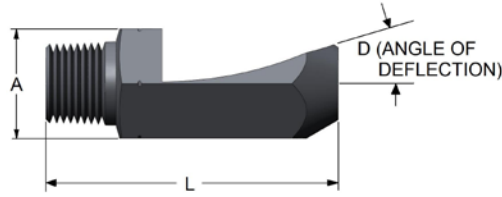
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FLT Series Continued

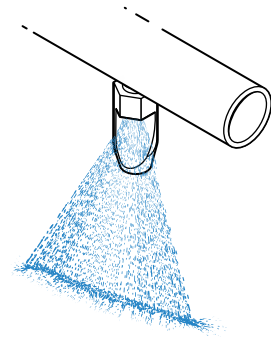
Model Number	Orifice Diameter inches	Full Assembly Length (L) inches	Capacities at Various Pressures USGPM										Spray Angles					
			3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	3 psi	5 psi	7 psi	10 psi	20 psi	60 psi	
1/8FLT2.5	0.055	1.875	0.137	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.61	79°	87°	92°	101°	112°	130°	
1/4FLT2.5	0.055	1.937	0.137	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.61	79°	87°	92°	101°	112°	130°	
1/8FLT3	0.059	1.875	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	84°	97°	106°	115°	130°	140°	
1/4FLT3	0.059	1.937	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	84°	97°	106°	115°	130°	140°	
1/8FLT4	0.070	1.875	0.219	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.98	74°	87°	89°	101°	116°	127°	
1/4FLT4	0.070	1.937	0.219	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.98	74°	87°	89°	101°	116°	127°	
1/8FLT5	0.076	1.875	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	78°	89°	97°	103°	113°	132°	
1/4FLT5	0.076	1.937	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	78°	89°	97°	103°	113°	132°	
1/8FLT7.5	0.094	1.875	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	98°	105°	112°	120°	132°	144°	
1/4FLT7.5	0.094	1.937	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	98°	105°	112°	120°	132°	144°	
1/8FLT10	0.110	1.875	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	116°	125°	135°	137°	144°	150°	
1/4FLT10	0.110	1.937	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	116°	125°	135°	137°	144°	150°	
1/8FLT12	0.020	1.875	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	98°	105°	109°	118°	134°	139°	
1/4FLT12	0.020	1.937	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	98°	105°	109°	118°	134°	139°	
1/8FLT15	0.129	2.07	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	100°	110°	115°	124°	131°	139°	
1/4FLT15	0.129	2.13	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	100°	110°	115°	124°	131°	139°	
1/8FLT18	0.147	2.07	0.99	1.27	1.51	1.80	2.20	2.55	3.12	3.6	4.4	100°	112°	116°	124°	135°	137°	
1/4FLT18	0.147	2.13	0.99	1.27	1.51	1.80	2.20	2.55	3.12	3.6	4.4	100°	112°	116°	124°	135°	137°	
1/8FLT20	0.154	2.07	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	115°	125°	128°	134°	142°	147°	
1/4FLT20	0.154	2.13	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	115°	125°	128°	134°	142°	147°	
1/4FLT22	0.161	2.13	1.20	1.56	1.84	2.20	2.69	3.11	3.8	4.4	5.4	97°	108°	114°	120°	128°	132°	
3/8FLT22	0.161	2.18	1.20	1.56	1.84	2.20	2.69	3.11	3.8	4.4	5.4	97°	108°	114°	120°	128°	132°	
1/4FLT24	0.169	2.11	1.31	1.70	2.01	2.40	2.94	3.4	4.2	4.8	5.9	106°	118°	121°	127°	136°	154°	
3/8FLT24	0.169	2.18	1.31	1.70	2.01	2.40	2.94	3.4	4.2	4.8	5.9	106°	118°	121°	127°	136°	154°	
1/4FLT27	0.177	2.11	1.48	1.91	2.26	2.70	3.3	3.8	4.7	5.4	6.6	110°	120°	124°	129°	139°	146°	
3/8FLT27	0.177	2.18	1.48	1.91	2.26	2.70	3.3	3.8	4.7	5.4	6.6	110°	120°	124°	129°	139°	146°	
1/4FLT30	0.188	2.11	1.64	2.12	2.51	3.00	3.7	4.2	5.2	6.0	7.3	104°	116°	121°	127°	135°	138°	
3/8FLT30	0.188	2.18	1.64	2.12	2.51	3.00	3.7	4.2	5.2	6.0	7.3	104°	116°	121°	127°	135°	138°	
1/4FLT35	0.196	2.11	1.92	2.47	2.93	3.5	4.3	4.9	6.1	7.0	8.6	104°	114°	118°	126°	130°	137°	
3/8FLT35	0.196	2.18	1.92	2.47	2.93	3.5	4.3	4.9	6.1	7.0	8.6	104°	114°	118°	126°	130°	137°	
1/4FLT40	0.209	2.11	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	109°	115°	123°	139°	135°	136°	
3/8FLT40	0.209	2.18	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	109°	115°	123°	139°	135°	136°	



FP Series



Male Thread



Spray Characteristics

The FP series nozzles produce a flat and thin fan-shaped spray with sharp edges and high impact over the area covered. The spray is deflected by a certain angle (angle D) away from the centerline of the spray nozzle.

Construction

The models listed are machined from bar stock, and are one piece construction.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Typical Applications:

- ▶ High Impact Applications
- ▶ Metal Wash
- ▶ Gravel Washing
- ▶ Vehicle Washing

Model Number	Orifice Diameter inches	Angle 'D' at 40 psi	Dimensions		Capacities at Various Pressures USGPM								Spray Angles		
			Material Size (A)	Length (L)	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	15 psi	40 psi	100 psi
1/8FP5001	0.024	40°	0.50	0.84	0.061	0.071	0.087	0.100	0.122	0.141	0.158	0.194	30°	50°	58°
1/4FP50025	0.038	41°	0.69	1.05	0.153	0.177	0.216	0.250	0.306	0.35	0.40	0.48	29°	50°	57°
1/4FP5005	0.054	41°	0.69	1.12	0.306	0.35	0.43	0.50	0.61	0.71	0.79	0.97	30°	50°	59°
1/4FP5010	0.075	52°	0.69	1.25	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	32°	50°	59°
1/4FP5025	0.118	40°	0.69	1.31	1.53	1.77	2.17	2.50	3.06	3.5	4.0	4.8	41°	50°	58°
3/8FP5025	0.118	40°	0.69	1.38	1.53	1.77	2.17	2.50	3.06	3.5	4.0	4.8	41°	50°	58°
1/4FP5040	0.149	45°	0.88	1.88	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	42°	50°	59°
3/8FP5040	0.149	44°	0.88	1.91	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	40°	50°	59°
3/8FP5060	0.183	40°	0.88	1.19	3.7	4.2	5.2	6.0	7.3	8.5	9.5	11.6	41°	50°	52°
3/8FP50100	0.236	38°	1.25	2.75	6.1	7.1	8.7	10.0	12.2	14.1	15.8	19.4	44°	50°	54°
3/8FP50125	0.266	34°	1.25	2.62	7.7	8.8	10.8	12.5	15.3	17.7	19.8	24.2	39°	50°	57°
3/8FP50160	0.298	37°	1.25	2.69	9.8	11.3	13.9	16.0	19.6	22.6	25.3	31.0	46°	50°	55°
3/8FP50200	0.328	33°	1.25	2.88	12.2	14.1	17.3	20.0	24.5	28.3	32	39	47°	50°	55°
3/8FP4040	0.149	34°	0.88	2.09	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	30°	40°	48°
3/8FP4050	0.167	32°	1.00	2.56	3.06	3.5	4.3	5.0	6.1	7.1	7.9	9.7	30°	40°	47°
3/8FP4060	0.183	31°	1.12	2.84	3.7	4.2	5.2	6.0	7.3	8.5	9.5	11.6	31°	40°	50°
3/8FP4070	0.197	28°	1.25	2.94	4.3	4.9	6.1	7.0	8.6	9.9	11.1	13.6	33°	40°	50°
3/8FP4080	0.211	28°	1.25	2.94	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	33°	40°	48°
3/8FP4090	0.228	28°	1.25	2.94	5.5	6.4	7.8	9.0	11.0	12.7	14.2	17.4	34°	40°	46°
3/8FP40100	0.236	31°	1.25	3.12	6.1	7.1	8.7	10.0	12.2	14.1	15.8	19.4	34°	40°	46°
1/8FP3504	0.047	36°	0.44	0.94	0.245	0.283	0.35	0.40	0.49	0.57	0.63	0.77	20°	35°	41°

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FP Series Continued

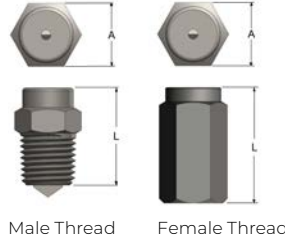
Model Number	Orifice Diameter inches	Angle 'D' at 40 psi	Dimensions		Capacities at Various Pressures USGPM								Spray Angles		
			Material Size (A)	Length (L)	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	15 psi	40 psi	100 psi
1/4FP3510	0.075	37°	0.69	1.44	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	18°	35°	38°
1/4FP3520	0.105	30°	0.69	1.56	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	25°	35°	42°
3/8FP3520	0.105	32°	0.69	1.62	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	25°	35°	42°
3/8FP3525	0.117	29°	0.69	1.72	1.53	1.77	2.17	2.50	3.06	3.5	4.0	4.8	24°	35°	41°
3/8FP3530	0.128	28°	0.88	2.12	1.84	2.12	2.60	3.00	3.7	4.2	4.7	5.8	25°	35°	42°
1/4FP3540	0.149	31°	0.88	2.34	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	29°	35°	42°
3/8FP3540	0.149	31°	0.88	2.34	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	29°	35°	42°
3/8FP3550	0.167	26°	1.00	2.62	3.06	3.5	4.3	5.0	6.1	7.1	7.9	9.7	30°	35°	40°
1/2FP3560	0.183	29°	1.06	2.88	3.7	4.2	5.2	6.0	7.3	8.5	9.5	11.6	27°	35°	40°
1/2FP3580	0.211	22°	1.25	3.3	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	25°	35°	38°
1/2FP35100	0.221	24°	1.25	3.5	6.1	7.1	8.7	10.0	12.2	14.1	15.8	19.4	25°	35°	40°
3/4FP35160	0.295	22°	1.25	4.4	9.8	11.3	13.9	16.0	19.6	22.6	25.3	31.0	26°	35°	39°
3/4FP35200	0.328	24°	1.25	4.3	12.2	14.1	17.3	20.0	24.5	28.3	32	39	31°	35°	42°
1/4FP2540	0.149	24°	0.88	2.50	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	22°	25°	27°
1/4FP1510	0.075	22°	0.69	1.94	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	--	15°	21°
1/4FP1520	0.105	20°	0.69	2.25	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	--	15°	18°
3/8FP1530	0.129	20°	0.88	2.84	1.84	2.12	2.60	3.00	3.7	4.2	4.7	5.8	8°	15°	24°
3/8FP1540	0.149	13°	0.88	3.8	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	8°	15°	20°
3/8FP1550	0.167	14°	0.88	3.6	3.06	3.5	4.3	5.0	6.1	7.1	7.9	9.7	8°	15°	22°
1/2FP1560	0.183	14°	1.00	4.9	3.7	4.2	5.2	6.0	7.3	8.5	9.5	11.6	11°	15°	18°
1/2FP1580	0.218	14°	1.12	5.1	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	11°	15°	18°
1/2FP15100	0.236	15°	1.12	5.4	6.1	7.1	8.7	10.0	12.2	14.1	15.8	19.4	11°	15°	17°
3/4FP15200	0.333	15°	1.50	7.6	12.2	14.1	17.3	20.0	24.5	28.3	32	39	11°	15°	17°
3/4FP15300	0.408	15°	1.75	7.5	18.4	21.2	26.0	30.0	37	42	47	58	12°	15°	18°



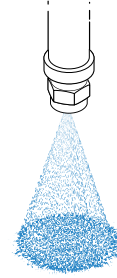
S Series



Scan to Order



Male Thread Female Thread



Spray Characteristics

Full cone spray pattern, with uniform distribution throughout the cone.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Refer to page 69 for plastic models.

Construction

One piece body + non-removable insert. The nozzle contains a patented insert with larger flow passages, and is less susceptible to clogging. Male and Female threads available.

Typical Applications:

- ▶ Chemical Processing
- ▶ Cooling Sprays
- ▶ Continuous Casting
- ▶ Foam Breaking

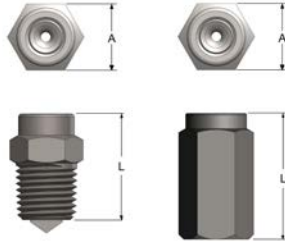
Nozzle Size	Dim. 'A' (inches)	Dim. 'L' (inches)
1/8S	7/16 HEX	13/16
1/4S	9/16 HEX	15/16
3/8S	11/16 HEX	1 1/16
1/2S	7/8 HEX	1 7/32
3/4FS	1 3/8 HEX	2 1/16
3/4S	1 1/16 HEX	1 9/16
1FS	1 5/8 HEX	2 5/8
1S	1 1/4 dia.	2 3/16

Model #		Max. Free Passage inches	Capacities at Various Pressures USGPM												Spray Angle		
Female	Male		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
	1/8S1	0.033	0.055	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.245	0.283	0.32	0.39	--	55°	52°
	1/8S1.5	0.046	0.082	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.37	0.42	0.47	0.58	--	65°	57°
	1/8S2	0.051	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	0.57	0.63	0.77	54°	59°	60°
	1/8S3	0.051	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	0.85	0.95	1.16	50°	53°	60°
	1/8S3.5	0.051	0.192	0.248	0.293	0.35	0.43	0.50	0.61	0.70	0.86	0.99	1.11	1.36	48°	58°	61°
	1/8S5	0.064	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	60°	75°	70°
	1/4S5	0.081	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	58°	68°	62°
	1/8S6	0.064	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	67°	72°	70°
	1/4S6.5	0.091	0.36	0.46	0.54	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	48°	56°	50°
	1/4S7.5	0.091	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	2.12	2.37	2.90	55°	65°	48°
	1/4S8.5	0.091	0.47	0.60	0.71	0.85	1.04	1.20	1.47	1.70	2.08	2.40	2.69	3.3	58°	65°	63°
	3/8S9.5	0.102	0.52	0.67	0.79	0.95	1.16	1.34	1.65	1.90	2.33	2.69	3.00	3.7	58°	68°	62°
	1/4S10	0.091	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	60°	65°	62°
	3/8S10	0.102	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	55°	65°	50°
	1/4S14	0.091	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	78°	78°	75°
	3/8S15	0.102	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	4.2	4.7	5.8	63°	65°	60°
	3/8S18	0.102	0.99	1.27	1.51	1.80	2.20	2.55	3.12	3.6	4.4	5.1	5.7	7.0	85°	88°	76°
	3/8S20	0.102	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	76°	72°	75°
	3/8S22	0.114	1.20	1.56	1.84	2.20	2.69	3.11	3.8	4.4	5.4	6.2	7.0	8.5	76°	78°	76°
	1/2S16	0.144	0.88	1.13	1.34	1.60	1.96	2.26	2.77	3.2	3.9	4.5	5.1	6.2	55°	60°	55°
	1/2S25	0.144	1.37	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	9.7	68°	73°	65°
	1/2S32	0.144	1.75	2.26	2.68	3.2	3.9	4.5	5.5	6.4	7.8	9.1	10.1	12.4	80°	90°	75°
	1/2S40	0.162	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	86°	90°	81°
3/4FS30	3/4S30	0.162	1.64	2.12	2.51	3.00	3.7	4.2	5.2	6.0	7.3	8.5	9.5	11.6	50°	52°	49°
3/4FS50	3/4S50	0.195	2.74	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	19.4	65°	70°	65°
3/4FS83	3/4S83	0.195	4.5	5.9	6.9	8.3	10.2	11.7	14.4	16.6	20.3	23.5	26.2	32	90°	97°	86°
1FS83	1S83	0.219	4.5	5.9	6.9	8.3	10.2	11.7	14.4	16.6	20.3	23.5	26.2	32	71°	78°	75°
1FS106	1S106	0.219	5.8	7.5	8.9	10.6	13.0	15.0	18.4	21.2	26.0	30.0	34	41	86°	89°	80°
1FS120	1S120	0.219	6.6	8.5	10.0	12.0	14.7	17.0	20.8	24.0	29.4	34	38	46	80°	94°	85°
1FS142	1S142	0.219	7.8	10.0	11.9	14.2	17.4	20.1	24.6	28.4	35	40	45	55	88°	92°	83°

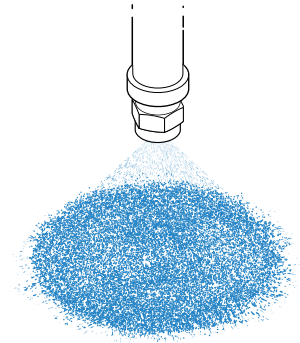
SW Series



Scan to Order



Male Thread Female Thread



Spray Characteristics

A wide angle full cone spray pattern, with uniform distribution throughout the cone.

Male Size	Dim 'A'	Dim 'L'	Female Size	Dim 'A'	Dim 'L'
1/8SW	7/16 HEX	13/16	3/4FSW	1 1/4 HEX	2 3/8
1/4SW	9/16 HEX	15/16	1FSW	1 1/2 HEX	2 1/2
3/8SW	1 1/16 HEX	1 1/16	1 1/4FSW	2 HEX	3 1/2
1/2SW	7/8 HEX	1 7/16	1 1/2FSW	2 1/4 Dia.	4 1/4
3/4SW	1 1/4 HEX	1 11/16	2FSW	2 3/4 Dia.	5 7/8
1SW	1 3/8 dia.	2 1/16	2 1/2FSW	3 1/2 Dia.	6 1/2
			3FSW	4" Dia.	7 3/4
			4FSW	5" Dia.	10 1/2

All dimensions are in inches

Construction

One piece body + non-removable insert. The nozzle contains a patented insert with larger flow passages, and is less susceptible to clogging. Male and Female threads available.

Typical Applications:

- ▶ Metal Wash
- ▶ Gravel Washing
- ▶ Vehicle Washing

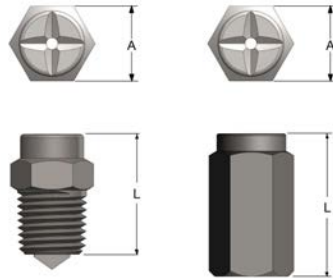
Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Refer to page 70 for plastic models.

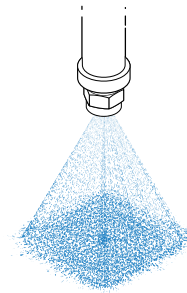
Model #		Max. Free Passage inches	Capacities at Various Pressures USGPM													Spray Angle		
Female	Male		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi	
	1/8S2.8W	0.051	0.153	0.198	0.234	0.280	0.34	0.40	0.48	0.56	0.69	0.79	0.89	1.08	110°	105°	96°	
	1/8S4.3W	0.051	0.236	0.304	0.36	0.43	0.53	0.61	0.74	0.86	1.05	1.22	1.36	1.67	117°	108°	100°	
	1/8S5.6W	0.064	0.307	0.40	0.47	0.56	0.69	0.79	0.97	1.12	1.37	1.58	1.77	2.17	117°	110°	100°	
	1/4S5.6W	0.064	0.307	0.40	0.47	0.56	0.69	0.79	0.97	1.12	1.37	1.58	1.77	2.17	120°	108°	102°	
	1/8S8W	0.081	0.44	0.57	0.67	0.80	0.98	1.13	1.39	1.60	1.96	2.26	2.53	3.10	118°	110°	103°	
	1/4S10W	0.091	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	118°	108°	102°	
	1/4S12W	0.091	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	120°	112°	102°	
	1/4S14W	0.091	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	118°	114°	104°	
	3/8S17W	0.102	0.93	1.20	1.42	1.70	2.08	2.40	2.94	3.4	4.2	4.8	5.4	6.6	118°	117°	102°	
	3/8S20W	0.102	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	120°	120°	106°	
	3/8S24W	0.102	1.31	1.70	2.01	2.40	2.94	3.4	4.2	4.8	5.9	6.8	7.6	9.3	122°	118°	106°	
	3/8S27W	0.102	1.48	1.91	2.26	2.70	3.3	3.8	4.7	5.4	6.6	7.6	8.5	10.5	122°	120°	107°	
	1/2S30W	0.144	1.64	2.12	2.51	3.00	3.7	4.2	5.2	6.0	7.3	8.5	9.5	11.6	120°	118°	110°	
	1/2S35W	0.144	1.92	2.47	2.93	3.5	4.3	4.9	6.1	7.0	8.6	9.9	11.1	13.6	122°	118°	108°	
	1/2S40W	0.162	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	122°	119°	104°	
	1/2S45W	0.162	2.46	3.2	3.8	4.5	5.5	6.4	7.8	9.0	11.0	12.7	14.2	17.4	141°	118°	108°	
3/4FS50W	3/4S50W	0.195	2.74	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	19.4	120°	120°	110°	
3/4FS71W	3/4S71W	0.195	3.9	5.0	5.9	7.1	8.7	10.0	12.3	14.2	17.4	20.1	22.5	27.5	118°	120°	112°	
1FS13W	1S13W	0.219	7.1	9.2	10.9	13.0	15.9	18.4	22.5	26.0	32	37	41	50	120°	125°	118°	
1-1/4FS19W		0.260	10.4	13.4	15.9	19.0	23.3	26.9	33	38	47	54	60	74	122°	123°	120°	
1-1/2FS29W		0.329	15.9	20.5	24.3	29.0	36	41	50	58	71	82	92	112	125°	125°	120°	
2FS56W		0.438	30.7	40	47	56	69	79	97	112	137	158	177	217	125°	125°	118°	
2-1/2FS83W		0.531	45	59	69	83	102	117	144	166	203	235	262	321	122°	123°	120°	
3FS107W		0.688	59	76	90	107	131	151	185	214	262	303	338	414	125°	123°	123°	
4FS165W		0.875	90	117	138	165	202	233	286	330	404	467	522	639	125°	125°	123°	

SQ Series



Male Thread

Female Thread



Spray Characteristics

Full cone spray pattern, with uniform distribution throughout the approximately square cone.

Nozzle Size	Dim. 'A' (inches)	Dim. 'L' (inches)
1/8SQ	7/16 HEX	13/16
1/4SQ	9/16 HEX	15/16
3/8SQ	1 1/16 HEX	1 1/16
1/2SQ	7/8 HEX	1 9/32
3/4SQ	1 1/16 HEX	1 9/16
1FSQ	1 7/8 dia.	2 5/8
1-1/4FSQ	1 7/8 dia.	3 1/2
1-1/2FSQ	2 1/4 dia.	4 1/4
2FSQ	2 3/4 dia.	5 7/16
2-1/2FSQ	3 1/2 dia.	6 7/8

1" and smaller are made from HEX bar
Larger sizes are round bar

Construction

The models listed are machined from bar stock and are one-piece construction. Both male and female thread designs are available. The nozzle contains a patented insert with larger flow passages than older styles, and is less susceptible to clogging.

Typical Applications

- ▶ Chemical Processing
- ▶ Cooling Sprays
- ▶ Continuous Casting

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

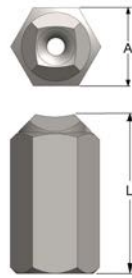
Plastic Models on page 71.

Model #		Max. Free Passage inches	Capacities at Various Pressures USGPM													Spray Angle		
Female	Male		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi	
	1/8S3.6SQ	0.057	0.197	0.255	0.301	0.36	0.44	0.51	0.62	0.72	0.88	1.02	1.14	1.39	42°	55°	50°	
	1/8S4.8SQ	0.064	0.263	0.34	0.40	0.48	0.59	0.68	0.83	0.96	1.18	1.36	1.52	1.86	50°	65°	60°	
	1/8S6SQ	0.081	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	30°	65°	60°	
	1/4S6SQ	0.081	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	60°	65°	60°	
	1/4S10SQ	0.091	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	61°	67°	60°	
	1/4S12SQ	0.091	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	71°	76°	69°	
	1/4S14SQ	0.091	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	78°	85°	75°	
	3/8S18SQ	0.102	0.99	1.27	1.51	1.80	2.20	2.55	3.12	3.6	4.4	5.1	5.7	7.0	70°	75°	68°	
	1/2S29SQ	0.144	1.59	2.05	2.43	2.90	3.6	4.1	5.0	5.8	7.1	8.2	9.2	11.2	70°	75°	68°	
	1/2S36SQ	0.144	1.97	2.55	3.01	3.6	4.4	5.1	6.2	7.2	8.8	10.2	11.4	13.9	80°	85°	77°	
	3/4S50SQ	0.195	2.74	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	19.4	70°	75°	68°	
1FS10.6SQ		0.219	5.8	7.5	8.9	10.6	13.0	15.0	18.4	21.2	26.0	30.0	34	41	77°	80°	72°	
1-1/4FS17.7SQ		0.260	9.7	12.5	14.8	17.7	21.7	25.0	30.7	35	43	50	56	69	77°	80°	72°	
1-1/2FS23SQ		0.392	12.6	16.3	19.2	23.0	28.2	33	40	46	56	65	73	89	74°	79°	72°	
2FS29SQ		0.438	15.9	20.5	24.3	29.0	36	41	50	58	71	82	92	112	65°	70°	65°	
2FS36SQ		0.438	19.7	25.5	30.1	36	44	51	62	72	88	102	114	139	70°	75°	70°	
2FS48SQ		0.438	26.3	34	40	48	59	68	83	96	118	136	152	186	78°	80°	76°	
2-1/2FS59SQ		0.531	32	42	49	59	72	83	102	118	145	167	187	229	75°	80°	73°	

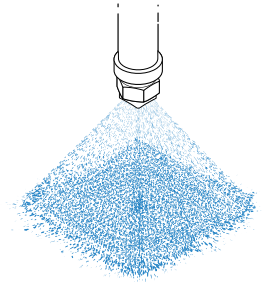
SWSQ Series



Male Thread



Female Thread



Spray Characteristics

Full square wide angle spray pattern, with uniform distribution through the approximately square cone.

Nozzle Size	Dim 'A'	Dim 'L'
1/4SWSQ	9/16 HEX	15/16
3/8SWSQ	11/16 HEX	13/16
1/2SWSQ	7/8 HEX	17/16
3/4FSWSQ	1 1/4 HEX	2 3/16
3/4SWSQ	1 1/16 HEX	1 11/16
1FSWSQ	1 1/2 HEX	2 5/8
1SWSQ	1 3/8 HEX	2 1/16
1 1/4FSWSQ	1 7/8 dia.	3 3/4
1 1/2FSWSQ	2 1/4 dia.	4 1/4
2FSWSQ	2 3/4 dia.	5 7/8
2 1/2FSWSQ	3 5/8 dia.	6 1/2
3FSWSQ	4 dia.	7 3/4

All dimensions are in inches

Construction

The models listed are machined from bar stock, and are one piece construction.

Standard Materials

- B Brass
- 3 303 Stainless Steel
- 6 316 Stainless Steel
- V PVC
- A CPVC

1" and smaller are made from HEX bar
Larger sizes are round bar

Typical Applications:

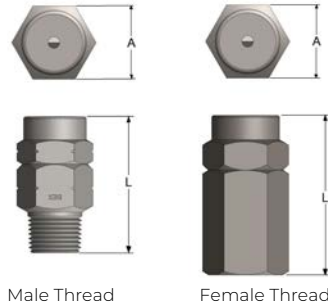
- ▶ Chemical Processing
- ▶ Cooling Sprays
- ▶ Continuous Casting

Model #		Max. Free Passage inches	Capacities at Various Pressures USGPM													Spray Angle		
Female	Male		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi	
	1/4S14WSQ	0.091	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	99°	95°	84°	
	3/8S17WSQ	0.102	0.93	1.20	1.42	1.70	2.08	2.40	2.94	3.4	4.2	4.8	5.4	6.6	98°	94°	82°	
	3/8S20WSQ	0.102	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	102°	102°	86°	
	3/8S24WSQ	0.102	1.31	1.70	2.01	2.40	2.94	3.4	4.2	4.8	5.9	6.8	7.6	9.3	104°	102°	86°	
	3/8S27WSQ	0.102	1.48	1.91	2.26	2.70	3.3	3.8	4.7	5.4	6.6	7.6	8.5	10.5	104°	102°	87°	
	1/2S30WSQ	0.144	1.64	2.12	2.51	3.00	3.7	4.2	5.2	6.0	7.3	8.5	9.5	11.6	100°	96°	85°	
	1/2S35WSQ	0.144	1.92	2.47	2.93	3.5	4.3	4.9	6.1	7.0	8.6	9.9	11.1	13.6	104°	99°	88°	
	1/2S40WSQ	0.162	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	106°	104°	90°	
	1/2S45WSQ	0.162	2.46	3.2	3.8	4.5	5.5	6.4	7.8	9.0	11.0	12.7	14.2	17.4	106°	104°	94°	
3/4FS50WSQ	3/4S50WSQ	0.196	2.74	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	19.4	108°	102°	97°	
3/4FS71WSQ	3/4S71WSQ	0.195	3.9	5.0	5.9	7.1	8.7	10.0	12.3	14.2	17.4	20.1	22.5	27.5	99°	102°	93°	
1FS130WSQ	1S130WSQ	0.219	7.1	9.2	10.9	13.0	15.9	18.4	22.5	26.0	32	37	41	50	102°	107°	99°	
1-1/4FS19WSQ		0.260	10.4	13.4	15.9	19.0	23.3	26.9	33	38	47	54	60	74	104°	105°	102°	
1-1/2FS29WSQ		0.329	15.9	20.5	24.3	29.0	36	41	50	58	71	82	92	112	107°	107°	102°	
2FS56WSQ		0.438	30.7	40	47	56	69	79	97	112	137	158	177	217	107°	107°	99°	
2-1/2FS830WSQ		0.531	45	59	69	83	102	117	144	166	203	235	262	321	104°	105°	102°	
3FS107WSQ		0.688	59	76	90	107	131	151	185	214	262	303	338	414	107°	105°	105°	

GS Series

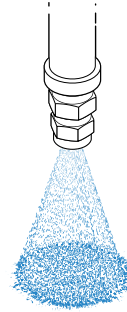


Scan to Order



Male Thread

Female Thread



Spray Characteristics

Full cone spray pattern, with uniform distribution throughout the cone.

Nozzle Size	Dim. 'A' (inches)	Dim. 'L' (inches)
1/8GS	5/8 HEX	1 5/16
1/4GS	1 1/16 HEX	1 9/16
3/8GS	1 3/16 HEX	1 11/16
1/2GS	1 HEX	2
1/8FGS	5/8 HEX	1 9/32
1/4FGS	1 1/16 HEX	1 21/32
3/8FGS	1 3/16 HEX	1 15/16
1/2FGS	1 HEX	2 3/32

Construction

Two piece body + removable insert. The nozzle contains a patented insert with larger flow passages, and is less susceptible to clogging. Available in male and female threads.



Typical Applications:

- ▶ Chemical Processing
- ▶ Cooling Sprays
- ▶ Continuous Casting
- ▶ Foam Breaking

Standard Materials

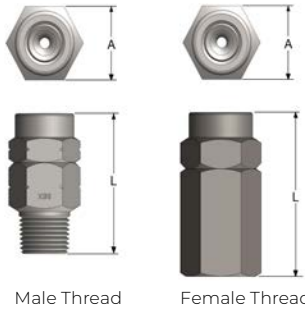
- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #		Maximum Free Passage inches	Capacities at Various Pressures USGPM												Spray Angle		
Female	Male		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
1/8FGS1	1/8GS1	0.033	0.055	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.245	0.283	0.32	0.39	--	55°	52°
1/8FGS1.5	1/8GS1.5	0.046	0.082	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.37	0.42	0.47	0.58	--	65°	57°
1/8FGS2	1/8GS2	0.051	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	0.57	0.63	0.77	54°	59°	60°
1/8FGS3	1/8GS3	0.051	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	0.85	0.95	1.16	50°	53°	60°
1/8FGS3.5	1/8GS3.5	0.051	0.192	0.248	0.293	0.35	0.43	0.50	0.61	0.70	0.86	0.99	1.11	1.36	48°	58°	61°
1/8FGS5	1/8GS5	0.064	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	60°	75°	70°
1/4FGS5	1/4GS5	0.081	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	58°	68°	62°
1/8FGS6	1/8GS6	0.064	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	67°	72°	50°
1/4FGS6.5	1/4GS6.5	0.091	0.36	0.46	0.54	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	48°	56°	48°
1/4FGS7.5	1/4GS7.5	0.091	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	2.12	2.37	2.90	55°	65°	63°
1/4FGS8.5	1/4GS8.5	0.091	0.47	0.60	0.71	0.85	1.04	1.20	1.47	1.70	2.08	2.40	2.69	3.3	58°	65°	62°
3/8FGS9.5	3/8GS9.5	0.102	0.52	0.67	0.79	0.95	1.16	1.34	1.65	1.90	2.33	2.69	3.00	3.7	58°	68°	75°
1/4FGS10	1/4GS10	0.091	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	60°	65°	62°
3/8FGS10	3/8GS10	0.102	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	55°	65°	50°
1/4FGS14	1/4GS14	0.091	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	78°	78°	60°
3/8FGS15	3/8GS15	0.102	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	4.2	4.7	5.8	63°	65°	76°
3/8FGS18	3/8GS18	0.102	0.99	1.27	1.51	1.80	2.20	2.55	3.12	3.6	4.4	5.1	5.7	7.0	85°	88°	76°
3/8FGS20	3/8GS20	0.102	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	76°	72°	75°
3/8FGS22	3/8GS22	0.114	1.20	1.56	1.84	2.20	2.69	3.11	3.8	4.4	5.4	6.2	7.0	8.5	76°	78°	76°
1/2FGS16	1/2GS16	0.144	0.88	1.13	1.34	1.60	1.96	2.26	2.77	3.2	3.9	4.5	5.1	6.2	55°	60°	55°
1/2FGS25	1/2GS25	0.144	1.37	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	9.7	68°	73°	65°
1/2FGS32	1/2GS32	0.144	1.75	2.26	2.68	3.2	3.9	4.5	5.5	6.4	7.8	9.1	10.1	12.4	80°	90°	75°
1/2FGS40	1/2GS40	0.162	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	86°	90°	81°

GSW Series

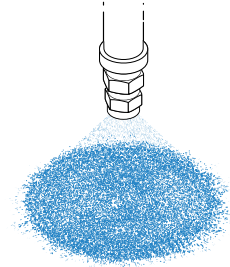


Scan to Order



Male Thread

Female Thread



Spray Characteristics

A wide angle full cone spray pattern, with uniform distribution throughout the cone.

Nozzle Size	Dim. 'A' (inches)	Dim. 'L' (inches)
1/8GSW	5/8 HEX	1 5/16
1/4GSW	1 1/16 HEX	1 9/16
3/8GSW	1 3/16 HEX	1 11/16
1/2GSW	1 HEX	2
1/8FGSW	5/8 HEX	1 9/32
1/4FGSW	1 1/16 HEX	1 21/32
3/8FGSW	1 3/16 HEX	1 15/16
1/2FGSW	1 HEX	2 3/32

Construction

Two piece body + removable insert. The nozzle contains a patented insert with larger flow passages, and is less susceptible to clogging. Available in male and female threads.



Typical Applications:

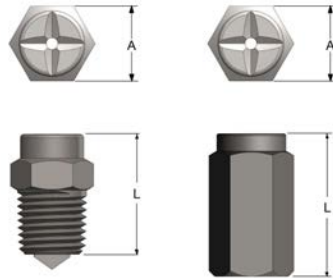
- ▶ Metal Wash
- ▶ Gravel Washing
- ▶ Vehicle Washing

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

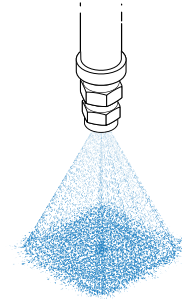
Model #		Maximum Free Passage inches	Capacities at Various Pressures USGPM													Spray Angle		
Female	Male		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi	
1/8FGS2.8W	1/8GS2.8W	0.051	0.153	0.75	0.234	0.280	0.34	0.40	0.48	0.56	0.69	0.79	0.89	1.08	110°	105°	96°	
1/8FGS4.3W	1/8GS4.3W	0.051	0.236	0.304	0.36	0.43	0.53	0.61	0.74	0.86	1.05	1.22	1.36	1.67	117°	108°	100°	
1/8FGS5.6W	1/8GS5.6W	0.064	0.307	0.40	0.47	0.56	0.69	0.79	0.97	1.12	1.37	1.58	1.77	2.17	117°	110°	100°	
1/4FG5.6W	1/4GS5.6W	0.064	0.307	0.40	0.47	0.56	0.69	0.79	0.97	1.12	1.37	1.58	1.77	2.17	118°	110°	103°	
1/8FGS8W	1/8GS8W	0.081	0.44	0.57	0.67	0.80	0.98	1.13	1.39	1.60	1.96	2.26	2.53	3.10	120°	108°	102°	
1/4FGS10W	1/4GS10W	0.091	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	118°	108°	102°	
1/4FGS12W	1/4GS12W	0.091	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	120°	112°	102°	
1/4FGS14W	1/4GS14W	0.091	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	118°	114°	104°	
3/8FGS17W	3/8GS17W	0.102	0.93	1.20	1.42	1.70	2.08	2.40	2.94	3.4	4.2	4.8	5.4	6.6	118°	117°	102°	
3/8FGS20W	3/8GS20W	0.102	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	120°	120°	106°	
3/8FGS24W	3/8GS24W	0.102	1.31	1.70	2.01	2.40	2.94	3.4	4.2	4.8	5.9	6.8	7.6	9.3	122°	118°	106°	
3/8FGS27W	3/8GS27W	0.102	1.48	1.91	2.26	2.70	3.3	3.8	4.7	5.4	6.6	7.6	8.5	10.5	122°	120°	107°	
1/2FGS30W	1/2GS30W	0.144	1.64	2.12	2.51	3.00	3.7	4.2	5.2	6.0	7.3	8.5	9.5	11.6	120°	118°	110°	
1/2FGS35W	1/2GS35W	0.144	1.92	2.47	2.93	3.5	4.3	4.9	6.1	7.0	8.6	9.9	11.1	13.6	122°	118°	108°	
1/2FGS40W	1/2GS40W	0.162	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	122°	119°	104°	
1/2FGS45W	1/2GS45W	0.162	2.46	3.2	3.8	4.5	5.5	6.4	7.8	9.0	11.0	12.7	14.2	17.4	141°	118°	108°	

GSQ Series



Male Thread

Female Thread



Spray Characteristics

An approximately square spray pattern, with uniform distribution throughout the pattern.

Nozzle Size	Dim. 'A' (inches)	Dim. 'L' (inches)
1/8GSQ	5/8 HEX	1 5/16
1/4GSQ	11/16 HEX	1 9/16
3/8GSQ	13/16 HEX	1 11/16
1/2GSQ	1 HEX	2
3/4GSQ	1 1/8 HEX	2 1/2
1/8FGSQ	5/8 HEX	1 9/32
1/4FGSQ	11/16 HEX	1 21/32
3/8FGSQ	13/16 HEX	1 15/16
1/2FGSQ	1 HEX	2 3/32
3/4FGSQ	1 1/8 HEX	2 11/16

Construction

Two-piece body + removable insert. Available in male and female threads. The nozzle contains a patented insert with larger flow passages than older styles, and is less susceptible to clogging.



Typical Applications

- ▶ Chemical Processing
- ▶ Cooling Sprays
- ▶ Continuous Casting

Standard Materials

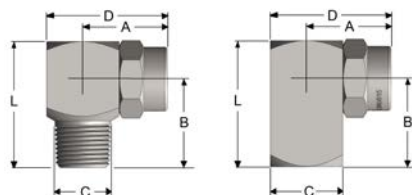
- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #		Maximum Free Passage inches	Capacities at Various Pressures USGPM													Spray Angle		
Female	Male		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi	
1/8FGS3.6SQ	1/8GS3.6SQ	0.057	0.197	0.255	0.301	0.36	0.44	0.51	0.62	0.72	0.88	1.02	1.14	1.39	42°	55°	50°	
1/8FGS4.8SQ	1/8GS4.8SQ	0.064	0.263	0.34	0.40	0.48	0.59	0.68	0.83	0.96	1.18	1.36	1.52	1.86	50°	65°	60°	
1/8FGS6SQ	1/8GS6SQ	0.081	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	30°	65°	60°	
1/4FGS6SQ	1/4GS6SQ	0.081	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	60°	65°	60°	
1/4FGS10SQ	1/4GS10SQ	0.091	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	61°	67°	60°	
1/4FGS12SQ	1/4GS12SQ	0.091	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	71°	76°	69°	
1/4FGS14SQ	1/4GS14SQ	0.091	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	78°	85°	75°	
3/8FGS18SQ	3/8GS18SQ	0.102	0.99	1.27	1.51	1.80	2.20	2.55	3.12	3.6	4.4	5.1	5.7	7.0	70°	75°	68°	
1/2FGS29SQ	1/2GS29SQ	0.144	1.59	2.05	2.43	2.90	3.6	4.1	5.0	5.8	7.1	8.2	9.2	11.2	70°	75°	68°	
1/2FGS36SQ	1/2GS36SQ	0.144	1.97	2.55	3.01	3.6	4.4	5.1	6.2	7.2	8.8	10.2	11.4	13.9	80°	85°	77°	
3/4FGS50SQ	3/4GS50SQ	0.195	2.74	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	19.4	70°	75°	68°	

HGS Series

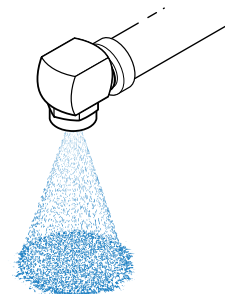


Scan to Order



Male Thread

Female Thread



Spray Characteristics

Full cone spray pattern, with uniform distribution throughout the cone.

Nozzle Size	Dim 'A'	Dim 'B'	Dim 'C'	Dim 'D'	Dim 'L'
1/8HGS	23/32	11/16	5/8 SQ	1 1/32	1
1/4HGS	29/32	1 3/16	3/4 SQ	1 9/32	1 3/8
3/8HGS	1 1/32	1 1/16	7/8 SQ	1 15/32	1 17/32
1/2HGS	1 3/16	1 3/8	1 SQ	1 11/16	1 7/8
1/8FHGS	23/32	11/16	5/8 SQ	1 1/32	1
1/4FHGS	29/32	1 3/16	3/4 SQ	1 9/32	1 3/8
3/8FHGS	1 1/32	1 1/16	7/8 SQ	1 15/32	1 17/32
1/2FHGS	1 3/16	1 3/8	1 SQ	1 11/16	1 7/8

All dimensions are in inches

Construction

Two piece body + removable insert. Sprays at right angle to pipe. The nozzle contains a patented insert with larger flow passages, and is less susceptible to clogging. Available in male and female threads.



Typical Applications:

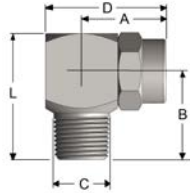
- ▶ Chemical Processing
- ▶ Cooling Sprays
- ▶ Continuous Casting
- ▶ Foam Breaking

Standard Materials

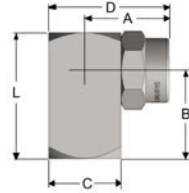
- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #		Maximum Free Passage inches	Capacities at Various Pressures USGPM													Spray Angle		
Female	Male		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi	
1/8FHGS1	1/8HGS1	0.033	0.055	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.245	0.283	0.32	0.39	--	55°	52°	
1/8FHGS1.5	1/8HGS1.5	0.046	0.082	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.37	0.42	0.47	0.58	--	65°	57°	
1/8FHGS2	1/8HGS2	0.051	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	0.57	0.63	0.77	54°	59°	60°	
1/8FHGS3	1/8HGS3	0.051	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	0.85	0.95	1.16	50°	53°	60°	
1/8FHGS3.5	1/8HGS3.5	0.051	0.192	0.248	0.293	0.35	0.43	0.50	0.61	0.70	0.86	0.99	1.11	1.36	48°	58°	91°	
1/8FHGS5	1/8HGS5	0.064	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	60°	75°	70°	
1/4FHGS5	1/4HGS5	0.081	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	58°	68°	70°	
1/8FHGS6	1/8HGS6	0.064	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	67°	72°	62°	
1/4FHGS6.5	1/4HGS6.5	0.091	0.36	0.46	0.54	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	48°	56°	50°	
1/4FHGS7.5	1/4HGS7.5	0.091	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	2.12	2.37	2.90	55°	65°	48°	
1/4FHGS8.5	1/4HGS8.5	0.091	0.47	0.60	0.71	0.85	1.04	1.20	1.47	1.70	2.08	2.40	2.69	3.3	58°	65°	63°	
3/8FHGS9.5	3/8HGS9.5	0.102	0.52	0.67	0.79	0.95	1.16	1.34	1.65	1.90	2.33	2.69	3.00	3.7	58°	68°	62°	
1/4FHGS10	1/4HGS10	0.091	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	60°	65°	75°	
3/8FHGS10	3/8HGS10	0.102	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	55°	65°	62°	
1/4FHGS14	1/4HGS14	0.091	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	78°	78°	50°	
3/8FHGS15	3/8HGS15	0.102	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	4.2	4.7	5.8	63°	65°	60°	
3/8FHGS18	3/8HGS18	0.102	0.99	1.27	1.51	1.80	2.20	2.55	3.12	3.6	4.4	5.1	5.7	7.0	85°	88°	76°	
3/8FHGS20	3/8HGS20	0.102	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	76°	72°	75°	
3/8FHGS22	3/8HGS22	0.114	1.20	1.56	1.84	2.20	2.69	3.11	3.8	4.4	5.4	6.2	7.0	8.5	76°	78°	76°	
1/2FHGS16	1/2HGS16	0.144	0.88	1.13	1.34	1.60	1.96	2.26	2.77	3.2	3.9	4.5	5.1	6.2	55°	60°	55°	
1/2FHGS25	1/2HGS25	0.144	1.37	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	9.7	68°	73°	65°	
1/2FHGS32	1/2HGS32	0.144	1.75	2.26	2.68	3.2	3.9	4.5	5.5	6.4	7.8	9.1	10.1	12.4	80°	90°	75°	
1/2FHGS40	1/2HGS40	0.162	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	86°	90°	81°	

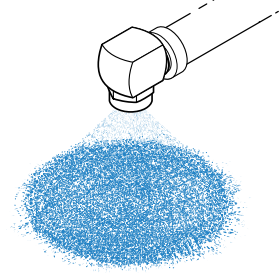
HGSW Series



Male Thread



Female Thread



Spray Characteristics

A wide angle full cone spray pattern, with uniform distribution throughout the cone.

Nozzle Size	Dim 'A'	Dim 'B'	Dim 'C'	Dim 'D'	Dim 'L'
1/8HGSW	23/32	11/16	5/8 SQ	1 1/32	1
1/4HGSW	29/32	1	3/4 SQ	1 9/32	1 3/8
3/8HGSW	1 1/32	1 1/16	7/8 SQ	1 15/32	1 17/32
1/2HGSW	1 3/16	1 3/8	1 SQ	1 11/16	1 7/8
1/8FHGSW	23/32	11/16	5/8 SQ	1 1/32	1
1/4FHGSW	29/32	1	3/4 SQ	1 9/32	1 3/8
3/8FHGSW	1 1/32	1 1/16	7/8 SQ	1 15/32	1 17/32
1/2FHGSW	1 3/16	1 3/8	1 SQ	1 11/16	1 7/8

All dimensions are in inches

Construction

Two piece body + removable insert. Sprays at right angle to pipe. The nozzle contains a patented insert with larger flow passages, and is less susceptible to clogging. Available in male and female threads.



Typical Applications:

- ▶ Chemical Processing
- ▶ Cooling Sprays
- ▶ Continuous Casting

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #		Maximum Free Passage inches	Capacities at Various Pressures USGPM												Spray Angle		
Female	Male		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
1/8FHGS2.8W	1/8HGS2.8W	0.051	0.153	0.198	0.234	0.280	0.34	0.40	0.48	0.56	0.69	0.79	0.89	1.08	110°	105°	96°
1/8FHGS4.3W	1/8HGS4.3W	0.051	0.236	0.304	0.36	0.43	0.53	0.61	0.74	0.86	1.05	1.22	1.36	1.67	117°	108°	100°
1/8FHGS5.6W	1/8HGS5.6W	0.064	0.307	0.40	0.47	0.56	0.69	0.79	0.97	1.12	1.37	1.58	1.77	2.17	117°	110°	100°
1/4FHGS5.6W	1/4HGS5.6W	0.064	0.307	0.40	0.47	0.56	0.69	0.79	0.97	1.12	1.37	1.58	1.77	2.17	118°	110°	103°
1/8FHGS8W	1/8HGS8W	0.081	0.44	0.57	0.67	0.80	0.98	1.13	1.39	1.60	1.96	2.26	2.53	3.10	120°	108°	102°
1/4FHGS10W	1/4HGS10W	0.091	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	118°	108°	102°
1/4FHGS12W	1/4HGS12W	0.091	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	120°	112°	102°
1/4FHGS14W	1/4HGS14W	0.091	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	118°	114°	104°
3/8FHGS17W	3/8HGS17W	0.102	0.93	1.20	1.42	1.70	2.08	2.40	2.94	3.4	4.2	4.8	5.4	6.6	118°	117°	102°
3/8FHGS20W	3/8HGS20W	0.102	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	120°	120°	106°
3/8FHGS24W	3/8HGS24W	0.102	1.31	1.70	2.01	2.40	2.94	3.4	4.2	4.8	5.9	6.8	7.6	9.3	122°	118°	106°
3/8FHGS27W	3/8HGS27W	0.102	1.48	1.91	2.26	2.70	3.3	3.8	4.7	5.4	6.6	7.6	8.5	10.5	122°	120°	107°
1/2FHGS30W	1/2HGS30W	0.144	1.64	2.12	2.51	3.00	3.7	4.2	5.2	6.0	7.3	8.5	9.5	11.6	120°	118°	110°
1/2FHGS35W	1/2HGS35W	0.144	1.92	2.47	2.93	3.5	4.3	4.9	6.1	7.0	8.6	9.9	11.1	13.6	122°	118°	108°
1/2FHGS40W	1/2HGS40W	0.162	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	122°	119°	104°
1/2FHGS45W	1/2HGS45W	0.162	2.46	3.2	3.8	4.5	5.5	6.4	7.8	9.0	11.0	12.7	14.2	17.4	141°	118°	108°

ST Series



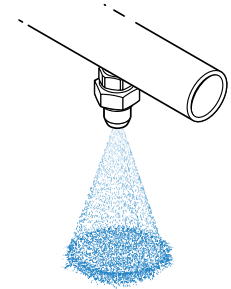
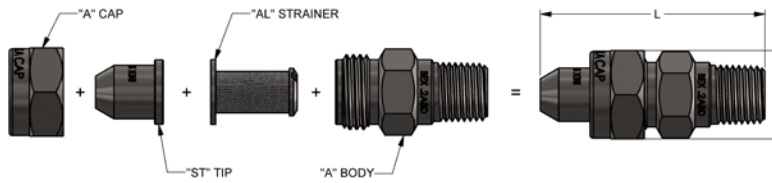
Scan to Order

Full Assembly



Scan to Order

Tip Replacement



"A" Series Assembly

ST, STW, and STQ Tips are designed to work with our "A" series assemblies, which come with a removable strainer and replaceable spray tips. This design is particularly suitable for low-flow applications as the built-in strainer can protect the nozzle orifice from getting clogged and damaged by small debris present in the liquid, such as those commonly found in recirculated liquids. The "A" bodies are available in three different sizes, and ST, STW, and STQ tips are compatible with all of them.



Spray Characteristics

Full cone spray pattern, with uniform distribution throughout the cone.

Construction

"A" series assemblies consist of an "A"-body, AL Strainer, FT Nozzle tip, and "A"-cap.

Typical Applications:

- ▶ Chemical Processing
- ▶ Cooling Sprays
- ▶ Continuous Casting
- ▶ Foam Breaking

A-Body Model	Thread Size	Length (L) FTL Tip & Assembly
1/8ABD	1/8	*Overall lengths range from 1.79 inches to 2.18 inches. Exact dimensions are available online.
1/4ABD	1/4	
3/8ABD	3/8	

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #	Max. Free Passage inches	Capacities at Various Pressures USGPM												Spray Angle		
		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
ST1	0.033	0.055	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.245	0.283	0.32	0.39	--	55°	52°
ST1.5	0.046	0.082	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.37	0.42	0.47	0.58	54°	65°	57°
ST2	0.051	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	0.57	0.63	0.77	54°	59°	60°
ST3	0.051	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	0.85	0.95	1.16	50°	53°	60°
ST3.5	0.051	0.192	0.248	0.293	0.35	0.43	0.50	0.61	0.70	0.86	0.99	1.11	1.36	48°	58°	61°
ST5	0.064	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	60°	75°	70°
ST6	0.064	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	67°	72°	70°
ST6.5	0.091	0.36	0.46	0.54	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	48°	56°	50°
ST7.5	0.091	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	2.12	2.37	2.90	55°	65°	48°
ST8.5	0.091	0.47	0.60	0.71	0.85	1.04	1.20	1.47	1.70	2.08	2.40	2.69	3.3	58°	65°	63°
ST10	0.091	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	60°	65°	62°
ST14	0.091	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	78°	78°	75°

STW Series



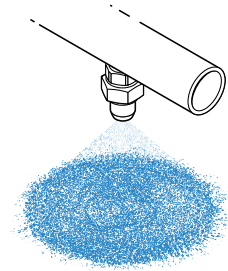
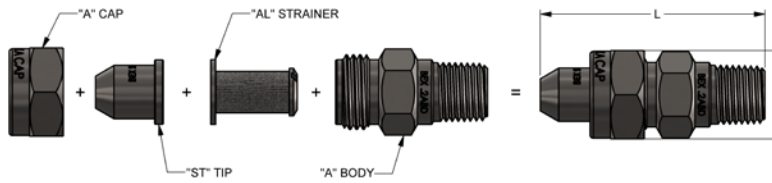
Scan to Order

Full Assembly



Scan to Order

Tip Replacement



Spray Characteristics

A wide-angle full cone spray pattern with uniform distribution throughout the cone.

A-Body Model	Thread Size	Length (L) FTL Tip & Assembly
1/8ABD	1/8	*Overall lengths range from 1.79 inches to 2.18 inches. Exact dimensions are available online.
1/4ABD	1/4	
3/8ABD	3/8	

Construction

"A" series assemblies consist of an "A"-body, AL Strainer, ST Nozzle tip, and "A"-cap.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Typical Applications:

- ▶ Chemical Processing
- ▶ Cooling Sprays
- ▶ Continuous Casting
- ▶ Foam Breaking

Model #	Max. Free Passage inches	Capacities at Various Pressures USGPM												Spray Angle		
		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
ST2.8W	0.051	0.153	0.198	0.234	0.280	0.34	0.40	0.48	0.56	0.69	0.79	0.89	1.08	110°	105°	96°
ST4.3W	0.051	0.236	0.304	0.36	0.43	0.53	0.61	0.74	0.86	1.05	1.22	1.36	1.67	117°	108°	100°
ST5.6W	0.064	0.307	0.40	0.47	0.56	0.69	0.79	0.97	1.12	1.37	1.58	1.77	2.17	117°	110°	100°
ST8W	0.081	0.44	0.57	0.67	0.80	0.98	1.13	1.39	1.60	1.96	2.26	2.53	3.10	118°	118°	103°
ST10W	0.091	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	118°	108°	102°
ST12W	0.091	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	120°	112°	102°
ST14W	0.091	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	118°	114°	104°

STQ Series



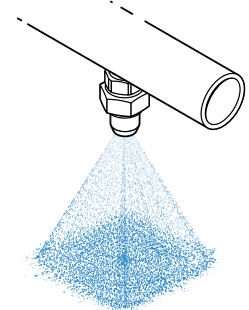
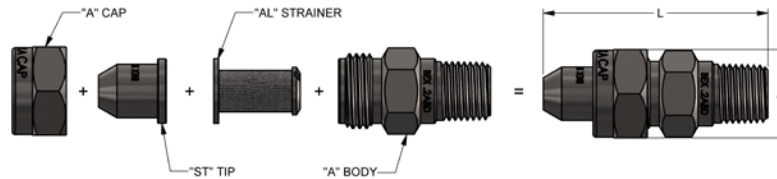
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Full Assembly



Scan to Order

Tip Replacement



Spray Characteristics

An approximately square spray pattern, with uniform distribution throughout the pattern.

Construction

"A" series assemblies consist of an "A"-body, AL Strainer, STQ Nozzle tip, and "A"-cap.

Typical Applications:

- ▶ Chemical Processing
- ▶ Cooling Sprays
- ▶ Continuous Casting
- ▶ Foam Breaking

A-Body Model	Thread Size	Length (L) FTL Tip & Assembly
1/8ABD	1/8	*Overall lengths range from 1.79 inches to 2.18 inches. Exact dimensions are available online.
1/4ABD	1/4	
3/8ABD	3/8	

Standard Materials

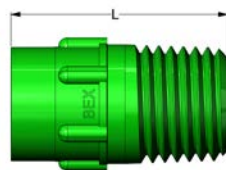
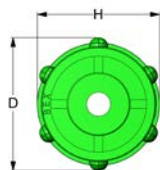
- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #	Max. Free Passage inches	Capacities at Various Pressures USGPM												Spray Angle		
		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
ST3.6SQ	0.057	0.197	0.255	0.301	0.36	0.44	0.51	0.62	0.72	0.88	1.02	1.14	1.39	42°	55°	50°
ST4.8SQ	0.064	0.263	0.34	0.40	0.48	0.59	0.68	0.83	0.96	1.18	1.36	1.52	1.86	50°	65°	60°
ST6SQ	0.081	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	30°	65°	60°
ST10SQ	0.091	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	61°	67°	60°
ST12SQ	0.091	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	71°	76°	69°

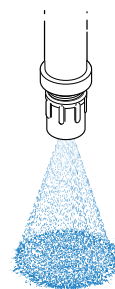
S Molded Series



Scan to Order



Male Thread



Spray Characteristics

A full cone spray pattern, with uniform distribution throughout the cone.

Nozzle Size	Dim 'D'	Dim 'H'	Dim 'L'
1/8S	0.62	9/16	0.81
1/4S	0.62	9/16	0.96
3/8S	0.77	11/16	1.10

All dimensions are in inches

Construction

Each BEX molded nozzle is designed with a series of "knobs" which makes them easier to finger tighten than a hex, especially when wet. The design feature of a small starter barrel greatly reduces the tendency to strip or cross-thread the nozzle during installation.

Standard Materials

- LL Polypropylene
- KK PVDF
- KN Nat. PVDF
- LN Nat. Polypropylene

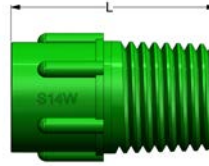
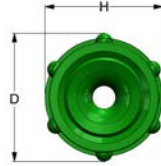
Refer to page 57 for metal models.

Typical Applications:

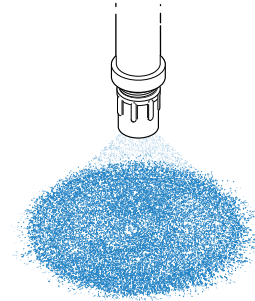
- ▶ Printed Circuit Board Washing
- ▶ PCB-Etching/Developing
- ▶ Semiconductor Manufacturing
- ▶ Carpet Cleaning
- ▶ Fruit and Vegetable Washing
- ▶ Plating Processes
- ▶ Dust Suppression
- ▶ Acid Spraying
- ▶ Degreasing
- ▶ Coating Applications
- ▶ Metal Washing
- ▶ Chemical Spraying
- ▶ Rinsing Parts

Model #	Max. Free Passage inches	Capacities at Various Pressures USGPM												Spray Angle		
		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
1/8S1	0.033	0.055	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.245	0.283	0.32	0.39	--	55°	52°
1/8S1.5	0.046	0.082	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.37	0.42	0.47	0.58	--	65°	57°
1/8S2	0.051	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	0.57	0.63	0.77	54°	59°	60°
1/8S3	0.051	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	0.85	0.95	1.16	50°	53°	60°
1/8S3.5	0.051	0.192	0.248	0.293	0.35	0.43	0.50	0.61	0.70	0.86	0.99	1.11	1.36	48°	58°	61°
1/8S5	0.064	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	60°	75°	70°
1/4S5	0.081	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	58°	68°	62°
1/8S6	0.064	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	67°	72°	70°
1/4S6.5	0.091	0.36	0.46	0.54	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	48°	56°	50°
1/4S7.5	0.091	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	2.12	2.37	2.90	55°	65°	48°
1/4S8.5	0.091	0.47	0.60	0.71	0.85	1.04	1.20	1.47	1.70	2.08	2.40	2.69	3.3	58°	65°	63°
3/8S9.5	0.102	0.52	0.67	0.79	0.95	1.16	1.34	1.65	1.90	2.33	2.69	3.00	3.7	58°	68°	62°
1/4S10	0.091	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	60°	65°	62°
3/8S10	0.102	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	55°	65°	50°
1/4S14	0.091	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	78°	78°	75°
3/8S15	0.102	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	4.2	4.7	5.8	63°	65°	60°

SW Molded Series



Male Thread



Spray Characteristics

A wide angle full cone spray pattern, with uniform distribution throughout the cone. Spray angle is approximately 110-120 at 10PSI.

Nozzle Size	Dim 'D'	Dim 'H'	Dim 'L'
1/8SW	0.62	9/16	0.81
1/4SW	0.62	9/16	0.96
3/8SW	0.77	11/16	1.10

All dimensions are in inches

Construction

Each BEX molded nozzle is designed with a series of "knobs" which makes them easier to finger tighten than a hex, especially when wet. The design feature of a small starter barrel greatly reduces the tendency to strip or cross-thread the nozzle during installation.

Standard Materials

- LL Polypropylene
- KK PVDF
- KN Nat. PVDF
- LN Nat. Polypropylene

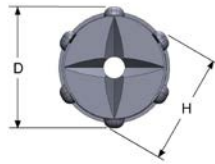
Refer to page 58 for metal models.

Typical Applications:

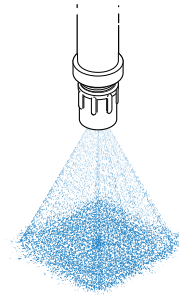
- ▶ Printed Circuit Board Washing
- ▶ PCB-Etching/Developing
- ▶ Semiconductor Manufacturing
- ▶ Carpet Cleaning
- ▶ Fruit and Vegetable Washing
- ▶ Plating Processes
- ▶ Dust Suppression
- ▶ Acid Spraying
- ▶ Degreasing
- ▶ Coating Applications
- ▶ Metal Washing
- ▶ Chemical Spraying
- ▶ Rinsing Parts

Model #	Max. Free Passage inches	Capacities at Various Pressures USGPM												Spray Angle		
		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
1/8S2.8W	0.051	0.153	0.198	0.234	0.280	0.34	0.40	0.48	0.56	0.69	0.79	0.89	1.08	110°	105°	96°
1/8S4.3W	0.051	0.236	0.304	0.36	0.43	0.53	0.61	0.74	0.86	1.05	1.22	1.36	1.67	117°	108°	100°
1/8S5.6W	0.064	0.307	0.40	0.47	0.56	0.69	0.79	0.97	1.12	1.37	1.58	1.77	2.17	117°	110°	100°
1/4S5.6W	0.064	0.307	0.40	0.47	0.56	0.69	0.79	0.97	1.12	1.37	1.58	1.77	2.17	120°	108°	102°
1/8S8W	0.081	0.44	0.57	0.67	0.80	0.98	1.13	1.39	1.60	1.96	2.26	2.53	3.10	118°	110°	103°
1/4S10W	0.091	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	118°	108°	102°
1/4S12W	0.091	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	120°	112°	102°
1/4S14W	0.091	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	118°	114°	104°

SQ Molded Series



Male Thread



Spray Characteristics

An approximately square spray pattern, with uniform distribution throughout the pattern.

Spray Angle is approximately 60 at 10 PSI.

Nozzle Size	Dim 'D'	Dim 'H'	Dim 'L'
1/8SQ	0.62	9/16	0.81
1/4SQ	0.62	9/16	0.96
3/8SQ	0.77	11/16	1.10

All dimensions are in inches

Construction

Each BEX molded nozzle is designed with a series of “knobs” which makes them easier to finger tighten than a hex, especially when wet. The design feature of a small starter barrel greatly reduces the tendency to strip or cross-thread the nozzle during installation.

Standard Materials

- LL Polypropylene
- KK PVDF
- KN Nat. PVDF
- LN Nat. Polypropylene

Refer to page 59 for metal models.

Typical Applications:

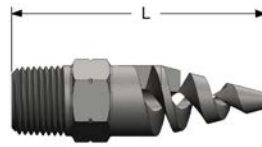
- ▶ Chemical Processing
- ▶ Cooling Sprays
- ▶ Continuous Casting

Model #	Max. Free Passage inches	Capacities at Various Pressures USGPM												Spray Angle		
		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
1/8S3.6SQ	0.057	0.197	0.97	0.301	0.36	0.44	0.51	0.62	0.72	0.88	1.02	1.14	1.39	42°	55°	50°
1/8S4.8SQ	0.033	0.263	0.34	0.40	0.48	0.59	0.68	0.83	0.96	1.18	1.36	1.52	1.86	50°	65°	60°
1/8S6SQ	0.051	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	60°	65°	60°
1/4S6SQ	0.051	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	60°	65°	60°
1/4S10SQ	0.064	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	61°	67°	60°
1/4S12SQ	0.064	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	71°	76°	69°
1/4S14SQ	0.091	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	78°	85°	75°

YS Series



Scan to Order



Male Thread



Spray Characteristics

An approximately full cone spray pattern with larger flow rates and smaller droplet sizes.

The twister design allows small solids to pass through the nozzle without clogging the orifice.

Construction

The models listed are machined from bar stock and are one-piece construction.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel
- V** PVC
- T** Teflon

Typical Applications:

- Washing and Rinsing
- Gas Cooling
- Chemical Processing
- Cooling Sprays
- Humidification
- Sewage Treatment

Model #	Spray Angle	Orifice Dia.	Dimensions		Capacities at Various Pressures USGPM									
			"A"	"L"	5 psi	7 psi	10 psi	20 psi	30 psi	40 psi	60 psi	100 psi	200 psi	300 psi
1/4YS6007	60°	0.087	0.56	1.88	0.50	0.59	0.70	0.99	1.21	1.40	1.71	2.21	3.13	3.8
3/8YS6007	60°	0.087	0.69	1.88	0.50	0.59	0.70	0.99	1.21	1.40	1.71	2.21	3.13	3.8
1/4YS6013	60°	0.119	0.56	1.88	0.92	1.09	1.30	1.84	2.25	2.60	3.2	4.1	5.8	7.1
3/8YS6013	60°	0.119	0.69	1.88	0.92	1.09	1.30	1.84	2.25	2.60	3.2	4.1	5.8	7.1
3/8YS6020	60°	0.147	0.69	1.88	1.41	1.67	2.00	2.83	3.5	4.0	4.9	6.3	8.9	11.0
3/8YS6030	60°	0.180	0.69	1.88	2.12	2.51	3.00	4.2	5.2	6.0	7.3	9.5	13.4	16.4
3/8YS6040	60°	0.208	0.69	1.88	2.83	3.3	4.0	5.7	6.9	8.0	9.8	12.6	17.9	21.9
3/8YS6053	60°	0.239	0.69	1.88	3.7	4.4	5.3	7.5	9.2	10.6	13.0	16.8	23.7	29.0
3/8YS6082	60°	0.298	0.69	1.88	5.8	6.9	8.2	11.6	14.2	16.4	20.1	25.9	37	45
1/2YS60120	60°	0.375	0.88	2.50	8.5	10.0	12.0	17.0	20.8	24.0	29.4	38	54	66
1/2YS60164	60°	0.438	0.88	2.50	11.6	13.7	16.4	23.2	28.4	33	40	52	73	90
1/4YS9007	90°	0.087	0.56	1.88	0.50	0.59	0.70	0.99	1.21	1.40	1.71	2.21	3.13	3.8
1/4YS9013	90°	0.119	0.56	1.88	0.92	1.09	1.30	1.84	2.25	2.60	3.2	4.1	5.8	7.1
1/4YS9020	90°	0.147	0.56	1.88	1.41	1.67	2.00	2.83	3.5	4.0	4.9	6.3	8.9	11.0
3/8YS9030	90°	0.180	0.69	2.13	2.12	2.51	3.00	4.2	5.2	6.0	7.3	9.5	13.4	16.4
3/8YS9040	90°	0.208	0.69	2.13	2.83	3.3	4.0	5.7	6.9	8.0	9.8	12.6	17.9	21.9
3/8YS9053	90°	0.239	0.69	2.13	3.7	4.4	5.3	7.5	9.2	10.6	13.0	16.8	23.7	29.0
3/8YS9082	90°	0.298	0.69	2.13	5.8	6.9	8.2	11.6	14.2	16.4	20.1	25.9	37	45
1/2YS90120	90°	0.375	0.88	2.50	8.5	10.0	12.0	17.0	20.8	24.0	29.4	38	54	66

Continues on Next Page ►

YS Series Continued

Model #	Spray Angle	Orifice Dia.	Dimensions		Capacities at Various Pressures USGPM									
			"A"	"L"	5 psi	7 psi	10 psi	20 psi	30 psi	40 psi	60 psi	100 psi	200 psi	300 psi
1/2YS90164	90°	0.438	0.88	2.50	11.6	13.7	16.4	23.2	28.4	33	40	52	73	90
1/4YS12013	120°	0.119	0.56	1.88	0.92	1.09	1.30	1.84	2.25	2.60	3.2	4.1	5.8	7.1
3/8YS12030	120°	0.180	0.69	2.13	2.12	2.51	3.00	4.2	5.2	6.0	7.3	9.5	13.4	16.4
3/8YS12040	120°	0.208	0.69	2.13	2.83	3.3	4.0	5.7	6.9	8.0	9.8	12.6	17.9	21.9
1/4YS12007	120°	0.087	0.56	1.88	0.50	0.59	0.70	0.99	1.21	1.40	1.71	2.21	3.13	3.8
3/8YS12053	120°	0.239	0.69	2.13	3.7	4.4	5.3	7.5	9.2	10.6	13.0	16.8	23.7	29.0
3/8YS12082	120°	0.298	0.69	2.13	5.8	6.9	8.2	11.6	14.2	16.4	20.1	25.9	37	45
1/2YS120120	120°	0.375	0.88	2.50	8.5	10.0	12.0	17.0	20.8	24.0	29.4	38	54	66
1/2YS120164	120°	0.438	0.88	2.50	11.6	13.7	16.4	23.2	28.4	33	40	52	73	90
3/4YS120210	120°	0.496	0.88	2.75	14.8	17.6	21.0	29.7	36	42	51	66	94	115
1/4YS12020	120°	0.147	0.56	1.88	1.41	1.67	2.00	2.83	3.5	4.0	4.9	6.3	8.9	11.0
1/2YS150120	150°	0.321	0.88	2.50	8.5	10.0	12.0	17.0	20.8	24.0	29.4	38	54	66
3/8YS15082	150°	0.298	0.69	2.13	5.8	6.9	8.2	11.6	14.2	16.4	20.1	25.9	37	45
1/2YS150164	150°	0.375	0.88	2.50	11.6	13.7	16.4	23.2	28.4	33	40	52	73	90
3/8YS15053	150°	0.239	0.69	2.13	3.7	4.4	5.3	7.5	9.2	10.6	13.0	16.8	23.7	29.0
3/8YS15030	150°	0.180	0.69	2.13	2.12	2.51	3.00	4.2	5.2	6.0	7.3	9.5	13.4	16.4
1/4YS15020	150°	0.147	0.56	1.88	1.41	1.67	2.00	2.83	3.5	4.0	4.9	6.3	8.9	11.0
1/4YS15013	150°	0.119	0.56	1.88	0.92	1.09	1.30	1.84	2.25	2.60	3.2	4.1	5.8	7.1
3/8YS15040	150°	0.208	0.69	2.13	2.83	3.3	4.0	5.7	6.9	8.0	9.8	12.6	17.9	21.9
1/4YS17013	170°	0.118	0.69	1.88	0.92	1.09	1.30	1.84	2.25	2.60	3.2	4.1	5.8	7.1
3/8YS17030	170°	0.180	0.69	2.13	2.12	2.51	3.00	4.2	5.2	6.0	7.3	9.5	13.4	16.4
3/8YS17040	170°	0.208	0.69	2.13	2.83	3.3	4.0	5.7	6.9	8.0	9.8	12.6	17.9	21.9
3/8YS17053	170°	0.239	0.69	2.13	3.7	4.4	5.3	7.5	9.2	10.6	13.0	16.8	23.7	29.0
3/8YS17082	170°	0.298	0.69	2.13	5.8	6.9	8.2	11.6	14.2	16.4	20.1	25.9	37	45
1/2YS170170	170°	0.438	0.88	2.50	12.0	14.2	17.0	24.0	29.4	34	42	54	76	93
1/4YS17020	170°	0.147	0.69	1.88	1.41	1.67	2.00	2.83	3.5	4.0	4.9	6.3	8.9	11.0
1/2YS170164	170°	0.375	0.88	2.50	11.6	13.7	16.4	23.2	28.4	33	40	52	73	90
1/2YS170120	170°	0.321	0.88	2.50	8.5	10.0	12.0	17.0	20.8	24.0	29.4	38	54	66



S15 Series



Scan to Order



/ 15°

Spray Characteristics

The S15 nozzle creates a full cone spray pattern with a narrower (approximately 15°) spray angle, larger droplet size, and more impact per unit area compared to a standard S nozzle. This is possible due to the longer insert vein used in the S15 nozzle. It is best suited for full cone spray applications that require higher impact and less coverage.

Construction

These nozzles are made with a large free passage internal vane and feature one piece construction designed for heavier flow rates.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Typical Applications:

- ▶ Chemical Processing
- ▶ Cooling Sprays
- ▶ Continuous Casting

Model #	Max. Free Passage inches	Dimensions		Capacities at Various Pressures USGPM												Spray Angle		
		A	L	3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
1S15280	0.114	1.50	2.31	7.7	9.9	11.7	14.0	17.1	19.8	24.2	28.0	34	40	44	54	14°	15°	15°
1-1/4S15430	0.162	1.88	3.5	11.8	15.2	18.0	21.5	26.3	30.4	37	43	53	61	68	83	14°	15°	15°
1-1/2S15630	0.193	2.69	3.6	17.3	22.3	26.4	31.5	39	45	55	63	77	89	100	122	14°	15°	15°
2S151150	0.230	3.7	3.6	31.5	41	48	58	70	81	100	115	141	163	182	223	14°	15°	15°
2-1/2S151750	0.282	3.4	3.4	48	62	73	88	107	124	152	175	214	247	277	339	14°	15°	15°
3S152500	0.326	4.1	4.1	68	88	105	125	153	177	217	250	306	354	395	484	14°	15°	15°

GS15 Series



Scan to Order

The GS series has the same spray characteristics, materials, and applications as the S15 series, but features a two piece body + removable insert, available in male and female threads.



Female Thread



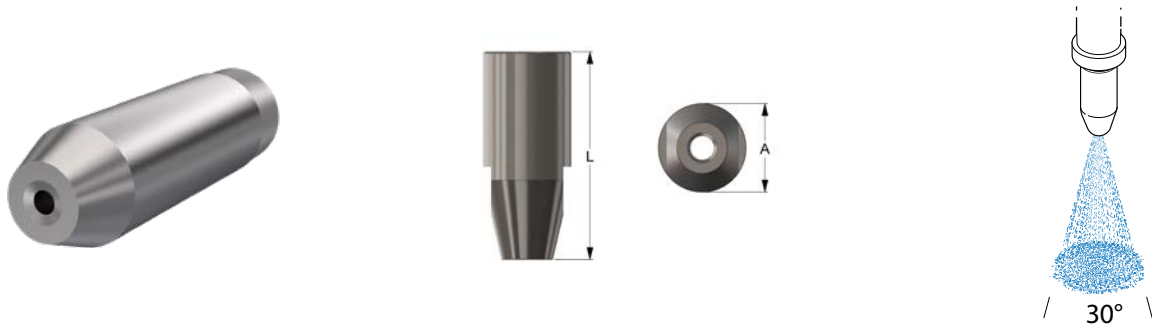
Male Thread



/ 15°

Model #		Max. Free Passage inches	Dimensions		Capacities at Various Pressures USGPM											Spray Angle		
Female	Male		A	L	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	200 psi	300 psi	10 psi	40 psi	100 psi	
1/8FGS1507	1/8GS1507	0.028	0.62	0.62	0.35	0.50	0.61	0.70	0.86	0.99	1.11	1.36	1.57	1.92	13°	15°	15°	
1/8FGS1514	1/8GS1514	0.036	0.62	0.62	0.70	0.99	1.21	1.40	1.71	1.98	2.21	2.71	3.13	3.8	13°	15°	15°	
1/4FGS1530	1/4GS1530	0.049	0.69	0.69	1.50	2.12	2.60	3.00	3.7	4.2	4.7	5.8	6.7	8.2	13°	15°	15°	
3/8FGS1550	3/8GS1550	0.057	0.81	0.81	2.50	3.5	4.3	5.0	6.1	7.1	7.9	9.7	11.2	13.7	13°	15°	15°	
1/2FGS1590	1/2GS1590	0.067	1.00	1.00	4.5	6.4	7.8	9.0	11.0	12.7	14.2	17.4	20.1	24.6	13°	15°	15°	
3/4FGS15150	3/4GS15150	0.081	1.25	1.25	7.5	10.6	13.0	15.0	18.4	21.2	23.7	29.0	34	41	13°	15°	15°	

S30 Series



Spray Characteristics

The S30 nozzle creates a full cone spray pattern with a narrower (approximately 30°) spray angle, larger droplet size, and more impact per unit area compared to a standard S nozzle. This is possible due to the longer insert vein used in the S30 nozzle. It is best suited for full cone spray applications that require higher impact and less coverage.

Construction

These nozzles are made with a large free passage internal vane and feature one piece construction designed for heavier flow rates.

Typical Applications:

- ▶ Chemical Processing
- ▶ Cooling Sprays
- ▶ Continuous Casting

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #	Max. Free Passage inches	Dimensions		Capacities at Various Pressures USGPM											Spray Angle		
		A	L	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	200 psi	300 psi	15 psi	40 psi	100 psi	
1S3070	0.193	1.38	3.6	4.3	5.0	6.1	7.0	8.6	9.9	11.1	16.7	15.7	19.2	27°	30°	30°	
1S30100	0.230	1.38	3.6	6.1	71	8.7	10.0	12.3	14.1	19.4	19.4	22.4	27.4	27°	30°	30°	
1-1/4S30150	0.282	1.75	5.0	9.2	10.6	13.0	15.0	18.4	21.2	29.1	34	34	41	27°	30°	30°	
1-1/4S30200	0.326	1.75	5.0	12.3	14.1	17.3	20.0	24.5	28.3	39	45	45	55	27°	30°	30°	
1-1/2S30250	0.360	2.00	6.1	15.3	17.7	21.7	25.0	30.6	35	48	56	56	68	27°	30°	30°	
1-1/2S30300	0.406	2.00	6.1	18.4	21.2	26.0	30.0	37	42	58	67	67	82	27°	30°	30°	
2S30350	0.430	2.38	7.9	21.4	24.8	30.3	35	43	49	68	78	78	96	28°	30°	30°	
2S30400	0.461	2.38	7.9	25.5	28.3	35	40	49	57	77	89	89	110	28°	30°	30°	
2S30500	0.500	2.38	7.9	30.6	35	43	50	61	71	97	112	112	137	28°	30°	30°	
2-1/2S30600	0.560	3.00	10.4	37	42	52	60	74	85	116	134	134	164	28°	30°	30°	
2-1/2S30700	0.600	3.00	10.4	43	50	61	70	85	99	136	157	157	192	28°	30°	30°	
2-1/2S301000	0.730	3.00	10.4	61	71	87	700	99	141	194	224	224	274	28°	30°	30°	
2-1/2S301100	0.760	3.00	10.4	67	78	95	710	141	156	213	246	246	301	28°	30°	30°	
2-1/2S301200	0.800	3.00	10.4	73	85	104	120	147	170	232	268	268	329	28°	30°	30°	

GS30 Series



Scan to Order



Male Thread



Female Thread



Male Thread

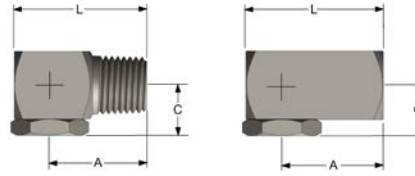


The GS series has the same spray characteristics, materials, and applications as the S30 series, but features a two piece body + removable insert, available in male and female threads.

Model #		Max. Free Passage inches	Dimensions		Capacities at Various Pressures USGPM										Spray Angle		
Female	Male		A	L	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	200 psi	300 psi	15 psi	40 psi	100 psi
1/8FGS3001.4	1/8GS3001.4	0.028	0.62	1.31	0.090	0.100	0.120	0.140	0.170	0.200	0.220	0.270	0.310	0.38	17°	30°	31°
1/8FGS3002.5	1/8GS3002.5	0.036	0.62	1.31	0.150	0.180	0.220	0.250	0.310	0.35	0.40	0.48	0.56	0.68	17°	30°	32°
1/8FGS3004	1/8GS3004	0.049	0.62	1.44	0.240	0.280	0.35	0.40	0.49	0.57	0.63	0.77	0.89	1.10	26°	30°	32°
1/8FGS3007	1/8GS3007	0.057	0.62	1.44	0.43	0.49	0.61	0.70	0.86	0.99	1.11	1.36	1.57	1.92	23°	30°	30°
1/4FGS3009	1/4GS3009	0.067	0.69	1.50	0.55	0.64	0.78	0.90	1.10	1.27	1.42	1.74	2.01	2.46	23°	30°	30°
3/8FGS3014	3/8GS3014	0.081	0.81	2.12	0.86	0.99	1.21	1.40	1.71	1.98	2.21	2.71	3.13	3.8	26°	30°	31°
1/2FGS3030	1/2GS3030	0.114	1.00	2.31	1.84	2.12	2.60	3.00	3.7	4.2	4.7	5.8	6.7	8.2	31°	30°	31°
3/4FGS3050	3/4GS3050	0.162	1.38	3.5	3.06	3.5	4.3	5.0	6.1	7.1	7.9	9.7	11.2	13.7	26°	30°	31°

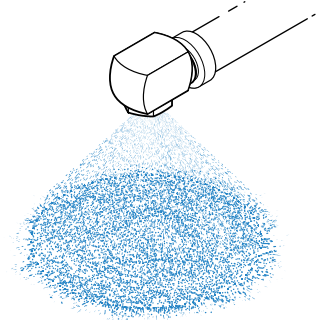


HNS Series



Male Thread

Female Thread



Spray Characteristics

The HNS series vaneless full-cone nozzle projects a medium to coarse full-cone spray in a direction perpendicular to the nozzle inlet axis. The maximum free passage in this nozzle is substantially larger than most full cone nozzles due to the 'vaneless' design.

Construction

Durable, one-piece, anti-clog design has no internal vane to clog or wear out. All models are machined from solid bar stock.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Typical Applications:

- ▶ Washing and Rinsing
- ▶ Gas Cooling
- ▶ Chemical Processing
- ▶ Cooling Sprays
- ▶ Humidification
- ▶ Sewage Treatment

Female Size	Dim 'A'	Dim 'C'	Dim 'L'	Male Size	Dim 'A'	Dim 'C'	Dim 'L'
1/4FHNS	0.94	0.50	1.2	1/4HNS	0.94	0.46	1.2
3/8FHNS	1.0	0.56	1.4	3/8HNS	1.1	0.56	1.5
1/2FHNS	1.4	0.75	1.9	1/2HNS	1.4	0.75	1.9

All dimensions are in inches

Model #		Maximum Free Passage inches	Capacities at Various Pressures USGPM												Spray Angle at (degrees)		
Female	Male		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	125 psi	10 psi	20 psi	40 psi	
1/4FHNS5	1/4HNS5	0.078	1.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.77	60°	75°	85°	
1/4FHNS7	1/4HNS7	0.094	0.50	0.59	0.70	0.86	0.99	1.21	1.40	1.71	1.98	2.21	2.47	60°	76°	90°	
1/4FHNS8	1/4HNS8	0.109	0.57	0.67	0.80	0.98	1.13	1.39	1.60	1.96	2.26	2.53	2.83	63°	76°	85°	
1/4FHNS10	1/4HNS10	0.125	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.5	63°	79°	84°	
1/4FHNS11	1/4HNS11	0.141	0.78	0.92	1.10	1.35	1.56	1.91	2.20	2.69	3.11	3.5	3.9	70°	83°	86°	
3/8FHNS11	3/8HNS11	0.125	0.78	0.92	1.10	1.35	1.56	1.91	2.20	2.69	3.11	3.5	3.9	80°	91°	95°	
3/8FHNS13	3/8HNS13	0.141	0.92	1.09	1.30	1.59	1.84	2.25	2.60	3.2	3.7	4.1	4.6	75°	81°	93°	
3/8FHNS16	3/8HNS16	0.156	1.13	1.34	1.60	1.96	2.26	2.77	3.2	3.9	4.5	5.1	5.7	79°	82°	86°	
3/8FHNS20	3/8HNS20	0.172	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.1	77°	80°	87°	
3/8FHNS23	3/8HNS23	0.188	1.63	1.92	2.30	2.82	3.3	4.0	4.6	5.6	6.5	7.3	8.1	79°	70°	91°	
3/8FHNS26	3/8HNS26	0.203	1.84	2.18	2.60	3.2	3.7	4.5	5.2	6.4	7.4	8.2	9.2	82°	86°	93°	
3/8FHNS29	3/8HNS29	0.219	2.05	2.43	2.90	3.6	4.1	5.0	5.8	7.1	8.2	9.2	10.3	86°	90°	96°	
3/8FHNS33	3/8HNS33	0.234	2.33	2.76	3.3	4.0	4.7	5.7	6.6	8.1	9.3	10.4	11.7	87°	90°	95°	
1/2FHNS32	1/2HNS32	0.203	2.26	2.68	3.2	3.9	4.5	5.5	6.4	7.8	9.1	10.1	11.3	70°	87°	94°	
1/2FHNS40	1/2HNS40	0.234	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	11.3	12.6	14.1	84°	90°	96°	
1/2FHNS48	1/2HNS48	0.281	3.4	4.0	4.8	5.9	6.8	8.3	9.6	11.8	13.6	15.2	17.0	87°	93°	96°	
1/2FHNS56	1/2HNS56	0.297	4.0	4.7	5.6	6.9	7.9	9.7	11.2	13.7	15.8	17.7	19.8	91°	94°	96°	
1/2FHNS64	1/2HNS64	0.328	4.5	5.4	6.4	7.8	9.1	11.1	12.8	15.7	18.1	20.2	22.6	86°	90°	94°	
1/2FHNS72	1/2HNS72	0.359	5.1	6.0	7.2	8.8	10.2	12.5	14.4	17.6	20.4	22.8	25.5	89°	93°	96°	

CCS Series



Spray Characteristics

This nozzle produces a full cone spray pattern with a distribution that is heavier in the middle. The spray angle remains nearly constant within a range of 20 to 80 PSI. This nozzle is suitable for temperature control applications where the volume of sprayed coolant can be adjusted without significantly affecting spray coverage. This allows the user to maximize heat transfer efficiency without the need for an internal insert, which eliminates the possibility of it coming loose in environments that undergo thermal cycling.

Construction

CCS nozzles are machined from bar, and consist of a one piece body, plus a non-removable insert.

MODEL NUMBER	Dim. 'A' (inches)	Dim. 'L' (inches)
1/4CCS	9/16 HEX	15/16
3/8CCS	11/16 HEX	1 3/16

Typical Applications:

- ▶ Continuous Casting and Billet Casting
- ▶ Rinsing and Cooling
- ▶ Heat Exchanger Cooling
- ▶ Chemical Processing

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #	Spray Angle @ 40 psi	Maximum Free Passage inches	Capacities at Various Pressures USGPM										
			15 psi	20 psi	25 psi	30 psi	40 psi	50 psi	60 psi	70 psi	80 psi	90 psi	100 psi
1/4CCS4917	49°	0.091	1.04	1.20	1.34	1.47	1.70	1.90	2.08	2.25	2.40	2.55	2.69
3/8CCS4917	49°	0.091	1.04	1.20	1.34	1.47	1.70	1.90	2.08	2.25	2.40	2.55	2.69
3/8CCS4922	49°	0.091	1.35	1.56	1.74	1.91	2.20	2.46	2.69	2.91	3.11	3.3	3.5
3/8CCS4927	49°	0.102	1.65	1.91	2.13	2.34	2.70	3.02	3.3	3.6	3.8	4.0	4.3
3/8CCS4931	49°	0.114	1.90	2.19	2.45	2.68	3.10	3.5	3.8	4.1	4.4	4.6	4.9
1/4CCS5710	57°	0.064	0.61	0.71	0.79	0.87	1.00	1.12	1.22	1.32	1.41	1.50	1.58
1/4CCS5713	57°	0.081	0.80	0.92	1.03	1.13	1.30	1.45	1.59	1.72	1.84	1.95	2.06
1/4CCS5715	57°	0.091	0.92	1.06	1.19	1.30	1.50	1.68	1.84	1.98	2.12	2.25	2.37
1/4CCS5718	57°	0.091	1.10	1.27	1.42	1.56	1.80	2.01	2.20	2.38	2.55	2.70	2.85
3/8CCS5718	57°	0.091	1.10	1.27	1.42	1.56	1.80	2.01	2.20	2.38	2.55	2.70	2.85
3/8CCS5726	57°	0.091	1.59	1.84	2.06	2.25	2.60	2.91	3.2	3.4	3.7	3.9	4.1
3/8CCS5731	57°	0.102	1.90	2.19	2.45	2.68	3.10	3.5	3.8	4.1	4.4	4.6	4.9
3/8CCS5744	57°	0.104	2.69	3.11	3.5	3.8	4.4	4.9	5.4	5.8	6.2	6.6	7.0
1/4CCS6624	66°	0.091	1.47	1.70	1.90	2.08	2.40	2.68	2.94	3.2	3.4	3.6	3.8
3/8CCS6624	66°	0.091	1.47	1.70	1.90	2.08	2.40	2.68	2.94	3.2	3.4	3.6	3.8
1/4CCS6629	66°	0.091	1.78	2.05	2.29	2.51	2.90	3.2	3.6	3.8	4.1	4.4	4.6
3/8CCS6629	66°	0.091	1.78	2.05	2.29	2.51	2.90	3.2	3.6	3.8	4.1	4.4	4.6

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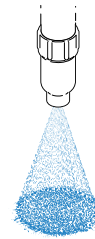
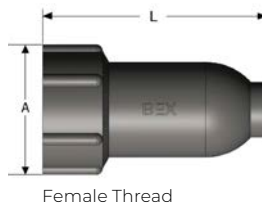
CCS Series Continued

Model #	Spray Angle @ 40 psi	Maximum Free Passage inches	Capacities at Various Pressures USGPM										
			15 psi	20 psi	25 psi	30 psi	40 psi	50 psi	60 psi	70 psi	80 psi	90 psi	100 psi
3/8CCS6633	66°	0.091	2.02	2.33	2.61	2.86	3.3	3.7	4.0	4.4	4.7	5.0	5.2
3/8CCS6648	66°	0.114	2.94	3.4	3.8	4.2	4.8	5.4	5.9	6.3	6.8	7.2	7.6
1/4CCS7622	76°	0.091	1.35	1.56	1.74	1.91	2.20	2.46	2.69	2.91	3.11	3.3	3.5
1/4CCS7628	76°	0.091	1.71	1.98	2.21	2.42	2.80	3.13	3.4	3.7	4.0	4.2	4.4
3/8CCS7628	76°	0.091	1.71	1.98	2.21	2.42	2.80	3.13	3.4	3.7	4.0	4.2	4.4
3/8CCS7638	76°	0.091	2.33	2.69	3.00	3.3	3.8	4.2	4.7	5.0	5.4	5.7	6.0
3/8CCS7664	76°	0.114	3.9	4.5	5.1	5.5	6.4	7.2	7.8	8.5	9.1	9.6	10.1
1/4CCS8618	86°	0.091	1.10	1.27	1.42	1.56	1.80	2.01	2.20	2.38	2.55	2.70	2.85
1/4CCS8633	86°	0.091	2.02	2.33	2.61	2.86	3.3	3.7	4.0	4.4	4.7	5.0	5.2
3/8CCS8633	86°	0.091	2.02	2.33	2.61	2.86	3.3	3.7	4.0	4.4	4.7	5.0	5.2
3/8CCS8642	86°	0.091	2.57	2.97	3.3	3.6	4.2	4.7	5.1	5.6	5.9	6.3	6.6
3/8CCS8649	86°	0.102	3.00	3.5	3.9	4.2	4.9	5.5	6.0	6.5	6.9	7.4	7.7
3/8CCS8667	86°	0.102	1.71	1.98	2.21	2.42	2.80	3.13	3.4	3.7	4.0	4.2	4.4

FS Series



Scan to Order



Spray Characteristics

High capacity full cone spray pattern, with uniform distribution throughout the cone.

Standard Materials

- B** Brass
- 6** 316 Stainless Steel

Nozzle Size	Dim 'A'	Dim 'L'
1¼FS	1 ⁷ / ₈	3 ¹ / ₂
1½FS	2 ¹ / ₄	4 ¹ / ₄
2FS	2 ³ / ₄	5 ⁷ / ₁₆
2½FS	3 ⁵ / ₈	7
3FS	4" Dia.	7 ³ / ₄
4FS	5" Dia.	9 ⁷ / ₈

All dimensions are in inches

Construction

All models have a female NPT connection, and consist of a one piece body plus an internal insert.

This part has two variations - an investment cast version, and a machined version. Both parts are essentially the same, with identical spray characteristics and qualities. Availability for certain versions may vary.



FS Cast

Typical Applications:

- Chemical Processing
- Cooling Sprays
- Foam Breaking
- Heat Exchanger Cooling
- Coke Quenching
- Absorption Stack Spraying
- Gravel Washing



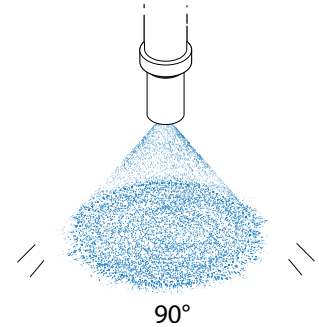
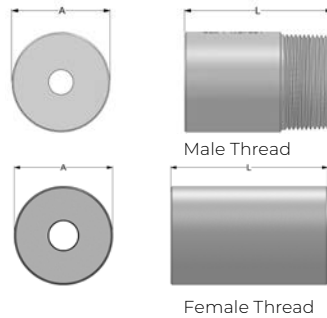
FS Machined

FS Series Continued

Model #	Max. Free Passage inches	Capacities at Various Pressures USGPM												Spray Angle		
		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
1-1/4FS7.1	0.260	14.8	5.0	5.9	7.1	8.7	10.0	12.3	14.2	17.4	20.1	22.5	27.5	54°	56°	50°
1-1/4FS12	0.260	6.6	8.5	10.0	12.0	14.7	17.0	20.8	24.0	29.4	34	38	46	72°	76°	70°
1-1/4FS14.1	0.260	7.7	10.0	11.8	14.1	17.3	19.9	24.4	28.2	35	40	45	55	76°	80°	74°
1-1/4FS16.5	0.305	9.0	11.7	13.8	16.5	20.2	23.3	28.6	33	40	47	52	64	85°	90°	83°
1-1/4FS23.8	0.312	13.0	16.8	19.9	23.8	29.1	34	41	48	58	67	75	92	94°	98°	89°
1-1/2FS12.5	0.315	6.8	8.8	10.5	12.5	15.3	17.7	21.7	25.0	30.6	35	40	48	50°	51°	59°
1-1/2FS19	0.329	10.4	13.4	15.9	19.0	23.3	26.9	33	38	47	54	60	74	68°	70°	62°
1-1/2FS24	0.329	13.1	17.0	20.1	24.0	29.4	34	42	48	59	68	76	93	82°	88°	70°
1-1/2FS36	0.375	19.7	25.5	30.1	36	44	51	62	72	88	102	114	139	98°	103°	85°
2FS20	0.438	11.0	14.1	16.7	20.0	24.5	28.3	35	40	49	57	63	77	50°	64°	60°
2FS36	0.438	19.7	25.5	30.1	36	44	51	62	72	88	102	114	139	70°	75°	68°
2FS42	0.438	23.0	29.7	35	42	51	59	73	84	103	119	133	163	74°	78°	70°
2FS47	0.438	25.7	33	39	47	58	66	81	94	115	133	149	182	78°	80°	84°
2FS59	0.438	32	42	49	59	72	83	102	118	145	167	187	229	82°	86°	78°
2FS71	0.438	39	50	59	71	87	100	123	142	174	201	225	275	98°	100°	93°
2-1/2FS30	0.438	16.4	21.2	25.1	30.0	37	42	52	60	73	85	95	116	55°	59°	55°
2-1/2FS59	0.438	32	42	49	59	72	83	102	118	145	167	187	229	75°	80°	72°
2-1/2FS71	0.531	39	50	59	71	87	100	123	142	174	201	225	275	80°	85°	77°
2-1/2FS83	0.531	45	59	69	83	102	117	144	166	203	235	262	321	80°	82°	76°
2-1/2FS95	0.531	52	67	79	95	116	134	165	190	233	269	300	368	86°	90°	82°
2-1/2FS108	0.688	59	76	90	108	132	153	187	216	265	305	342	418	96°	98°	86°
3FS50	0.688	27.4	35	42	50	61	71	87	100	122	141	158	194	49°	50°	46°
3FS95	0.688	52	67	79	95	116	134	165	190	233	269	300	368	81°	84°	76°
3FS108	0.688	59	76	90	108	132	153	187	216	265	305	342	418	86°	89°	81°
3FS119	0.688	65	84	100	119	146	168	206	238	291	337	376	461	92°	95°	87°
3FS142	0.688	78	100	119	142	174	201	246	284	348	402	449	550	102°	105°	93°
4FS189	0.875	104	134	158	189	231	267	327	378	463	535	598	732	87°	90°	85°
4FS212	0.875	116	150	177	212	260	300	367	424	519	600	670	821	92°	95°	87°
4FS238	0.875	130	168	199	238	291	337	412	476	583	673	753	922	97°	100°	91°
4FS250	0.875	137	177	209	250	306	354	433	500	612	707	791	968	102°	105°	95°



PS Series



Spray Characteristics

A full cone spray pattern with large flow capacities. Standard spray angle is 90° at 40 PSI.

Female Size	Dim 'A'	Dim 'L'	Male Size	Dim 'A'	Dim 'L'
1¼FPS	3¼	2	1¼PS	3	1¾
1½FPS	4¼	2½	1½PS	4	2
2FPS	5⅞	3	2PS	5⅞	2½
2½FPS	5⅞	3½	2½PS	5⅞	4
3FPS	5⅞	4	3PS	5½	3½

All dimensions are in inches

Construction

The models listed are machined from plastic and consist of a body plus a non-removable insert.

Typical Applications:

- ▶ High Impact Applications
- ▶ Scrubbing and Pollution Control
- ▶ Rinsing and Cooling

Standard Materials

- V** PVC
- A** CPVC
- LL** Polypropylene
- T** Teflon

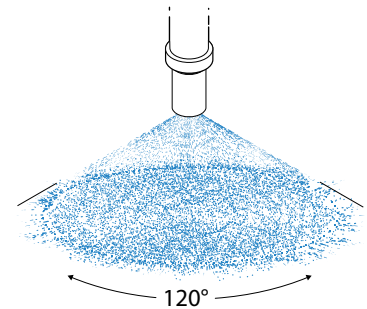
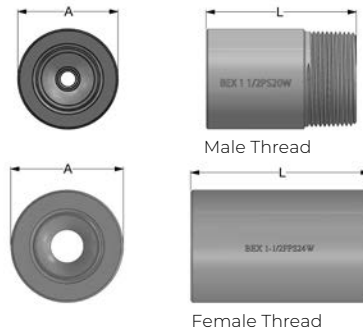
Model #		Max. Free Passage	Capacities at Various Pressures USGPM										Spray Angle at 40 psi
Female	Male		3 psi	5 psi	7 psi	10 psi	20 psi	40 psi	60 psi	80 psi	100 psi		
1-1/4FPS17	1-1/4PS17	0.250	9.3	12.0	14.2	17.0	24.0	34	42	48	54	90°	
1-1/4FPS20	1-1/4PS20	0.250	11.0	14.1	16.7	20.0	28.3	40	49	57	63	90°	
1-1/2FPS17	1-1/2PS17	0.250	9.3	12.0	14.2	17.0	24.0	34	42	48	54	90°	
1-1/2FPS19	1-1/2PS19	0.250	10.4	13.4	15.9	19.0	26.9	38	47	54	60	90°	
1-1/2FPS21	1-1/2PS21	0.250	11.5	14.8	17.6	21.0	29.7	42	51	59	66	90°	
1-1/2FPS25	1-1/2PS25	0.313	13.7	17.7	20.9	25.0	35	50	61	71	79	90°	
1-1/2FPS29	1-1/2PS29	0.313	15.9	20.5	24.3	29.0	41	58	71	82	92	90°	
2FPS20	2PS20	0.250	11.0	14.1	16.7	20.0	28.3	40	49	57	63	90°	
2FPS25	2PS25	0.313	13.7	17.7	20.9	25.0	35	50	61	71	79	90°	
2FPS32	2PS32	0.313	17.5	22.6	26.8	32	45	64	78	91	101	90°	
2FPS40	2PS40	0.375	21.9	28.3	33	40	57	80	98	113	126	90°	
2FPS48	2PS48	0.375	26.3	34	40	48	68	96	118	136	152	90°	
2FPS55	2PS55	0.531	30.1	39	46	55	78	110	135	156	174	90°	
2FPS60	2PS60	0.531	33	42	50	60	85	120	147	170	190	90°	
2FPS72	2PS72	0.563	39	51	60	72	102	144	176	204	228	90°	

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PS Series Continued

Model #		Max. Free Passage	Capacities at Various Pressures USGPM									Spray Angle at 40 psi
Female	Male		3 psi	5 psi	7 psi	10 psi	20 psi	40 psi	60 psi	80 psi	100 psi	
2FPS76	2PS76	0.563	42	54	64	76	107	152	186	215	240	90°
2FPS84	2PS84	0.625	46	59	70	84	119	168	206	238	266	90°
2-1/2FPS84	2-1/2PS84	0.625	46	59	70	84	119	168	206	238	266	90°
2-1/2FPS96	2-1/2PS96	0.688	53	68	80	96	136	192	235	272	304	90°
2-1/2FPS108	2-1/2PS108	0.688	59	76	90	108	153	216	265	305	342	90°
3FPS70	3PS70	0.563	38	49	59	70	99	140	171	198	221	90°
3FPS100	3PS100	0.688	55	71	84	100	141	200	245	283	316	90°
3FPS115	3PS115	0.688	63	81	96	115	163	230	282	325	364	90°
3FPS140	3PS140	0.813	77	99	117	140	198	280	343	396	443	90°

PSW Series



Spray Characteristics

A wide-angle full cone spray pattern with large flow capacities. Standard spray angle is 120° at 40 PSI.

Construction

The models listed are machined from plastic and consist of a body plus a non-removable insert.

Typical Applications:

- ▶ High Impact Applications
- ▶ Scrubbing and Pollution Control
- ▶ Rinsing and Cooling

Female Size	Dim 'A'	Dim 'L'	Male Size	Dim 'A'	Dim 'L'
1¼FPSW	3¼	2	1¼PSW	3	1¾
1½FPSW	4¼	2½	1½PSW	4	2
2FPSW	5⅞	3	2PSW	5⅞	2½
2½FPSW	5⅞	3½	2½PSW	5⅞	4
3FPSW	5⅞	4	3PSW	5½	3½

All dimensions are in inches

Standard Materials

- V** PVC
- A** CPVC
- LL** Polypropylene
- T** Teflon

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PSW Series Continued

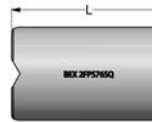
Model #		Max. Free Passage	Capacities at Various Pressures USGPM										Spray Angle at 40 psi
Female	Male		3 psi	5 psi	7 psi	10 psi	20 psi	40 psi	60 psi	80 psi	100 psi		
1-1/4FPS17W	1-1/4PS17W	0.250	35	12.0	14.2	17.0	24.0	34	42	48	54	120°	
1-1/4FPS20W	1-1/4PS20W	0.250	11.0	14.1	16.7	20.0	28.3	40	49	57	63	120°	
1-1/2FPS17W	1-1/2PS17W	0.250	9.3	12.0	14.2	17.0	24.0	34	42	48	54	120°	
1-1/2FPS19W	1-1/2PS19W	0.250	10.4	13.4	15.9	19.0	26.9	38	47	54	60	120°	
1-1/2FPS21W	1-1/2PS21W	0.250	11.5	14.8	17.6	21.0	29.7	42	51	59	66	120°	
1-1/2FPS25W	1-1/2PS25W	0.313	13.7	17.7	20.9	25.0	35	50	61	71	79	120°	
1-1/2FPS29W	1-1/2PS29W	0.313	15.9	20.5	24.3	29.0	41	58	71	82	92	120°	
2FPS20W	2PS20W	0.250	11.0	14.1	16.7	20.0	28.3	40	49	57	63	120°	
2FPS25W	2PS25W	0.313	13.7	17.7	20.9	25.0	35	50	61	71	79	120°	
2FPS32W	2PS32W	0.313	17.5	22.6	26.8	32	45	64	78	91	101	120°	
2FPS40W	2PS40W	0.375	21.9	28.3	33	40	57	80	98	113	126	120°	
2FPS48W	2PS48W	0.375	26.3	34	40	48	68	96	118	136	152	120°	
2FPS55W	2PS55W	0.531	30.1	39	46	55	78	110	135	156	174	120°	
SFPS60W	2PS60W	0.531	33	42	50	60	85	120	147	170	190	120°	
2FPS72W	2PS72W	0.563	39	51	60	72	102	144	176	204	228	120°	
2FPS76W	2PS76W	0.563	42	54	64	76	107	152	186	215	240	120°	
2FPS84W	2PS84W	0.625	46	59	70	84	119	168	206	238	266	120°	
2-1/2FPS84W	2-1/2PS84W	0.625	46	59	70	84	119	168	206	238	266	120°	
2-1/2FPS96W	2-1/2PS96W	0.688	53	68	80	96	136	192	235	272	304	120°	
2-1/2FPS108W	2-1/2PS108W	0.688	59	76	90	108	153	216	265	305	342	120°	
3FPS70W	3PS70W	0.563	38	49	59	70	99	140	171	198	221	120°	
3FPS100W	3PS100W	0.688	55	71	84	100	141	200	245	283	316	120°	
3FPS115W	3PS115W	0.688	63	81	96	115	163	230	282	325	364	120°	
3FPS140W	3PS140W	0.813	77	99	117	140	198	280	343	396	443	120°	



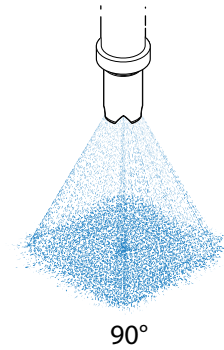
PSQ Series



Male Thread



Female Thread



90°

Spray Characteristics

A full cone spray pattern with an approximate square shape and large flow capacities. Standard spray angle is 90° at 40 PSI.

Construction

The models listed are machined from plastic and consist of a body plus a non-removable insert.

Typical Applications:

- ▶ High Impact Applications
- ▶ Scrubbing and Pollution Control
- ▶ Rinsing and Cooling

Standard Materials

- V** PVC
- A** CPVC
- LL** Polypropylene
- T** Teflon

Female Size	Dim 'A'	Dim 'L'	Male Size	Dim 'A'	Dim 'L'
1¼FPSQ	3¼	2	1¼PSQ	3	1¾
1½FPSQ	4¼	2½	1½PSQ	4	2
2FPSQ	5⅞	3	2PSQ	5⅞	2½
2½FPSQ	5⅞	3½	2½PSQ	5⅞	4
3FPSQ	5⅞	4	3PSQ	5½	3½

All dimensions are in inches

Model #		Max. Free Passage	Capacities at Various Pressures USGPM									Spray Angle at 40 psi
Female	Male		3 psi	5 psi	7 psi	10 psi	20 psi	40 psi	60 psi	80 psi	100 psi	
1-1/4FPS17SQ	1-1/4PS17SQ	0.250	35	12.0	14.2	17.0	24.0	34	42	48	54	90°
1-1/4FPS20SQ	1-1/4PS20SQ	0.250	11.0	14.1	16.7	20.0	28.3	40	49	57	63	90°
1-1/2FPS17SQ	1-1/2PS17SQ	0.250	9.3	12.0	14.2	17.0	24.0	34	42	48	54	90°
1-1/2FPS19SQ	1-1/2PS19SQ	0.250	10.4	13.4	15.9	19.0	26.9	38	47	54	60	90°
1-1/2FPS21SQ	1-1/2PS21SQ	0.250	11.5	14.8	17.6	21.0	29.7	42	51	59	66	90°
1-1/2FPS25SQ	1-1/2PS25SQ	0.313	13.7	17.7	20.9	25.0	35	50	61	71	79	90°
1-1/2FPS29SQ	1-1/2PS29SQ	0.313	15.9	20.5	24.3	29.0	41	58	71	82	92	90°
2FPS20SQ	2PS20SQ	0.250	11.0	14.1	16.7	20.0	28.3	40	49	57	63	90°
2FPS25SQ	2PS25SQ	0.313	13.7	17.7	20.9	25.0	35	50	61	71	79	90°
2FPS32SQ	2PS32SQ	0.313	17.5	22.6	26.8	32	45	64	78	91	101	90°
2FPS40SQ	2PS40SQ	0.375	21.9	28.3	33	40	57	80	98	113	126	90°
2FPS48SQ	2PS48SQ	0.375	26.3	34	40	48	68	96	118	136	152	90°
2FPS55SQ	2PS55SQ	0.531	30.1	39	46	55	78	110	135	156	174	90°
2FPS60SQ	2PS60SQ	0.531	33	42	50	60	85	120	147	170	190	90°
2FPS72SQ	2PS72SQ	0.563	39	51	60	72	102	144	176	204	228	90°

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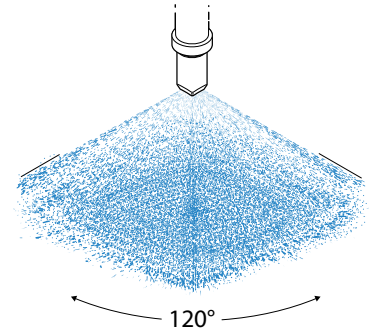
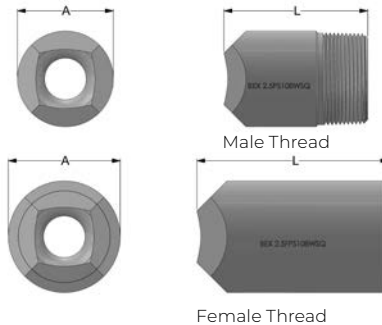
PSQ Series Continued

Model #		Max. Free Passage	Capacities at Various Pressures USGPM									Spray Angle at 40 psi
Female	Male		3 psi	5 psi	7 psi	10 psi	20 psi	40 psi	60 psi	80 psi	100 psi	
2FPS76SQ	2PS76SQ	0.563	42	54	64	76	107	152	186	215	240	90°
2FPS84SQ	2PS84SQ	0.625	46	59	70	84	119	168	206	238	266	90°
2-1/2FPS84SQ	2-1/2PS84SQ	0.625	46	59	70	84	119	168	206	238	266	90°
2-1/2FPS96SQ	2-1/2PS96SQ	0.688	53	68	80	96	136	192	235	272	304	90°
2-1/2FPS108SQ	2-1/2PS108SQ	0.688	53	76	90	108	153	216	265	305	342	90°
3FPS70SQ	3PS70SQ	0.563	55	49	59	70	99	140	171	198	221	90°
3FPS100SQ	3PS100SQ	0.688	55	71	84	100	141	200	245	283	316	90°
3FPS115SQ	3PS115SQ	0.688	63	81	96	115	163	230	282	325	364	90°
3FPS140SQ	3PS140SQ	0.813	77	99	117	140	198	280	343	396	443	90°

PSWQ Series



Scan to Order



Spray Characteristics

A wide-angle full cone spray pattern with an approximate square shape and large flow capacities. Standard spray angle is 90° at 40 PSI.

Construction

The models listed are machined from plastic and consist of a body plus a non-removable insert.

Typical Applications:

- ▶ High Impact Applications
- ▶ Scrubbing and Pollution Control
- ▶ Rinsing and Cooling

Female Size	Dim 'A'	Dim 'L'	Male Size	Dim 'A'	Dim 'L'
1¼FPSWSQ	3¼	2	1¼PSWSQ	3	1¾
1½FPSWSQ	4¼	2½	1½PSWSQ	4	2
2FPSWSQ	5⅞	3	2PSWSQ	5⅞	2½
2½FPSWSQ	5⅞	3½	2½PSWSQ	5⅞	4
3FPSWSQ	5¾	4	3PSWSQ	5½	3½

All dimensions are in inches

Standard Materials

- V PVC
- A CPVC
- LL Polypropylene
- T Teflon

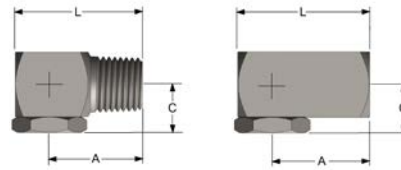
PSWQ Series Continued

Model #		Max. Free Passage	Capacities at Various Pressures USGPM										Spray Angle at 40 psi
Female	Male		3 psi	5 psi	7 psi	10 psi	20 psi	40 psi	60 psi	80 psi	100 psi		
1-1/4FPS17WSQ	1-1/4PS17WSQ	0.250	35	12.0	14.2	17.0	24.0	34	42	48	54	120°	
1-1/4FPS20WSQ	1-1/4PS20WSQ	0.250	11.0	14.1	16.7	20.0	28.3	40	49	57	63	120°	
1-1/2FPS17WSQ	1-1/2PS17WSQ	0.250	9.3	12.0	14.2	17.0	24.0	34	42	48	54	120°	
1-1/2FPS19WSQ	1-1/2PS19WSQ	0.250	10.4	13.4	15.9	19.0	26.9	38	47	54	60	120°	
1-1/2FPS21WSQ	1-1/2PS21WSQ	0.250	11.5	14.8	17.6	21.0	29.7	42	51	59	66	120°	
1-1/2FPS25WSQ	1-1/2PS25WSQ	0.313	13.7	17.7	20.9	25.0	35	50	61	71	79	120°	
1-1/2FPS29WSQ	1-1/2PS29WSQ	0.313	15.9	20.5	24.3	29.0	41	58	71	82	92	120°	
2FPS20WSQ	2PS20WSQ	0.250	11.0	14.1	16.7	20.0	28.3	40	49	57	63	120°	
2FPS25WSQ	2PS25WSQ	0.313	13.7	17.7	20.9	25.0	35	50	61	71	79	120°	
2FPS32WSQ	2PS32WSQ	0.313	17.5	22.6	26.8	32	45	64	78	91	101	120°	
2FPS40WSQ	2PS40WSQ	0.375	21.9	28.3	33	40	57	80	98	113	126	120°	
2FPS48WSQ	2PS48WSQ	0.375	26.3	34	40	48	68	96	118	136	152	120°	
2FPS55WSQ	2PS55WSQ	0.531	30.1	39	46	55	78	110	135	156	174	120°	
2FPS60WSQ	2PS60WSQ	0.531	33	42	50	60	85	120	147	170	190	120°	
2FPS72WSQ	2PS72WSQ	0.563	39	51	60	72	102	144	176	204	228	120°	
2FPS76WSQ	2PS76WSQ	0.563	42	54	64	76	107	152	186	215	240	120°	
2FPS84WSQ	2PS84WSQ	0.625	46	59	70	84	119	168	206	238	266	120°	
2-1/2FPS84WSQ	2-1/2PS84WSQ	0.625	46	59	70	84	119	168	206	238	266	120°	
2-1/2FPS96WSQ	2-1/2PS96WSQ	0.688	53	68	80	96	136	192	235	272	304	120°	
2-1/2FPS108WSQ	2-1/2PS108WSQ	0.688	59	76	90	108	153	216	265	305	342	120°	
3FPS70WSQ	3PS70WSQ	0.563	38	49	59	70	99	140	171	198	221	120°	
3FPS100WSQ	3PS100WSQ	0.688	55	71	84	100	141	200	245	283	316	120°	
3FPS115WSQ	3PS115WSQ	0.688	63	81	96	115	163	230	282	325	364	120°	
3FPS140WSQ	3PS140WSQ	0.813	77	99	117	140	198	280	343	396	443	120°	

H Series

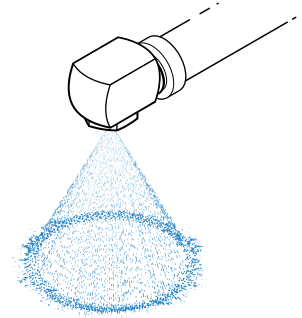


Scan to Order



Male Thread

Female Thread



Spray Characteristics

H-Series nozzles produce a hollow cone spray pattern that emerges at right angles to the centerline of the pipe connection. The standard included angle of the spray cone is 70° at 10 PSI. At low pressures, hollow cone nozzles produce medium-sized, uniform droplets, while at higher pressures, they produce finer droplets.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Construction

The models listed are machined from bar stock, and are two piece construction.

Female Size	Dim 'A'	Dim 'C'	Dim 'L'	Male Size	Dim 'A'	Dim 'C'	Dim 'L'
1/8FH	11/16	3/8	1	1/8H	11/16	3/8	1
1/4FH	15/16	1/2	1 1/4	1/4H	15/16	1/2	1 1/4
3/8FH	1	9/16	1 3/8	3/8H	1	9/16	1 1/2
1/2FH	1 3/8	3/4	1 7/8	1/2H	1 3/8	3/4	1 7/8
3/4FH	1 9/16	7/8	2 1/4	3/4H	1 5/8	7/8	2 1/4

All dimensions are in inches

Typical Applications:

- ▶ Air and Gas Washing
- ▶ Aerating
- ▶ Rinsing
- ▶ Humidifying
- ▶ Industrial Washers
- ▶ Spray Ponds
- ▶ Cooling Tunnels
- ▶ Roof Cooling
- ▶ Degreasing
- ▶ Dust Suppression
- ▶ Metal Treatment

Model #		Max. Free Passage inches	Capacities at Various Pressures USGPM											Spray Angle			
Female	Male		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	10 psi	20 psi	40 psi	80 psi
1/8FH0.5	1/8H0.5	0.028	0.027	0.035	0.042	0.050	0.061	0.071	0.087	0.100	0.122	0.141	0.158	--	--	70°	70°
1/8FH1	1/8H1	0.053	0.055	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.245	0.283	0.32	--	60°	74°	75°
1/8FH2	1/8H2	0.086	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	0.57	0.63	70°	65°	72°	76°
1/8FH3	1/8H3	0.098	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	0.85	0.95	65°	76°	80°	83°
1/8FH5	1/8H5	0.128	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	70°	77°	80°	81°
1/8FH7.5	1/8H7.5	0.153	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	2.12	2.37	70°	86°	94°	94°
1/8FH10	1/8H10	0.171	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	70°	71°	73°	75°
1/4FH1	1/4H1	0.060	0.055	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.245	0.283	0.32	--	61°	74°	69°
1/4FH2	1/4H2	0.085	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	0.57	0.63	70°	75°	83°	85°
1/4FH3	1/4H3	0.111	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	0.85	0.95	70°	70°	72°	74°
1/4FH5	1/4H5	0.136	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	70°	77°	80°	83°
1/4FH7.5	1/4H7.5	0.166	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	2.12	2.37	70°	70°	74°	75°
1/4FH10	1/4H10	0.170	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	70°	74°	76°	80°
1/4FH12.5	1/4H12.5	0.177	0.68	0.88	1.05	1.25	1.53	1.77	2.17	2.50	3.06	3.5	4.0	70°	82°	83°	83°
1/4FH15	1/4H15	0.213	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	4.2	4.7	70°	75°	75°	75°
3/8FH5	3/8H5	0.136	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	70°	74°	76°	76°

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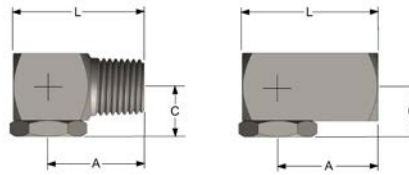
H Series Continued

Model #		Max. Free Passage inches	Capacities at Various Pressures USGPM												Spray Angle			
Female	Male		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	10 psi	20 psi	40 psi	80 psi	
1/4FH7.5	1/4H7.5	0.166	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	2.12	2.37	70°	70°	74°	75°	
1/4FH10	1/4H10	0.170	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	70°	74°	76°	80°	
1/4FH12.5	1/4H12.5	0.177	0.68	0.88	1.05	1.25	1.53	1.77	2.17	2.50	3.06	3.5	4.0	70°	82°	83°	83°	
1/4FH15	1/4H15	0.213	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	4.2	4.7	70°	75°	75°	75°	
3/8FH5	3/8H5	0.136	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	70°	74°	76°	76°	
3/8FH7.5	3/8H7.5	0.164	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	2.12	2.37	70°	74°	78°	82°	
3/8FH10	3/8H10	0.194	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	70°	78°	80°	81°	
3/8FH12.5	3/8H12.5	0.205	0.68	0.88	1.05	1.25	1.53	1.77	2.17	2.50	3.06	3.5	4.0	70°	80°	82°	84°	
3/8FH15	3/8H15	0.232	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	4.2	4.7	70°	73°	75°	75°	
3/8FH20	3/8H20	0.250	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	70°	73°	75°	75°	
3/8FH25	3/8H25	0.279	1.37	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	70°	72°	73°	73°	
3/8FH30	3/8H30	0.292	1.64	2.12	2.51	3.00	3.7	4.2	5.2	6.0	7.3	8.5	9.5	70°	70°	73°	72°	
1/2FH25	1/2H25	0.295	1.37	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	70°	75°	76°	76°	
1/2FH30	1/2H30	0.329	1.64	2.12	2.51	3.00	3.7	4.2	5.2	6.0	7.3	8.5	9.5	70°	78°	80°	81°	
1/2FH40	1/2H40	0.369	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	11.3	12.6	70°	75°	75°	75°	
1/2FH50	1/2H50	0.393	2.74	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	70°	70°	71°	73°	
1/2FH60	1/2H60	0.421	3.3	4.2	5.0	6.0	7.3	8.5	10.4	12.0	14.7	17.0	19.0	70°	70°	71°	71°	
3/4FH40	3/4H40	0.368	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	11.3	12.6	70°	71°	76°	79°	
3/4FH50	3/4H50	0.421	2.74	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	70°	73°	74°	74°	
3/4FH60	3/4H60	0.438	3.3	4.2	5.0	6.0	7.3	8.5	10.4	12.0	14.7	17.0	19.0	70°	75°	78°	80°	
3/4FH70	3/4H70	0.469	3.8	4.9	5.9	7.0	8.6	9.9	12.1	14.0	17.1	19.8	22.1	70°	74°	76°	76°	
3/4FH80	3/4H80	0.484	4.4	5.7	6.7	8.0	9.8	11.3	13.9	16.0	19.6	22.6	25.3	70°	73°	75°	76°	
3/4FH90	3/4H90	0.500	4.9	6.4	7.5	9.0	11.0	12.7	15.6	18.0	22.0	25.5	28.5	70°	70°	71°	73°	
3/4FH100	3/4H100	0.507	5.5	7.1	8.4	10.0	12.2	14.1	17.3	20.0	24.5	28.3	32	70°	73°	76°	78°	
3/4FH110	3/4H110	0.575	6.0	7.8	9.2	11.0	13.5	15.6	19.1	22.0	26.9	31.1	35	70°	72°	75°	72°	
3/4FH120	3/4H120	0.568	6.6	8.5	10.0	12.0	14.7	17.0	20.8	24.0	29.4	34	38	70°	70°	71°	71°	

HW Series

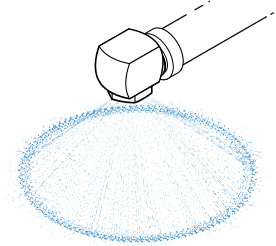


Scan to Order



Male Thread

Female Thread



Spray Characteristics

HW Series nozzles produce a hollow cone spray pattern, similar to the BEX H series, but with wider spray angles. The included angle of the spray cone is 120° at 10 PSI.

Female Size	Dim 'A'	Dim 'C'	Dim 'L'	Male Size	Dim 'A'	Dim 'C'	Dim 'L'
1/8FHW	11/16	3/8	1	1/8HW	11/16	3/8	1
1/4FHW	15/16	1/2	1 1/4	1/4HW	15/16	1/2	1 1/4
3/8FHW	1	9/16	1 3/8	3/8HW	1	9/16	1 1/2
1/2FHW	1 3/8	3/4	1 7/8	1/2HW	1 3/8	3/4	1 7/8
3/4FHW	1 9/16	7/8	2 1/4	3/4HW	1 5/8	7/8	2 1/4

All dimensions are in inches

Construction

The models listed are machined from bar stock, and are two piece construction.

Typical Applications:

- Water Cooling
- Roof Cooling
- Air Cooling
- Air Washing

Standard Materials

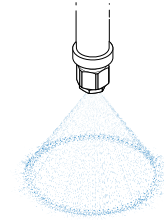
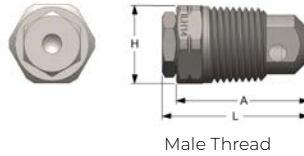
- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #		Max. Free Passage inches	Capacities at Various Pressures USGPM												Spray Angle			
Female	Male		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	10 psi	20 psi	40 psi	80 psi	
1/8FH1W	1/8H1W	0.055	0.055	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.245	0.283	0.32	--	115°	107°	95°	
1/8FH2W	1/8H2W	0.077	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	0.57	0.63	120°	117°	105°	97°	
1/8FH3W	1/8H3W	0.093	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	0.85	0.95	120°	116°	109°	92°	
1/8FH5W	1/8H5W	0.109	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	120°	116°	107°	90°	
1/4FH1W	1/4H1W	0.055	0.055	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.245	0.283	0.32	120°	110°	102°	90°	
1/4FH2W	1/4H2W	0.077	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	0.57	0.63	120°	110°	105°	92°	
1/4FH3W	1/4H3W	0.093	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	0.85	0.95	120°	114°	104°	90°	
1/4FH5W	1/4H5W	0.109	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	120°	113°	107°	98°	
1/4FH7.5W	1/4H7.5W	0.158	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	2.12	2.37	120°	115°	110°	92°	
1/4FH10W	1/4H10W	0.170	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	120°	115°	110°	93°	
1/4FH12.5	1/4H12.5W	0.188	0.68	0.88	1.05	1.25	1.53	1.77	2.17	2.50	3.06	3.5	4.0	120°	118°	110°	94°	
1/4FH15W	1/4H15W	0.201	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	4.2	4.7	120°	115°	108°	92°	
3/8FH5W	3/8H5W	0.109	2.74	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	120°	117°	107°	99°	
3/8FH7.5W	3/8H7.5W	0.158	4.1	5.3	6.3	7.5	9.2	10.6	13.0	15.0	18.4	21.2	23.7	120°	113°	110°	93°	
3/8FH10W	3/8H10W	0.170	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	120°	115°	110°	93°	
3/8FH12.5W	3/8H12.5W	0.188	0.68	0.88	1.05	1.25	1.53	1.77	2.17	2.50	3.06	3.5	4.0	120°	115°	108°	94°	
3/8FH15W	3/8H15W	0.201	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	4.2	4.7	120°	115°	108°	92°	

ILH Series



Scan to Order



Spray Characteristics

ILH series in-line hollow-cone spray nozzles produce a very evenly distributed hollow cone spray which emerges through the center axis of the nozzle body. At lower pressures, they produce medium sized, uniform droplets. Finer droplets are produced at higher pressures. Standard spray angle is 75° at 40 PSI.

Construction

ILH series nozzles have large maximum free passage diameters to reduce clogging. Interchangeable nozzle caps are easily removed for cleaning or inspection.



Typical Applications:

- Dust Suppression
- Spray Ponds
- Metal Treatment
- Roof Cooling
- Brine Spraying
- Humidification
- Aerating

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Nozzle Size	Dim 'A'	Dim 'L'	Dim 'H'
3/8ILH	1.2	1.3	0.75
1/2H	1.3	1.5	1
3/4ILH	1.5	1.8	1.2
1 1/2ILH	2.4	2.6	2

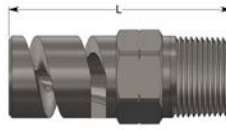
All dimensions are in inches

Model #	Pipe Size	Maximum Free Passage inches	Capacities at Various Pressures USGPM									
			5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi
3/8ILH2	3/8	0.078	0.54	0.167	0.200	0.245	0.283	0.35	0.40	0.49	0.57	0.63
3/8ILH3	3/8	0.094	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	0.85	0.95
3/8ILH5	3/8	0.109	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58
3/8ILH8	3/8	0.156	0.57	0.67	0.80	0.98	1.13	1.39	1.60	1.96	2.26	2.53
3/8ILH10	3/8	0.116	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2
3/8ILH14	3/8	0.156	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4
1/2ILH5	1/2	0.125	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58
1/2ILH8	1/2	0.156	0.57	0.67	0.80	0.98	1.13	1.39	1.60	1.96	2.26	2.53
1/2ILH10	1/2	0.172	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2
1/2ILH15	1/2	0.172	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	4.2	4.7
1/2ILH20	1/2	0.188	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3
1/2ILH25	1/2	0.203	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9
3/4ILH5	3/4	0.125	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58
3/4ILH8	3/4	0.156	0.57	0.67	0.80	0.98	1.13	1.39	1.60	1.96	2.26	2.53
3/4ILH10	3/4	0.172	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2
3/4ILH15	3/4	0.219	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	4.2	4.7
3/4ILH20	3/4	0.250	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3
3/4ILH25	3/4	0.250	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9
3/4ILH50	3/4	0.281	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8
1-1/2ILH40	1-1/2	0.313	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	11.3	12.6
1-1/2ILH50	1-1/2	0.375	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8
1-1/2ILH70	1-1/2	0.375	4.9	5.9	7.0	8.6	9.9	12.1	14.0	17.1	19.8	22.1
1-1/2ILH90	1-1/2	0.375	6.4	7.5	9.0	11.0	12.7	15.6	18.0	22.0	25.5	28.5
1-1/2ILH110	1-1/2	0.375	7.8	9.2	11.0	13.5	15.6	19.1	22.0	26.9	31.1	35

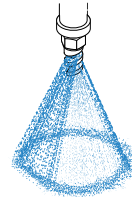
YH Series



Scan to Order



Male Thread



Spray Characteristics

A hollow cone spray pattern with large flow rates and small droplet sizes. YH Series nozzles have an anti-clog design that can be easily inspected, cleaned and serviced.

The twister design allows small solids to pass through the nozzle without clogging the orifice.

Construction

Durable, one-piece, anti-clog design has no internal vane to clog or wear out. All models are machined from solid bar stock.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel
- V** PVC
- T** Teflon

Typical Applications:

- ▶ Air and Gas Applications
- ▶ Dust Suppression
- ▶ Spray Ponds
- ▶ Cooling Tunnels
- ▶ Medical Treatment
- ▶ Humidification

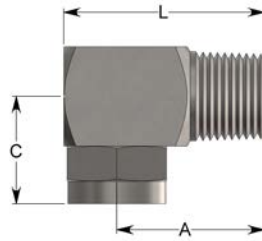
Model #	Spray Angle	Orifice Dia.	Dimensions		Capacities at Various Pressures USGPM									
			"A"	"L"	5 psi	7 psi	10 psi	20 psi	30 psi	40 psi	60 psi	100 psi	200 psi	300 psi
1/4YH5007	50°	0.094	0.56	1.19	0.50	0.59	0.70	0.99	1.21	1.40	1.71	2.21	3.13	3.8
1/4YH5013	50°	0.125	0.56	1.19	0.92	1.09	1.30	1.84	2.25	2.60	3.2	4.1	5.8	7.1
1/4YH5020	50°	0.156	0.56	1.19	1.41	1.67	2.00	2.83	3.5	4.0	4.9	6.3	8.9	11.0
3/8YH5030	50°	0.188	0.69	2.12	2.12	2.51	3.00	4.2	5.2	6.0	7.3	9.5	13.4	16.4
3/8YH5040	50°	0.219	0.69	2.12	2.83	3.3	4.0	5.7	6.9	8.0	9.8	12.6	17.9	21.9
3/8YH5053	50°	0.250	0.69	2.12	3.7	4.4	5.3	7.5	9.2	10.6	13.0	16.8	23.7	29.0
3/8YH5082	50°	0.313	0.69	2.12	5.8	6.9	8.2	11.6	14.2	16.4	20.1	25.9	37	45
1/2YH50120	50°	0.375	0.88	2.50	8.5	10.0	12.0	17.0	20.8	24.0	29.4	38	54	66
1/2HY50164	50°	0.438	0.88	2.50	11.6	13.7	16.4	23.2	28.4	33	40	52	73	90
3/4YH50210	50°	0.500	1.06	2.88	8.5	10.0	12.0	17.0	20.8	24.0	29.4	38	54	66
1/4YH6007	60°	0.094	0.56	1.19	0.50	0.59	0.70	0.99	1.21	1.40	1.71	2.21	3.13	3.8
1/4YH6013	60°	0.125	0.56	1.19	0.92	1.09	1.30	1.84	2.25	2.60	3.2	4.1	5.8	7.1
1/4YH6020	60°	0.156	0.56	1.19	1.41	1.67	2.00	2.83	3.5	4.0	4.9	6.3	8.9	11.0
3/8YH6030	60°	0.188	0.69	2.12	2.12	2.51	3.00	4.2	5.2	6.0	7.3	9.5	13.4	16.4
3/8YH6040	60°	0.219	0.69	2.12	2.83	3.3	4.0	5.7	6.9	8.0	9.8	12.6	17.9	21.9
3/8YH6053	60°	0.250	0.69	2.12	3.7	4.4	5.3	7.5	9.2	10.6	13.0	16.8	23.7	29.0
3/8YH6082	60°	0.313	0.69	2.12	5.8	6.9	8.2	11.6	14.2	16.4	20.1	25.9	37	45
1/2YH60120	60°	0.375	0.88	2.50	8.5	10.0	12.0	17.0	20.8	24.0	29.4	38	54	66
1/2YH60164	60°	0.438	0.88	2.50	11.6	13.7	16.4	23.2	28.4	33	40	52	73	90
3/4YH60210	60°	0.500	1.06	2.88	8.5	10.0	12.0	17.0	20.8	24.0	29.4	38	54	66

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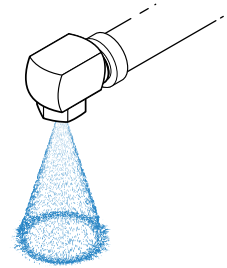
YH Series Continued

Model #	Spray Angle	Orifice Dia.	Dimensions		Capacities at Various Pressures USGPM									
			"A"	"L"	5 psi	7 psi	10 psi	20 psi	30 psi	40 psi	60 psi	100 psi	200 psi	300 psi
1YH60340	60°	0.625	1.38	3.7	24.0	28.4	34	48	59	68	83	108	152	186
1YH60470	60°	0.750	1.38	3.7	33	39	47	66	81	94	115	149	210	257
1/4YH9007	90°	0.094	0.56	1.19	0.50	0.59	0.70	0.99	1.21	1.40	1.71	2.21	3.13	3.8
1/4YH9013	90°	0.125	0.56	1.19	0.92	1.09	1.30	1.84	2.25	2.60	3.2	4.1	5.8	7.1
1/4YH9020	90°	0.156	0.56	1.19	1.41	1.67	2.00	2.83	3.5	4.0	4.9	6.3	8.9	11.0
3/8YH9030	90°	0.188	0.69	2.12	2.12	2.51	3.00	4.2	5.2	6.0	7.3	9.5	13.4	16.4
1/4YH9038	90°	0.212	0.69	1.31	2.69	3.2	3.8	5.4	6.6	7.6	9.3	12.0	17.0	20.8
3/8YH9040	90°	0.219	0.69	2.12	2.83	3.3	4.0	5.7	6.9	8.0	9.8	12.6	17.9	21.9
3/8YH9053	90°	0.250	0.69	2.12	3.7	4.4	5.3	7.5	9.2	10.6	13.0	16.8	23.7	29.0
3/8YH9082	90°	0.313	0.69	2.12	5.8	6.9	8.2	11.6	14.2	16.4	20.1	25.9	37	45
1/2YH90120	90°	0.375	0.88	2.50	8.5	10.0	12.0	17.0	20.8	24.0	29.4	38	54	66
1/2YH90164	90°	0.438	0.88	2.50	11.6	13.7	16.4	23.2	28.4	33	40	52	73	90
3/4YH90210	90°	0.500	1.06	2.88	14.8	17.6	21.0	29.7	36	42	51	66	94	115
1YH90340	90°	0.625	1.38	3.7	24.0	28.4	34	48	59	68	83	108	152	186
1YH90470	90°	0.750	1.38	3.7	33	39	47	66	81	94	115	149	210	257
1/4YH12007	120°	0.094	0.56	1.19	0.50	0.59	0.70	0.99	1.21	1.40	1.71	2.21	3.13	3.8
1/4YH12013	120°	0.125	0.56	1.19	0.92	1.09	1.30	1.84	2.25	2.60	3.2	4.1	5.8	7.1
1/4YH12020	120°	0.156	0.56	1.19	1.41	1.67	2.00	2.83	3.5	4.0	4.9	6.3	8.9	11.0
3/8YH12030	120°	0.188	0.69	2.12	2.12	2.51	3.00	4.2	5.2	6.0	7.3	9.5	13.4	16.4
3/8YH12040	120°	0.219	0.69	2.12	2.83	3.3	4.0	5.7	6.9	8.0	9.8	12.6	17.9	21.9
3/8YH12053	120°	0.250	0.69	2.12	3.7	4.4	5.3	7.5	9.2	10.6	13.0	16.8	23.7	29.0
3/8YH12082	120°	0.313	0.69	2.12	5.8	6.9	8.2	11.6	14.2	16.4	20.1	25.9	37	45
1/2YH120120	120°	0.375	0.88	2.50	8.5	10.0	12.0	17.0	20.8	24.0	29.4	38	54	66
1/2YH120164	120°	0.438	0.88	2.50	11.6	13.7	16.4	23.2	28.4	33	40	52	73	90
3/4YH120210	120°	0.500	1.06	2.88	8.5	10.0	12.0	17.0	20.8	24.0	29.4	38	54	66
1YH120340	120°	0.625	1.38	3.7	24.0	28.4	34	48	59	68	83	108	152	186
1YH120470	120°	0.750	1.38	3.7	33	39	47	66	81	94	115	149	210	257
1/4YH18007	180°	0.094	1.38	1.19	0.50	0.59	0.70	0.99	1.21	1.40	1.71	2.21	3.13	3.8
1/4YH18013	180°	0.125	0.56	1.88	0.92	1.09	1.30	1.84	2.25	2.60	3.2	4.1	5.8	7.1
1/4YH18020	180°	0.156	0.56	1.19	1.41	1.67	2.00	2.83	3.5	4.0	4.9	6.3	8.9	11.0
3/8YH18030	180°	0.188	0.69	2.12	2.12	2.51	3.00	4.2	5.2	6.0	7.3	9.5	13.4	16.4
3/8YH18040	180°	0.219	0.69	2.12	2.83	3.3	4.0	5.7	6.9	8.0	9.8	12.6	17.9	21.9
3/8YH18053	180°	0.250	0.69	2.12	3.7	4.4	5.3	7.5	9.2	10.6	13.0	16.8	23.7	29.0
3/8YH18082	180°	0.313	0.69	2.12	5.8	6.9	8.2	11.6	14.2	16.4	20.1	25.9	37	45
1/2YH180120	180°	0.375	0.88	2.50	8.5	10.0	12.0	17.0	20.8	24.0	29.4	38	54	66
1/2YH180164	180°	0.438	0.88	2.50	11.6	13.7	16.4	23.2	28.4	33	40	52	73	90
3/4YH180210	180°	0.500	1.06	2.88	8.5	10.0	12.0	17.0	20.8	24.0	29.4	38	54	66
1YH180340	180°	0.625	1.38	3.7	24.0	28.4	34	48	59	68	83	108	152	186

PH Series



Male Thread



Spray Characteristics

The PH series is specifically designed for phosphating applications. It produces a hollow cone spray with large droplets and low impingement, resulting in a tighter and more consistent phosphate crystalline structure. This spray pattern minimizes the misting of phosphate spray, reducing pre-coating, streaking, and carryover to adjacent stages.

Construction

The models listed are machined from bar stock, and are two piece construction.



Typical Applications:

- ▶ Phosphating
- ▶ Rinsing
- ▶ Water Cooling
- ▶ Metal Treatment
- ▶ Industrial Washers

Standard Materials

- 3 303 Stainless Steel
- 6 316 Stainless Steel

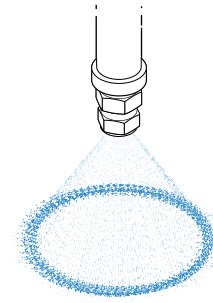
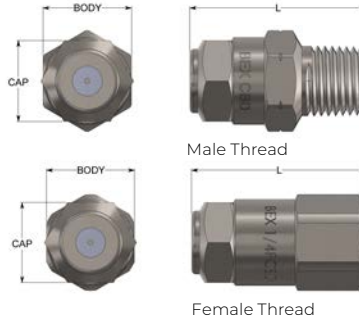
Model Number	DIM "A" (in)	DIM "C" (in)	DIM "L" (in)
3/8PH	1.12	0.81	1.51

Model #	Orifice Diameter		Capacities at Various Pressures USGPM											Spray Angle		
	Body	Cap	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	10 psi	15 psi	30 psi	
3/8PH23	0.312	0.220	1.63	1.92	2.30	2.82	3.3	4.0	4.6	5.6	6.5	7.3	45°	53°	60°	
3/8PH28	0.312	0.231	1.98	2.34	2.80	3.4	4.0	4.8	5.6	6.9	7.9	8.9	40°	43°	48°	
3/8PH51	0.375	0.344	3.5	4.2	5.1	6.1	7.1	8.7	10.0	12.2	14.1	15.8	40°	50°	50°	
3/8PH53	0.375	0.375	3.5	4.2	5.3	6.1	7.1	8.7	10.0	12.2	14.1	15.8	70°	70°	70°	

C Series



Scan to Order



Spray Characteristics

The C series hydraulic atomizing nozzles are meticulously crafted to generate a very fine hollow-cone spray pattern, solely utilizing the liquid pressure for atomization. These nozzles are easy to disassemble, assemble, and clean. The standard spray angle of the C series nozzle is 80° at 40 PSI.

Construction

Two piece body with removable cap and core. Bodies are available in a variety of materials. The cap and core are supplied in 316 stainless steel standard.



Typical Applications:

- Humidifications/Moisture Addition
- Evaporative Cooling
- Steam De-superheating

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

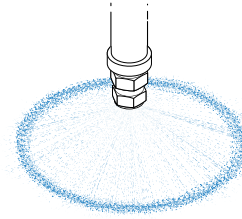
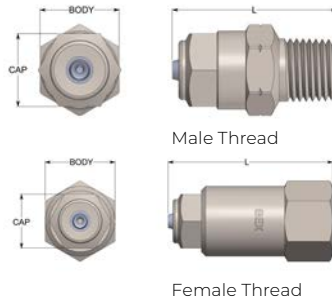
Model Number	"L"	BODY	CAP
1/4FC	1	11/16 HEX	11/16 HEX
1/4C	1	11/16 HEX	11/16 HEX

Model #		Capacities at Various Pressures USGPH								
Female	Male	30 psi	40 psi	80 psi	100 psi	200 psi	300 psi	500 psi	700 psi	1000 psi
1/4FC1.9	1/4C1.9	0.51	0.59	0.83	0.93	1.32	1.61	2.08	2.47	2.95
1/4FC2.4	1/4C2.4	0.64	0.74	1.05	1.18	1.67	2.04	2.63	3.12	3.7
1/4FC3.0	1/4C3.0	0.81	0.93	1.32	1.47	2.08	2.55	3.3	3.9	4.7
1/4FC3.8	1/4C3.8	1.02	1.18	1.67	1.86	2.64	3.2	4.2	4.9	5.9
1/4FC4.7	1/4C4.7	1.26	1.46	2.06	2.31	3.3	4.0	5.2	6.1	7.3
1/4FC5.9	1/4C5.9	1.59	1.83	2.59	2.89	4.1	5.0	6.5	7.7	9.2
1/4FC7.4	1/4C7.4	1.99	2.30	3.2	3.6	5.1	6.3	8.1	9.6	11.5
1/4FC9.2	1/4C9.2	2.47	2.85	4.0	4.5	6.4	7.8	10.1	11.9	14.3
1/4FC12	1/4C12	3.2	3.7	5.3	5.9	8.3	10.2	13.2	15.6	18.6
1/4FC14	1/4C14	3.8	4.3	6.1	6.9	9.7	11.9	15.4	18.2	21.7
1/4FC18	1/4C18	4.8	5.6	7.9	8.8	12.5	15.3	19.7	23.4	27.9
1/4FC23	1/4C23	6.2	7.1	10.1	11.3	16.0	19.5	25.2	29.9	36
1/4FC28	1/4C28	7.5	8.7	12.3	13.7	19.4	23.8	30.7	36	43
1/4FC35	1/4C35	9.4	10.9	15.4	17.2	24.3	29.7	38	45	54
1/4FC44	1/4C44	11.8	13.7	19.3	21.6	30.5	37	48	57	68
1/4FC55	1/4C55	14.8	17.1	24.1	27.0	38	47	60	71	85
1/4FC69	1/4C69	18.5	21.4	30.3	34	48	59	76	90	107
1/4FC86	1/4C86	23.1	26.7	38	42	60	73	94	112	133

CW Series



Scan to Order



Spray Characteristics

The CW series hydraulic atomizing nozzles are meticulously crafted to generate a very fine hollow-cone spray pattern with a wide spray angle, solely utilizing the liquid pressure for atomization. These nozzles are easy to disassemble, assemble, and clean. Standard spray angle is 150° at 40 PSI.

Model Number	"L"	BODY	CAP
1/4FCW	1	11/16 HEX	11/16 HEX
1/4CW	1	11/16 HEX	11/16 HEX

Construction

Two piece body with removable cap and core. Bodies are available in a variety of materials. The cap and core are supplied in 316 stainless steel standard.



Typical Applications:

- Humidifications/Moisture Addition
- Evaporative Cooling
- Steam De-superheating

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #		Capacities at Various Pressures USGPH								
Female	Male	30 psi	40 psi	80 psi	100 psi	200 psi	300 psi	500 psi	700 psi	1000 psi
1/4FC5.9W	1/4C5.9W	1.59	1.83	2.59	2.89	4.1	5.0	6.5	7.7	9.2
1/4FC7.4W	1/4C7.4W	1.99	2.30	3.2	3.6	5.1	6.3	8.1	9.6	11.5
1/4FC9.2W	1/4C9.2W	2.47	2.85	4.0	4.5	6.4	7.8	10.1	11.9	14.3
1/4FC12W	1/4C12W	3.2	3.7	5.3	5.9	8.3	10.2	13.2	15.6	18.6
1/4FC14W	1/4C14W	3.8	4.3	6.1	6.9	9.7	11.9	15.4	18.2	21.7
1/4FC18W	1/4C18W	4.8	5.6	7.9	8.8	12.5	15.3	19.7	23.4	27.9
1/4FC23W	1/4C23W	6.2	7.1	10.1	11.3	16.0	19.5	25.2	29.9	36
1/4FC28W	1/4C28W	7.5	8.7	12.3	13.7	19.4	23.8	30.7	36	43

CL Series



Spray Characteristics

The CL series hydraulic atomizing nozzles are meticulously crafted to generate a very fine hollow-cone spray pattern, solely utilizing the liquid pressure for atomization. These nozzles are easy to disassemble, assemble, and clean. The standard spray angle of the C series nozzle is 80° at 40 PSI.

Construction

Two piece body with removable cap, core and strainer. Bodies are available in a variety of materials. The cap, core, and strainer are supplied in 316 stainless steel standard.

Typical Applications:

- Humidifications/Moisture Addition
- Evaporative Cooling
- Steam De-superheating

Standard Materials

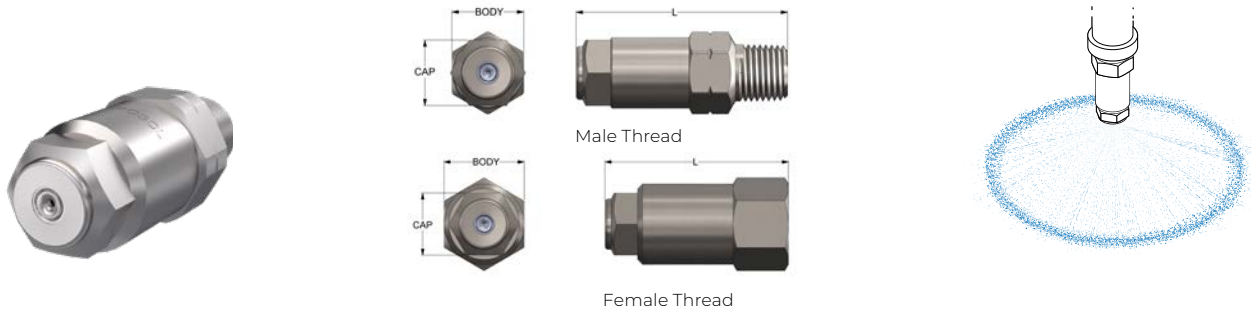
- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model Number	"L"	BODY	CAP
1/4FCL	1 ¹⁵ / ₁₆	13 ¹³ / ₁₆ HEX	11 ¹¹ / ₁₆ HEX
1/4CL	2 ¹ / ₈	13 ¹³ / ₁₆ HEX	11 ¹¹ / ₁₆ HEX



Model #		Capacities at Various Pressures USGPH								
Female	Male	30 psi	40 psi	80 psi	100 psi	200 psi	300 psi	500 psi	700 psi	1000 psi
1/4FC1.9L	1/4C1.9L	0.51	0.59	0.83	0.93	1.32	1.61	2.08	2.47	2.95
1/4FC2.4L	1/4C2.4L	0.64	0.74	1.05	1.18	1.67	2.04	2.63	3.12	3.7
1/4FC3.0L	1/4C3.0L	0.81	0.93	1.32	1.47	2.08	2.55	3.3	3.9	4.7
1/4FC3.8L	1/4C3.8L	1.02	1.18	1.67	1.86	2.64	3.2	4.2	4.9	5.9
1/4FC4.7L	1/4C4.7L	1.26	1.46	2.06	2.31	3.3	4.0	5.2	6.1	7.3
1/4FC5.9L	1/4C5.9L	1.59	1.83	2.59	2.89	4.1	5.0	6.5	7.7	9.2
1/4FC7.9L	1/4C7.9L	2.12	2.45	3.5	3.9	5.5	6.7	8.7	10.3	12.3
1/4FC9.2L	1/4C9.2L	2.47	2.85	4.0	4.5	6.4	7.8	10.1	11.9	14.3
1/4FC12L	1/4C12L	3.2	3.7	5.3	5.9	8.3	10.2	13.2	15.6	18.6
1/4FC14L	1/4C14L	3.8	4.3	6.1	6.9	9.7	11.9	15.4	18.2	21.7
1/4FC18L	1/4C18L	4.8	5.6	7.9	8.8	12.5	15.3	19.7	23.4	27.9
1/4FC23L	1/4C23L	6.2	7.1	10.1	11.3	16.0	19.5	25.2	29.9	36
1/4FC28L	1/4C28L	7.5	8.7	12.3	13.7	19.4	23.8	30.7	36	43
1/4FC35L	1/4C35L	9.4	10.9	15.4	17.2	24.3	29.7	38	45	54
1/4FC44L	1/4C44L	11.8	13.7	19.3	21.6	30.5	37	48	57	68
1/4FC55L	1/4C55L	14.8	17.1	24.1	27.0	38	47	60	71	85
1/4FC69L	1/4C69L	18.5	21.4	30.3	34	48	59	76	90	107
1/4FC86L	1/4C86L	23.1	26.7	38	42	60	73	94	112	133

CWL Series



Spray Characteristics

The CWL series hydraulic atomizing nozzles are meticulously crafted to generate a very fine hollow-cone spray pattern with a wider spray angle, solely utilizing the liquid pressure for atomization. These nozzles are easy to disassemble, assemble, and clean. Standard spray angle is 150° at 40 PSI.

Construction

Two piece body with removable cap, core and strainer. Bodies are available in a variety of materials. The cap, core, and strainer are supplied in 316 stainless steel standard.



Typical Applications:

- Humidifications/Moisture Addition
- Evaporative Cooling
- Steam De-superheating

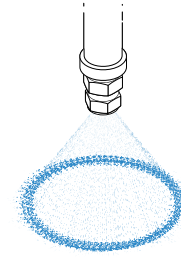
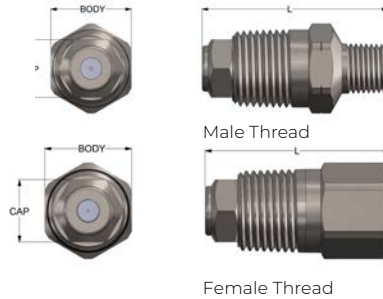
Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model Number	"L"	BODY	CAP
1/4FCWL	1 15/16	13/16 HEX	11/16 HEX
1/4CWL	2 1/8	13/16 HEX	11/16 HEX

Model #		Capacities at Various Pressures USGPH								
Female	Male	30 psi	40 psi	80 psi	100 psi	200 psi	300 psi	500 psi	700 psi	1000 psi
1/4FC5.9WL	1/4C5.9WL	1.59	1.83	2.59	2.89	4.1	5.0	6.5	7.7	9.2
1/4FC7.4WL	1/4C7.4WL	1.99	2.30	3.2	3.6	5.1	6.3	8.1	9.6	11.5
1/4FC9.2WL	1/4C9.2WL	2.47	2.85	4.0	4.5	6.4	7.8	10.1	11.9	14.3
1/4FC12WL	1/4C12WL	3.2	3.7	5.3	5.9	8.3	10.2	13.2	15.6	18.6
1/4FC14WL	1/4C14WL	3.8	4.3	6.1	6.9	9.7	11.9	15.4	18.2	21.7
1/4FC18WL	1/4C18WL	4.8	5.6	7.9	8.8	12.5	15.3	19.7	23.4	27.9
1/4FC23WL	1/4C23WL	6.2	7.1	10.1	11.3	16.0	19.5	25.2	29.9	36
1/4FC28WL	1/4C28WL	7.5	8.7	12.3	13.7	19.4	23.8	30.7	36	43

CM.5L Series



Spray Characteristics

The CM.5L series hydraulic atomizing nozzles are meticulously crafted to generate a very fine hollow-cone spray pattern, solely utilizing the liquid pressure for atomization. These nozzles are easy to disassemble, assemble, and clean. The standard spray angle of the C series nozzle is 80° at 40 PSI.

Model Number	"L"	BODY	CAP
1/4FCM.5L	1 7/8	13/16 HEX	5/8 HEX
1/4CM.5L	2 1/32	13/16 HEX	5/8 HEX

Construction

1/2" NPT male wall mount body with removable cap, core and strainer. Bodies are available in a variety of materials. The cap, core, and strainer are supplied in 316 stainless steel standard.



Typical Applications:

- Humidifications/Moisture Addition
- Evaporative Cooling
- Steam De-superheating

Standard Materials

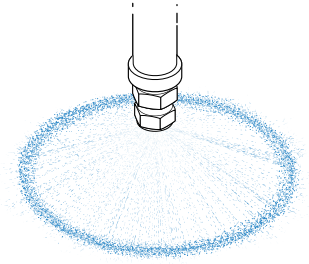
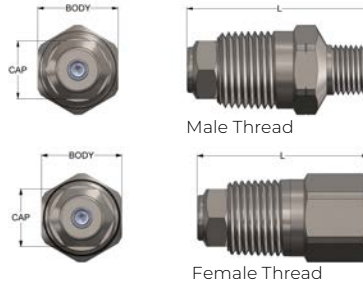
- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #		Capacities at Various Pressures USGPH								
Female	Male	30 psi	40 psi	80 psi	100 psi	200 psi	300 psi	500 psi	700 psi	1000 psi
1/4FC1.9M.5L	1/4C1.9M.5L	0.51	0.59	0.83	0.93	1.32	1.61	2.08	2.47	2.95
1/4FC2.4M.5L	1/4C2.4M.5L	0.64	0.74	1.05	1.18	1.67	2.04	2.63	3.12	3.7
1/4FC3.0M.5L	1/4C3.0M.5L	0.81	0.93	1.32	1.47	2.08	2.55	3.3	3.9	4.7
1/4FC3.8M.5L	1/4C3.8M.5L	1.02	1.18	1.67	1.86	2.64	3.2	4.2	4.9	5.9
1/4FC4.7M.5L	1/4C4.7M.5L	1.26	1.46	2.06	2.31	3.3	4.0	5.2	6.1	7.3
1/4FC5.9M.5L	1/4C5.9M.5L	1.59	1.83	2.59	2.89	4.1	5.0	6.5	7.7	9.2
1/4FC7.9M.5L	1/4C7.9M.5L	2.12	2.45	3.5	3.9	5.5	6.7	8.7	10.3	12.3
1/4FC9.2M.5L	1/4C9.2M.5L	2.47	2.85	4.0	4.5	6.4	7.8	10.1	11.9	14.3
1/4FC12M.5L	1/4C12M.5L	3.2	3.7	5.3	5.9	8.3	10.2	13.2	15.6	18.6
1/4FC14M.5L	1/4C14M.5L	3.8	4.3	6.1	6.9	9.7	11.9	15.4	18.2	21.7
1/4FC18M.5L	1/4C18M.5L	4.8	5.6	7.9	8.8	12.5	15.3	19.7	23.4	27.9
1/4FC23M.5L	1/4C23M.5L	6.2	7.1	10.1	11.3	16.0	19.5	25.2	29.9	36
1/4FC28M.5L	1/4C28M.5L	7.5	8.7	12.3	13.7	19.4	23.8	30.7	36	43
1/4FC35M.5L	1/4C35M.5L	9.4	10.9	15.4	17.2	24.3	29.7	38	45	54
1/4FC44M.5L	1/4C44M.5L	11.8	13.7	19.3	21.6	30.5	37	48	57	68
1/4FC55M.5L	1/4C55M.5L	14.8	17.1	24.1	27.0	38	47	60	71	85
1/4FC69M.5L	1/4C69M.5L	18.5	21.4	30.3	34	48	59	76	90	107
1/4FC86M.5L	1/4C86M.5L	23.1	26.7	38	42	60	73	94	112	133

CWM.5L Series



Scan to Order



Spray Characteristics

CWL series wide angle hydraulic atomizing nozzles are precision machined to provide a very fine wide angle hollow-cone spray using only the liquid pressure for atomizing. Easy disassembly/assembly and cleaning.

Standard spray angle is 150° at 40 PSI.

Model Number	"L"	BODY	CAP
1/4FCWM.5L	1 7/8	13/16 HEX	5/8 HEX
1/4CWM.5L	2 1/32	13/16 HEX	5/8 HEX

Construction

1/2" NPT male wall mount body with removable cap, core and strainer. Bodies are available in a variety of materials. The cap, core, and strainer are supplied in 316 stainless steel standard.



Typical Applications:

- ▶ Humidifications/Moisture Addition
- ▶ Evaporative Cooling
- ▶ Steam De-superheating

Standard Materials

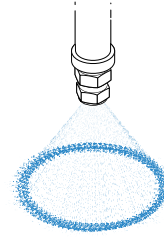
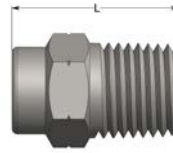
- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #		Capacities at Various Pressures USGPH								
Female	Male	30 psi	40 psi	80 psi	100 psi	200 psi	300 psi	500 psi	700 psi	1000 psi
1/4FC5.9WM.5L	1/4C5.9WM.5L	1.59	1.83	2.59	2.89	4.1	5.0	6.5	7.7	9.2
1/4FC7.4WM.5L	1/4C7.4WM.5L	1.99	2.30	3.2	3.6	5.1	6.3	8.1	9.6	11.5
1/4FC9.2WM.5L	1/4C9.2WM.5L	2.47	2.85	4.0	4.5	6.4	7.8	10.1	11.9	14.3
1/4FC12WM.5L	1/4C12WM.5L	3.2	3.7	5.3	5.9	8.3	10.2	13.2	15.6	18.6
1/4FC14WM.5L	1/4C14WM.5L	3.8	4.3	6.1	6.9	9.7	11.9	15.4	18.2	21.7
1/4FC18WM.5L	1/4C18WM.5L	4.8	5.6	7.9	8.8	12.5	15.3	19.7	23.4	27.9
1/4FC23WM.5L	1/4C23WM.5L	6.2	7.1	10.1	11.3	16.0	19.5	25.2	29.9	36
1/4FC28WM.5L	1/4C28WM.5L	7.5	8.7	12.3	13.7	19.4	23.8	30.7	36	43

CC Series



Scan to Order



Spray Characteristics

The CC series hydraulic atomizing nozzles are meticulously crafted to generate a very fine hollow-cone spray pattern, solely utilizing the liquid pressure for atomization. These nozzles are easy to disassemble, assemble, and clean. The standard spray angle of the C series nozzle is 80° at 40 PSI.

Construction

One-piece body with core. Bodies are available in a variety of materials. The core is supplied in 316 stainless steel standard.



Typical Applications:

- ▶ Humidifications/Moisture Addition
- ▶ Evaporative Cooling
- ▶ Steam De-superheating

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

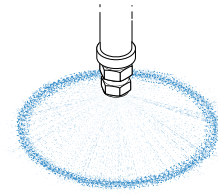
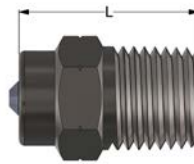
Model Number	"L"	BODY	CAP
1/4CC	²⁷ / ₃₂	⁹ / ₁₆ HEX	N/A

Model Number	Capacities at Various Pressures USGPH								
	30 psi	40 psi	80 psi	100 psi	200 psi	300 psi	500 psi	700 psi	1000 psi
1/4CC1.9	0.51	0.59	0.83	0.93	1.32	1.61	2.08	2.47	2.95
1/4CC2.4	0.64	0.74	1.05	1.18	1.67	2.04	2.63	3.12	3.7
1/4CC3.0	0.81	0.93	1.32	1.47	2.08	2.55	3.3	3.9	4.7
1/4CC3.8	1.02	1.18	1.67	1.86	2.64	3.2	4.2	4.9	5.9
1/4CC4.7	1.26	1.46	2.06	2.31	3.3	4.0	5.2	6.1	7.3
1/4CC5.9	1.59	1.83	2.59	2.89	4.1	5.0	6.5	7.7	9.2
1/4CC7.9	2.12	2.45	3.5	3.9	5.5	6.7	8.7	10.3	12.3
1/4CC9.2	2.47	2.85	4.0	4.5	6.4	7.8	10.1	11.9	14.3
1/4CC12	3.2	3.7	5.3	5.9	8.3	10.2	13.2	15.6	18.6
1/4CC14	3.8	4.3	6.1	6.9	9.7	11.9	15.4	18.2	21.7
1/4CC18	4.8	5.6	7.9	8.8	12.5	15.3	19.7	23.4	27.9
1/4CC23	6.2	7.1	10.1	11.3	16.0	19.5	25.2	29.9	36
1/4CC28	7.5	8.7	12.3	13.7	19.4	23.8	30.7	36	43
1/4CC35	9.4	10.9	15.4	17.2	24.3	29.7	38	45	54
1/4CC44	11.8	13.7	19.3	21.6	30.5	37	48	57	68
1/4CC55	14.8	17.1	24.1	27.0	38	47	60	71	85
1/4CC69	18.5	21.4	30.3	34	48	59	76	90	107
1/4CC86	23.1	26.7	38	42	60	73	94	112	133

CCW Series



Scan to Order



Spray Characteristics

The CCW series hydraulic atomizing nozzles are meticulously crafted to generate a very fine hollow-cone spray pattern with a wider spray angle, solely utilizing the liquid pressure for atomization. These nozzles are easy to disassemble, assemble, and clean. The standard spray angle of the C series nozzle is 150° at 40 PSI.

Model Number	"L"	BODY	CAP
1/4CCW	27/32	9/16 HEX	N/A

Construction

One-piece body with core. Bodies are available in a variety of materials. The core is supplied in 316 stainless steel standard.



Typical Applications:

- Humidifications/Moisture Addition
- Evaporative Cooling
- Steam De-superheating

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

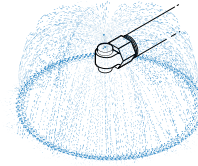
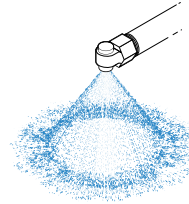
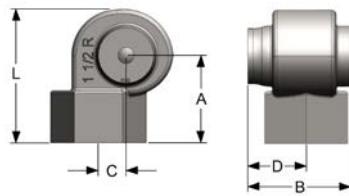
Model Number	Capacities at Various Pressures USGPH								
	30 psi	40 psi	80 psi	100 psi	200 psi	300 psi	500 psi	700 psi	1000 psi
1/4CC5.9W	1.59	1.83	2.59	2.89	4.1	5.0	6.5	7.7	9.2
1/4CC7.4W	1.99	2.30	3.2	3.6	5.1	6.3	8.1	9.6	11.5
1/4CC9.2W	2.47	2.85	4.0	4.5	6.4	7.8	10.1	11.9	14.3
1/4CC12W	3.2	3.7	5.3	5.9	8.3	10.2	13.2	15.6	18.6
1/4CC14W	3.8	4.3	6.1	6.9	9.7	11.9	15.4	18.2	21.7
1/4CC18W	4.8	5.6	7.9	8.8	12.5	15.3	19.7	23.4	27.9
1/4CC23W	6.2	7.1	10.1	11.3	16.0	19.5	25.2	29.9	36
1/4CC28W	7.5	8.7	12.3	13.7	19.4	23.8	30.7	36	43



R Series



Scan to Order



Upwards Spray
at 1 PSI: Wide
Spray angle with
large droplets and
minimal misting.

Spray Characteristics

A high capacity hollow cone spray pattern with uniform distribution. The large body and orifice diameter allow for small particles to pass through, minimizing clogging.

Nozzle Size	Dim 'A'	Dim 'B'	Dim 'C'	Dim 'D'	Dim 'L'
1R	2	2 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₈	2 ³ / ₄
1 ¹ / ₄ R	2 ¹ / ₈	2 ¹ / ₄	1 ¹ / ₂	1 ¹ / ₄	3 ¹ / ₈
1 ¹ / ₂ R	2 ³ / ₈	3	9 ¹ / ₁₆	1 ³ / ₄	3 ³ / ₄
2R	2 ³ / ₄	3 ⁷ / ₈	1	2 ¹ / ₄	4 ³ / ₄
2 ¹ / ₂ R	3 ¹ / ₂	4 ³ / ₄	1 ¹ / ₈	2 ³ / ₄	4 ³ / ₄

Construction

One piece cast construction. All parts in the R series have a female thread connection. Alternative materials available on a limited, special order basis.



Typical Applications:

- ▶ Aeration and Pollution Control
- ▶ Cooling Ponds
- ▶ Scrubbing and Washing Gases and Fumes
- ▶ Cooling Coil
- ▶ Dust Proofing
- ▶ Chemical Processes.
- ▶ Decorative Fountains

Standard Materials

6 316 Stainless Steel

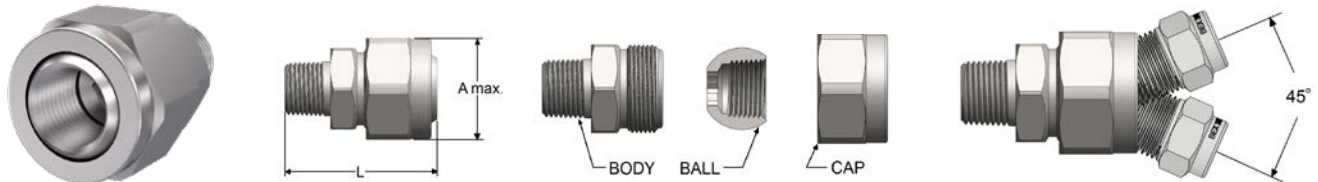
I Iron

Model #	Pipe Size	Max Free Passage inches	Capacities at Various Pressures USGPM											Spray Angle		
			2 psi	3 psi	5 psi	7 psi	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	7 psi	20 psi	60 psi
1R10	1	0.500	17.0	5.5	7.1	8.4	10.0	14.1	17.3	20.0	24.5	28.3	32	65°	72°	73°
1R12	1	0.531	5.4	6.6	8.5	10.0	12.0	17.0	20.8	24.0	29.4	34	38	71°	74°	75°
1R14	1	0.563	6.3	7.7	9.9	11.7	14.0	19.8	24.2	28.0	34	40	44	74°	79°	80°
1R16	1	0.563	7.2	8.8	11.3	13.4	16.0	22.6	27.7	32	39	45	51	77°	83°	83°
1R18	1	0.563	8.0	9.9	12.7	15.1	18.0	25.5	31.2	36	44	51	57	80°	86°	76°
1-1/4R12	1-1/4	0.531	5.4	6.6	8.5	10.0	12.0	17.0	20.8	24.0	29.4	34	38	64°	68°	69°
1-1/4R14	1-1/4	0.563	6.3	7.7	9.9	11.7	14.0	19.8	24.2	28.0	34	40	44	66°	71°	71°
1-1/4R16	1-1/4	0.625	7.2	8.8	11.3	13.4	16.0	22.6	27.7	32	39	45	51	71°	75°	75°
1-1/4R18	1-1/4	0.625	8.0	9.9	12.7	15.1	18.0	25.5	31.2	36	44	51	57	76°	78°	79°
1-1/4R21	1-1/4	0.625	9.4	11.5	14.8	17.6	21.0	29.7	36	42	51	59	66	79°	82°	82°
1-1/4R24	1-1/4	0.625	10.7	13.1	17.0	20.1	24.0	34	42	48	59	68	76	81°	76°	86°
1-1/2R18	1-1/2	0.625	8.0	9.9	12.7	15.1	18.0	25.5	31.2	36	44	51	57	66°	70°	71°
1-1/2R21	1-1/2	0.688	9.4	11.5	14.8	17.6	21.0	29.7	36	42	51	59	66	70°	74°	74°
1-1/2R24	1-1/2	0.750	10.7	13.1	17.0	20.1	24.0	34	42	48	59	68	76	73°	76°	76°
1-1/2R28	1-1/2	0.750	12.5	15.3	19.8	23.4	28.0	40	48	56	69	79	89	76°	79°	80°
1-1/2R32	1-1/2	0.750	14.3	17.5	22.6	26.8	32	45	55	64	78	91	101	79°	84°	84°
1-1/2R37	1-1/2	0.750	16.5	20.3	26.2	31.0	37	52	64	74	91	105	117	84°	88°	88°
2R37	2	0.875	16.5	20.3	26.2	31.0	37	52	64	74	91	105	117	62°	64°	65°
2R43	2	0.938	19.2	23.6	30.4	36	43	61	74	86	105	122	136	66°	70°	72°
2R49	2	1.000	21.9	26.8	35	41	49	69	85	98	120	139	155	70°	72°	73°
2R57	2	1.063	25.5	31.2	40	48	57	81	99	114	140	161	180	74°	77°	77°
2R65	2	1.063	29.1	36	46	54	65	92	113	130	159	184	206	75°	79°	79°
2R75	2	1.063	34	41	53	63	75	106	130	150	184	212	237	78°	81°	81°
2R86	2	1.063	38	47	61	72	86	122	149	172	211	243	272	86°	95°	95°
2-1/2R75	2-1/2	1.313	34	41	53	63	75	106	130	150	184	212	237	67°	72°	72°
2-1/2R86	2-1/2	1.313	38	47	61	72	86	122	149	172	211	243	272	73°	76°	76°
2-1/2R100	2-1/2	1.313	45	55	71	84	100	141	173	200	245	283	316	79°	83°	84°
2-1/2R115	2-1/2	1.313	51	63	81	96	115	163	199	230	282	325	364	80°	84°	85°
2-1/2R132	2-1/2	1.313	59	72	93	110	132	187	229	264	323	373	417	82°	87°	87°

Threaded Nozzle Accessories

These are optional items which expand the capabilities of our spray nozzles.

MAJ Series (Machined Adjustable Joint)



The MAJ series adjustable joints enable spray nozzles or other threaded items to be rotated and tilted to achieve the desired spray pattern or orientation, without disturbing the surrounding piping. Additionally, they can be utilized as an adjustable union type connection within piping systems. The maximum recommended operating pressure for these joints is 300 PSI.

Construction

The unit consists of a male inlet section and a female outlet section, held together by a threaded cap. The cap may be loosened to change the angle of adjustment between the inlet and outlet sections.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

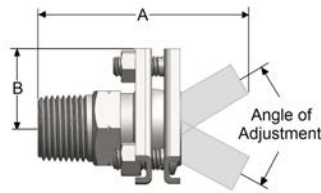
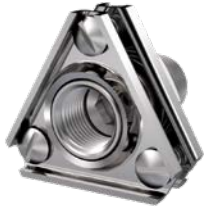
Model Number	Inlet Pipe Size	Outlet Pipe Size	Dim. 'A' (max) (inches)	Dim. 'B' (max) (inches)
1/8MAJ	1/8 male	1/8 female	0.97	1.4
1/4MAJ	1/4 male	1/4 female	1.1	1.6
3/8MAJ	3/8 male	3/8 female	1.4	1.8
1/2MAJ	1/2 male	1/2 female	1.7	2.2
3/4MAJ	3/4 male	3/4 female	1.9	2.6



AJ Series (Adjustable Joint)



Scan to Order



The AJ series is designed to rotate and tilt spray nozzles, allowing for the desired positioning of the spray pattern without disrupting the surrounding piping. These adjustable joints can also be used as an adjustable union type connection within piping systems. The maximum recommended operating pressure for the AJ series is 120 PSI.

Construction

The unit consists of a male inlet section and a female outlet section, held together by a flange assembly. Locking screws may be loosened to change the angle of adjustment between the inlet and outlet sections. Available in brass, and 303 or 316 stainless steel with 304 stainless steel flanges.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

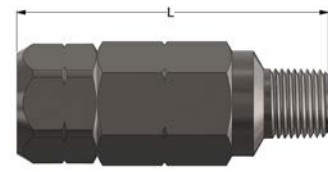
*303SS and 316SS models include 304SS flanges

Dimensions (inches)					
Model Number	Inlet Pipe Size	Outlet Pipe Size	Dim. 'A' (inches)	Dim. 'B' (inches)	Maximum Angle of Adjustment
$\frac{1}{8}$ AJ x $\frac{1}{8}$ AJ	$\frac{1}{8}$ male	$\frac{1}{8}$ female	1- $\frac{3}{4}$	1	60°
$\frac{1}{4}$ AJ x $\frac{1}{8}$ AJ	$\frac{1}{4}$ male	$\frac{1}{8}$ female	1- $\frac{3}{4}$	1	60°
$\frac{1}{4}$ AJ x $\frac{1}{4}$ AJ	$\frac{1}{4}$ male	$\frac{1}{4}$ female	1- $\frac{3}{4}$	1	60°
$\frac{3}{8}$ AJ x $\frac{1}{4}$ AJ	$\frac{3}{8}$ male	$\frac{1}{4}$ female	1- $\frac{3}{4}$	1	60°
$\frac{3}{8}$ AJ x $\frac{3}{8}$ AJ	$\frac{3}{8}$ male	$\frac{3}{8}$ female	1- $\frac{3}{4}$	1	45°
$\frac{1}{2}$ AJ x $\frac{1}{2}$ AJ	$\frac{1}{2}$ male	$\frac{1}{2}$ female	2- $\frac{1}{2}$	1- $\frac{1}{2}$	50°
$\frac{1}{8}$ AJ x $\frac{3}{4}$ AJ	$\frac{1}{8}$ male	$\frac{3}{4}$ female	2- $\frac{1}{2}$	1- $\frac{1}{2}$	50°
$\frac{3}{4}$ AJ x $\frac{1}{2}$ AJ	$\frac{3}{4}$ male	$\frac{1}{2}$ female	2- $\frac{1}{2}$	1- $\frac{1}{2}$	50°
$\frac{3}{4}$ AJ x $\frac{3}{4}$ AJ	$\frac{3}{4}$ male	$\frac{3}{4}$ female	2- $\frac{1}{2}$	1- $\frac{1}{2}$	40°

CV Series (Check Valve)



Scan to Order



Check valves are utilized in conjunction with spray nozzles in applications where complete flow shut-off is required while maintaining full line pressure. These valves have a spring-loaded ball-type design that provides a drip-free seal and can withstand shut-off pressures of 5, 10, and 20 PSI.

Construction

The unit consists of a two-piece body, an internal spring and a shut-off ball made of stainless steel. Available in 1/8", 1/4", 3/8" and 1/2" NPT sizes.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

MODEL NUMBER (THREAD SIZE)				SHUT OFF PRESSURE (PSI)
$\frac{1}{8}$ "	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	
$\frac{1}{8}$ CV5	$\frac{1}{4}$ CV5	$\frac{3}{8}$ CV5	$\frac{1}{2}$ CV5	5
$\frac{1}{8}$ CV10	$\frac{1}{4}$ CV10	$\frac{3}{8}$ CV10	$\frac{1}{2}$ CV10	10
$\frac{1}{8}$ CV20	$\frac{1}{4}$ CV20	$\frac{3}{8}$ CV20	$\frac{1}{2}$ CV20	20
LENGTH (INCHES)				
1.81	2.31	2.31	3.5	

FSE Series (Split Eyelet)



Scan to Order



FSE split eyelet connectors provide a simple and efficient means of mounting a spray nozzle to a pipe in a matter of minutes, without the need for threading, brazing, or welding.

Construction

The split eyelet consists of a top and bottom clamp, two retaining bolts, an outlet body and an O-ring.

O-Ring seal is Buna-N.

PIPE SIZE	MODELS (NPT OUTLET SIZE)			MAXIMUM FLOW	DRILL SIZE
	1/8	1/4	3/8		
1/2	1/2 x 1/8 FSE	1/2 x 1/4 FSE		3.5 GPM	9/32 DRILL
3/4	3/4 x 1/8 FSE	3/4 x 1/4 FSE		3.5 GPM	9/32 DRILL
1	1 x 1/8 FSE	1 x 1/4 FSE		3.5 GPM	9/32 DRILL
1 1/4	1 1/4 x 1/8 FSE	1 1/4 x 1/4 FSE	1 1/4 x 3/8 FSE	19 GPM	11/16 DRILL
1 1/2	1 1/2 x 1/8 FSE	1 1/2 x 1/4 FSE	1 1/2 x 3/8 FSE	19 GPM	11/16 DRILL
2	2 x 1/8 FSE	2 x 1/4 FSE	2 x 3/8 FSE	19 GPM	11/16 DRILL
2 1/2	2 1/2 x 1/8 FSE	2 1/2 x 1/4 FSE	2 1/2 x 3/8 FSE	19 GPM	11/16 DRILL

Standard Materials w/ Zinc-Plated Bolts and Clamps

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Other material combinations available as special requests.

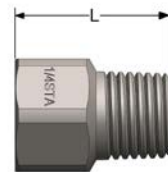
Standard Materials w/ 304SS Bolts and Clamps

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

STA Series (Flow Stabilizer)



Scan to Order



In piping systems, the flow of liquid emerging from elbows or tees can become distorted, which can lead to an uneven and inconsistent spray pattern. FSE flow stabilizers are designed to mitigate this flow distortion and promote a more even and consistent spray pattern.

Construction

This unit consists of a body and an internal vane. Available in 1/8", 1/4", 3/8" and 1/2" NPT sizes, with a male inlet and female outlet connection.

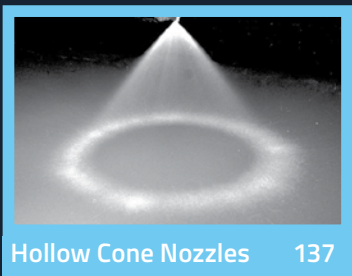
Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

MODEL NUMBER	Inlet Pipe Size NPT	Outlet Pipe Size NPT	Dim. A (inches)	Dim. L (inches)
1/8STA	1/8 male	1/8 female	9/16 HEX	7/8
1/4STA	1/4 male	1/4 female	11/16 HEX	1
3/8STA	3/8 male	3/8 female	13/16 HEX	1 1/8
1/2STA	1/2 male	1/2 female	1 HEX	1 3/8

Spray Nozzles: Quick Disconnect Zip-Tip

The quick disconnect or Zip-Tip nozzle consists of two main parts: the nozzle body and the nozzle tip. These two components work together to create a functional and easily manageable nozzle system. To install, the nozzle body is threaded into the pipe where the nozzle is needed. Then, the nozzle tip is inserted by hand into the body with a quick quarter turn. For removal, Simply twist the nozzle with a quick turn in the opposite direction to release the nozzle from it's body. Zip-Tip nozzles significantly reduce the down-time and effort required to replace your nozzles in a large spraying system when maintaining and cleaning - reducing down-time and increasing the longevity of your nozzles.



Flat Fan Nozzles

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Solid Stream Nozzles

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ZGSQ Series.....	129
ZHGS Series.....	130
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ZHGSQ Series.....	132
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Hollow Cone Nozzles

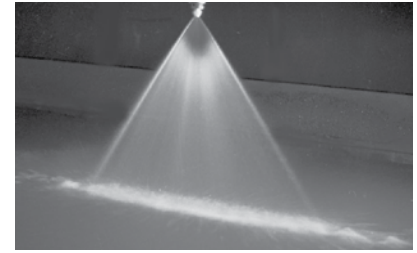
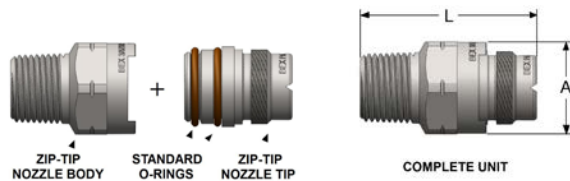
ZH Series.....	137
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Zip-Tip Accessories

ZBD, ZLBD Adapter.....	140
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ZF Series



Spray Characteristics

ZF-Series spray nozzles produce a flat, fan-shaped spray pattern with spray angles available from 15° to 110° measured at 40 PSI. Spray angles generally increase with pressure, as shown in the capacity table. Spray density tapers off toward the outside of these sprays, to permit overlapping of spray patterns while maintaining uniform spray density.

Zip-Tip Assembly

Zip-Tip nozzles feature a design that does not require any tools for installation or removal once the body is threaded into the pipe. The nozzle tip can be replaced quickly and easily, making it an ideal solution for large spraying systems with high nozzle turnover.

Construction

The models listed are machined from bar stock and are one-piece construction.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Refer to pages 114-118 for plastic models

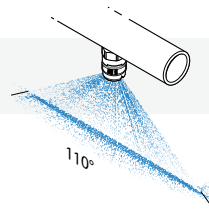
Typical Applications:

- ▶ Parts Cleaning
- ▶ Metal Washing
- ▶ Foam Control
- ▶ Asphalt Spraying
- ▶ Gravel Washing
- ▶ Vehicle Washing
- ▶ Fertilizer Spraying
- ▶ Dishwashers

NOZZLE PIPE SIZE	Length 'L' (in)	Dim. 'A' (in)
1/8ZF	1.60	0.97
1/4ZF	1.70	0.97
3/8ZF	1.73	0.97
1/2ZF	1.80	0.97
1/8ZLF	2.11	1.25
3/8ZLF	2.19	1.25

ZF assemblies use a ZBD body. ZLF assemblies use a ZLBD body.

ZF110



Spray Characteristics

ZF110 Series spray nozzles produce a flat, fan-shaped spray pattern, with a spray angle of 110° at 40 PSI.



Scan to Order
Zip-Tip + Body



Scan to Order
Zip-Tip Only

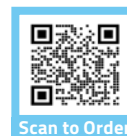
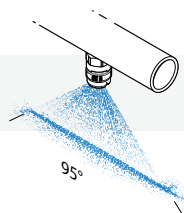
Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF11003	0.041	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	92°	110°	118°
ZF11004	0.047	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	90°	110°	112°
ZF11005	0.053	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	86°	110°	114°
ZF11006	0.058	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	97°	110°	115°
ZF11008	0.067	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	100°	110°	115°
ZF11010	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	102°	110°	115°
ZF11015	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	102°	110°	115°
ZF11020	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	103°	110°	112°

Continues on Next Page ▶

ZF110 Continued

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF11030	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	103°	110°	115°
ZF11040	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	103°	110°	115°
ZF11050	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	107°	110°	116°
ZF11060	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	103°	110°	115°
ZF11070	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	107°	110°	115°
ZLF11080	0.211	2.83	3.3	4.0	4.9	5.7	6.9	8.0	8.9	9.8	11.3	12.6	15.5	21.9	107°	110°	115°
ZLF110100	0.236	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	107°	110°	116°
ZLF110120	0.258	4.2	5.0	6.0	7.3	8.5	10.4	12.0	13.4	14.7	17.0	19.0	23.2	33	108°	110°	117°
ZLF110150	0.289	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	104°	110°	115°
ZLF110200	0.333	7.1	8.4	10.0	12.2	14.1	17.3	20.0	22.4	24.5	28.3	32	39	55	106°	110°	116°
ZLF110400	0.471	14.1	16.7	20.0	24.5	28.3	35	40	45	49	57	63	77	110	105°	110°	115°

ZF95



Zip-Tip + Body



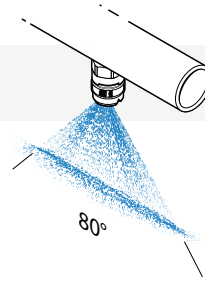
Zip-Tip Only

Spray Characteristics

ZF95 Series spray nozzles produce a flat, fan-shaped spray pattern, with a spray angle of 95° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF9503	0.041	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	86°	95°	101°
ZF9504	0.047	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	86°	95°	101°
ZF9505	0.053	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	86°	95°	101°
ZF9506	0.058	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	86°	95°	101°
ZF9508	0.067	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	86°	95°	100°
ZF9510	0.075	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	88°	95°	99°
ZF9515	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	90°	95°	100°
ZF9520	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	89°	95°	99°
ZF9530	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	90°	95°	101°
ZF9540	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	90°	95°	100°
ZF9550	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	91°	95°	101°
ZF9560	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	92°	95°	102°
ZF9570	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	92°	95°	103°
ZLF9580	0.211	2.83	3.3	4.0	4.9	5.7	6.9	8.0	8.9	9.8	11.3	12.6	15.5	21.9	92°	95°	103°
ZLF95100	0.236	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	92°	95°	103°
ZLF95120	0.258	4.2	5.0	6.0	7.3	8.5	10.4	12.0	13.4	14.7	17.0	19.0	23.2	33	92°	95°	103°
ZLF95150	0.289	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	92°	95°	102°

ZF80



Zip-Tip + Body



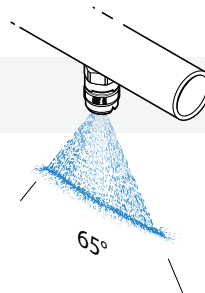
Zip-Tip Only

Spray Characteristics

ZF80 Series spray nozzles produce a flat, fan-shaped spray pattern, with a spray angle of 80° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF8002	0.034	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	74°	80°	83°
ZF8003	0.041	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	74°	80°	83°
ZF8004	0.047	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	74°	80°	83°
ZF8005	0.053	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	74°	80°	83°
ZF8006	0.058	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	74°	80°	83°
ZF8008	0.067	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	75°	80°	83°
ZF8010	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	75°	80°	83°
ZF8015	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	74°	80°	86°
ZF8020	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	74°	80°	85°
ZF8030	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	75°	80°	86°
ZF8040	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	76°	80°	85°
ZF8050	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	77°	80°	84°
ZF8060	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	77°	80°	84°
ZF8070	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	78°	80°	87°
ZLF8080	0.211	2.83	3.3	4.0	4.9	5.7	6.9	8.0	8.9	9.8	11.3	12.6	15.5	21.9	78°	80°	88°
ZLF80100	0.236	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	75°	80°	83°
ZLF80120	0.258	4.2	5.0	6.0	7.3	8.5	10.4	12.0	13.4	14.7	17.0	19.0	23.2	33	73°	80°	84°
ZLF80150	0.289	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	74°	80°	82°
ZLF80200	0.333	7.1	8.4	10.0	12.2	14.1	17.3	20.0	22.4	24.5	28.3	32	39	55	74°	80°	82°
ZLF80400	0.471	14.1	16.7	20.0	24.5	28.3	35	40	45	49	57	63	77	110	74°	80°	82°

ZF65



Zip-Tip + Body



Zip-Tip Only

Spray Characteristics

ZF65 Series spray nozzles produce a flat, fan-shaped spray pattern, with a spray angle of 65° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF6502	0.034	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	53°	65°	72°
ZF6503	0.041	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	53°	65°	72°
ZF6504	0.047	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	54°	65°	72°
ZF6505	0.053	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	54°	65°	72°
ZF6506	0.058	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	54°	65°	72°

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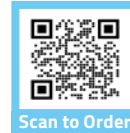
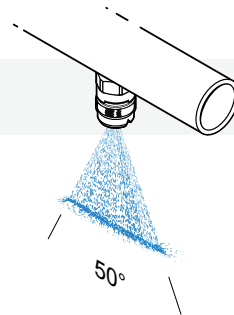
ZF65 Continued

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF6508	0.067	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	55°	65°	71°
ZF6510	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	57°	65°	73°
ZF6512	0.082	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.34	1.47	1.70	1.90	2.32	3.3	59°	65°	71°
ZF6515	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	59°	65°	72°
ZF6520	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	61°	65°	72°
ZF6530	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	62°	65°	72°
ZF6540	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	63°	65°	72°
ZF6550	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	63°	65°	73°
ZF6560	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	63°	65°	73°
ZF6570	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	63°	65°	74°
ZLF6580	0.211	2.83	3.3	4.0	4.9	5.7	6.9	8.0	8.9	9.8	11.3	12.6	15.5	21.9	59°	65°	63°
ZLF65100	0.236	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	59°	65°	69°
ZLF65120	0.258	4.2	5.0	6.0	7.3	8.5	10.4	12.0	13.4	14.7	17.0	19.0	23.2	33	59°	65°	68°
ZLF65150	0.289	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	59°	65°	68°
ZLF65200	0.333	7.1	8.4	10.0	12.2	14.1	17.3	20.0	22.4	24.5	28.3	32	39	55	60°	65°	67°
ZLF65300	0.408	10.6	12.5	15.0	18.4	21.2	26.0	30.0	34	37	42	47	58	82	60°	65°	68°
ZLF65400	0.471	14.1	16.7	20.0	24.5	28.3	35	40	45	49	57	63	77	110	60°	65°	68°

ZF50

Spray characteristics

ZF50 Series spray nozzles produce a flat, fan-shaped spray pattern, with a spray angle of 50° at 40 PSI.



Scan to Order
Zip-Tip + Body



Scan to Order
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Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF5002	0.034	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	43°	50°	57°
ZF5003	0.041	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	44°	50°	57°
ZF5004	0.047	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	44°	50°	56°
ZF5005	0.053	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	44°	50°	56°
ZF5006	0.058	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	45°	50°	56°
ZF5008	0.067	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	45°	50°	56°
ZF5010	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	43°	50°	55°
ZF5012	0.082	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.34	1.47	1.70	1.90	2.32	3.3	43°	50°	55°
ZF5015	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	43°	50°	55°
ZF5020	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	43°	50°	55°

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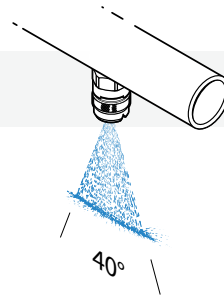
ZF50 Continued

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF5030	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	43°	50°	54°
ZF5040	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	43°	50°	54°
ZF5050	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	43°	50°	53°
ZF5060	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	43°	50°	53°
ZF5070	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	44°	50°	53°
ZLF5080	0.211	2.83	3.3	4.0	4.9	5.7	6.9	8.0	8.9	9.8	11.3	12.6	15.5	21.9	44°	50°	52°
ZLF50100	0.236	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	44°	50°	52°
ZLF50120	0.258	4.2	5.0	6.0	7.3	8.5	10.4	12.0	13.4	14.7	17.0	19.0	23.2	33	44°	50°	53°
ZLF50150	0.289	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	46°	50°	52°
ZLF50200	0.333	7.1	8.4	10.0	12.2	14.1	17.3	20.0	22.4	24.5	28.3	32	39	55	46°	50°	54°
ZLF50300	0.408	10.6	12.5	15.0	18.4	21.2	26.0	30.0	34	37	42	47	58	82	47°	50°	54°
ZLF50400	0.466	14.1	16.7	20.0	24.5	28.3	35	40	45	49	57	63	77	110	47°	50°	54°

ZF40

Spray characteristics

ZF40 Series spray nozzles produce a flat, fan-shaped spray pattern, with a spray angle of 40° at 40 PSI.



Scan to Order

Zip-Tip + Body



Scan to Order

Zip-Tip Only

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF4002	34.000	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	26°	40°	46°
ZF4003	0.041	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	30°	40°	45°
ZF4004	0.047	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	32°	40°	45°
ZF4005	0.053	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	35°	40°	44°
ZF4006	0.058	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	37°	40°	44°
ZF4008	0.067	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	35°	40°	43°
ZF4010	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	30°	40°	43°
ZF4012	0.082	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.34	1.47	1.70	1.90	2.32	3.3	35°	40°	41°
ZF4015	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	35°	40°	41°
ZF4020	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	33°	40°	43°
ZF4030	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	34°	40°	45°
ZF4040	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	33°	40°	43°
ZF4050	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	35°	40°	46°
ZF4060	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	37°	40°	48°
ZF4070	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	36°	40°	47°

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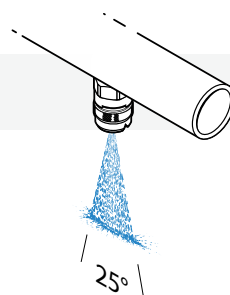
ZF40 Continued

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZLF4080	0.211	2.83	3.3	4.0	4.9	5.7	6.9	8.0	8.9	9.8	11.3	12.6	15.5	21.9	35°	40°	46°
ZLF40100	0.236	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	33°	40°	44°
ZLF40120	0.258	4.2	5.0	6.0	7.3	8.5	10.4	12.0	13.4	14.7	17.0	19.0	23.2	33	36°	40°	43°
ZLF40150	0.289	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	36°	40°	43°
ZLF40200	0.333	7.1	8.4	10.0	12.2	14.1	17.3	20.0	22.4	24.5	28.3	32	39	55	37°	40°	44°
ZLF40400	0.466	14.1	16.7	20.0	24.5	28.3	35	40	45	49	57	63	77	110	38°	40°	43°

ZF25

Spray Characteristics

ZF25 Series spray nozzles produce a flat, fan-shaped spray pattern, with a spray angle of 25° at 40 PSI.



Scan to Order

Zip-Tip + Body

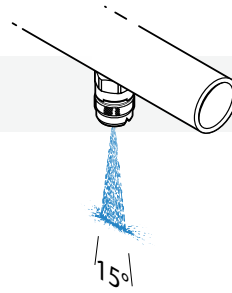


Scan to Order

Zip-Tip Only

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF2502	0.034	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	20°	25°	31°
ZF2503	0.041	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	20°	25°	31°
ZF2504	0.047	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	19°	25°	31°
ZF2505	0.053	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	18°	25°	31°
ZF2506	0.058	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	17°	25°	31°
ZF2508	0.067	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	16°	25°	32°
ZF2510	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	17°	25°	31°
ZF2512	0.082	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.34	1.47	1.70	1.90	2.32	3.3	18°	25°	30°
ZF2515	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	18°	25°	30°
ZF2520	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	18°	25°	28°
ZF2530	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	19°	25°	29°
ZF2540	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	22°	25°	32°
ZF2550	0.149	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	20°	20°	30°
ZF2560	0.167	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	18°	25°	28°
ZF2570	0.182	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	19°	25°	27°
ZLF2580	0.197	2.83	3.3	4.0	4.9	5.7	6.9	8.0	8.9	9.8	11.3	12.6	15.5	21.9	20°	25°	27°
ZLF25100	0.211	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	21°	25°	28°
ZLF25120	0.258	4.2	5.0	6.0	7.3	8.5	10.4	12.0	13.4	14.7	17.0	19.0	23.2	33	20°	25°	28°
ZLF25150	0.289	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	18°	25°	28°
ZLF25200	0.333	7.1	8.4	10.0	12.2	14.1	17.3	20.0	22.4	24.5	28.3	32	39	55	19°	25°	27°
ZLF25400	0.471	14.1	16.7	20.0	24.5	28.3	35	40	45	49	57	63	77	110	19°	25°	27°

ZF15



Zip-Tip + Body



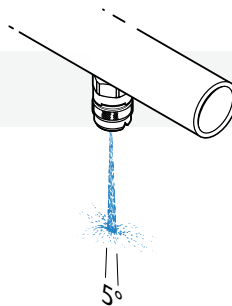
Zip-Tip Only

Spray Characteristics

ZF15 Series spray nozzles produce a flat, fan-shaped spray pattern, with a spray angle of 15° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF1505	0.053	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	10°	15°	20°
ZF1506	0.058	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	11°	15°	24°
ZF1508	0.067	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	11°	15°	21°
ZF1510	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	13°	15°	16°
ZF1515	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	11°	15°	20°
ZF1520	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	11°	15°	20°
ZF1530	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	11°	15°	18°
ZF1540	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	12°	15°	18°
ZF1550	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	12°	15°	19°
ZF1560	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	12°	15°	17°
ZF1570	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	12°	15°	19°
ZLF1580	0.211	2.83	3.3	4.0	4.9	5.7	6.9	8.0	8.9	9.8	11.3	12.6	15.5	21.9	12°	15°	19°
ZLF15100	0.236	3.5	4.2	5.0	6.1	7.1	8.7	10.0	11.2	12.2	14.1	15.8	19.4	27.4	12°	15°	19°
ZLF15120	0.258	4.2	5.0	6.0	7.3	8.5	10.4	12.0	13.4	14.7	17.0	19.0	23.2	33	12°	15°	19°
ZLF15150	0.289	5.3	6.3	7.5	9.2	10.6	13.0	15.0	16.8	18.4	21.2	23.7	29.0	41	12°	15°	18°
ZLF15200	0.333	7.1	8.4	10.0	12.2	14.1	17.3	20.0	22.4	24.5	28.3	32	39	55	13°	15°	17°

ZF05



Zip-Tip + Body



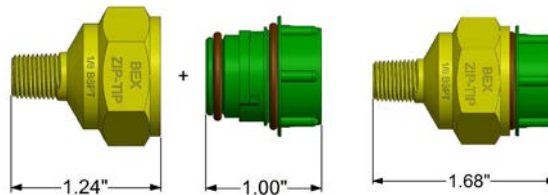
Zip-Tip Only

Spray Characteristics

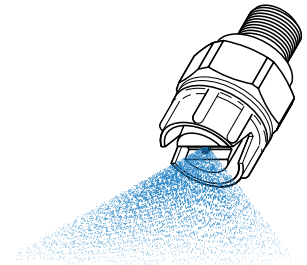
ZF05 Series spray nozzles produce a flat, fan-shaped spray pattern, with a spray angle of 5° at 40 PSI.

Model Number	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF0505	0.053	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	4°	5°	9°
ZF0506	0.058	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	5°	5°	8°
ZF0508	0.067	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	4°	5°	7°
ZF0510	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	5°	5°	8°
ZF0515	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	5°	5°	9°
ZF0520	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	5°	5°	9°
ZF0530	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	5°	5°	9°
ZF0540	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	5°	5°	9°

ZF Injection Molded Series



Injection Molded Z-Bodies are available in **1/8, 1/4, 3/8 and 1/2** male thread sizes.



Spray Characteristics

The ZF-Series spray nozzles create a flat, fan-shaped spray pattern with spray angles ranging from 15° to 110° at 40 PSI. The spray angles usually increase with pressure, as indicated in the capacity table. The spray density decreases towards the outside of the spray, allowing overlapping of spray patterns while still maintaining uniform spray density.

Construction

The models listed are injection molded, one-piece construction.

Standard Materials

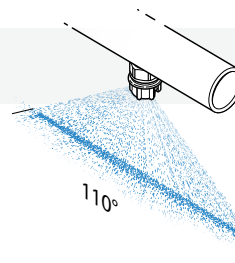
- L** Polypropylene
- K** PVDF
- KN** Natural PVDF

Refer to pages 107-113 for metal models

Typical Applications:

- ▶ Parts Cleaning
- ▶ Metal Washing
- ▶ Foam Control
- ▶ Asphalt Spraying
- ▶ Gravel Washing
- ▶ Vehicle Washing
- ▶ Fertilizer Spraying
- ▶ Dishwashers

ZF110 Injection Molded



Scan to Order
Zip-Tip + Body



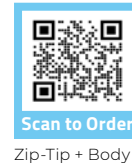
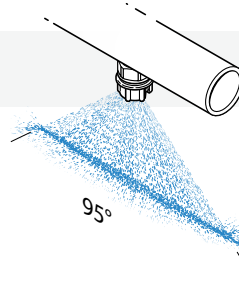
Scan to Order
Zip-Tip Only

Spray Characteristics

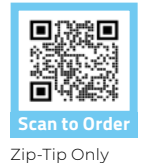
A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 110° at 40 PSI.

Model #	Tip Color	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
			5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF11003	Lime Green	0.041	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	92°	110°	118°
ZF11004	Lime Green	0.047	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	90°	110°	112°
ZF11005	Lime Green	0.053	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	96°	110°	114°
ZF11006	Lime Green	0.058	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	97°	110°	115°
ZF11008	Lime Green	0.067	0.32	0.38	0.45	0.55	0.64	0.78	0.90	1.01	1.10	1.27	1.42	1.74	2.46	100°	110°	115°
ZF11010	White	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	102°	110°	115°
ZF11015	Grey	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	102°	110°	115°
ZF11020	Lt. Blue	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	103°	110°	112°
ZF11030	Purple	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	103°	110°	112°
ZF11040	Green	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	103°	110°	112°
ZF11050	Yellow	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	107°	110°	116°
ZF11060	Blue	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	104°	110°	112°
ZF11070	Red	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	107°	110°	112°

ZF95 Injection Molded



Zip-Tip + Body



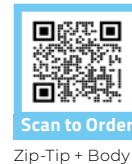
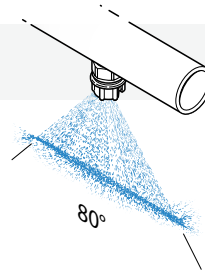
Zip-Tip Only

Spray Characteristics

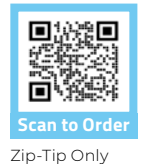
A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 95° at 40 PSI.

Model #	Tip Color	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
			5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF9503	Lime Green	0.041	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	96°	95°	101°
ZF9504	Lime Green	0.047	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	86°	95°	101°
ZF9505	Lime Green	0.053	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	86°	95°	101°
ZF9506	Lime Green	0.058	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	86°	95°	101°
ZF9508	Lime Green	0.067	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	86°	95°	100°
ZF9510	White	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	88°	95°	99°
ZF9515	Grey	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	90°	95°	100°
ZF9520	Lt. Blue	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	89°	95°	99°
ZF9530	Purple	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	90°	95°	101°
ZF9540	Green	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	90°	95°	100°
ZF9550	Yellow	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	91°	95°	101°
ZF9560	Blue	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	92°	95°	102°
ZF9570	Red	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	92°	95°	103°

ZF80 Injection Molded



Zip-Tip + Body



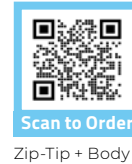
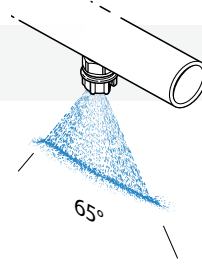
Zip-Tip Only

Spray Characteristics

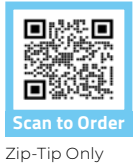
A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 80° at 40 PSI.

Model #	Tip Color	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
			5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF8002	Lime Green	0.034	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	74°	80°	83°
ZF8003	Lime Green	0.041	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	74°	80°	83°
ZF8004	Lime Green	0.047	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	74°	80°	83°
ZF8005	Lime Green	0.053	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	74°	80°	83°
ZF8006	Lime Green	0.058	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	74°	80°	83°
ZF8008	Lime Green	0.067	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	75°	80°	83°
ZF8010	White	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	75°	80°	83°
ZF8015	Grey	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	74°	80°	86°
ZF8020	Lt. Blue	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	74°	80°	85°
ZF8030	Purple	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	75°	80°	86°
ZF8040	Green	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	76°	80°	85°
ZF8050	Yellow	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	77°	80°	84°
ZF8060	Blue	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	77°	80°	84°
ZF8070	Red	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	78°	80°	87°

ZF65 Injection Molded



Zip-Tip + Body



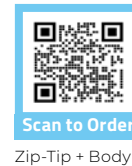
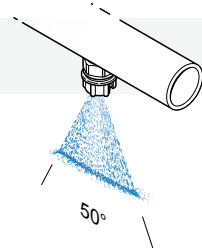
Zip-Tip Only

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 65° at 40 PSI.

Model #	Tip Color	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
			5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF6502	Lime Green	0.034	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	53°	65°	72°
ZF6503	Lime Green	0.041	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	53°	65°	72°
ZF6504	Lime Green	0.047	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	54°	65°	72°
ZF6505	Lime Green	0.053	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	54°	65°	72°
ZF6506	Lime Green	0.058	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	54°	65°	72°
ZF6508	Lime Green	0.067	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	55°	65°	71°
ZF6510	White	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	57°	65°	73°
ZF6512	Orange	0.082	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.34	1.47	1.70	1.90	2.32	3.3	59°	65°	71°
ZF6515	Grey	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	59°	65°	72°
ZF6520	Lt. Blue	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	61°	65°	72°
ZF6530	Purple	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	62°	65°	72°
ZF6540	Green	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	63°	65°	72°
ZF6550	Yellow	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	63°	65°	73°
ZF6560	Blue	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	63°	65°	73°
ZF6570	Red	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	63°	65°	74°

ZF50 Injection Molded



Zip-Tip + Body



Zip-Tip Only

Spray Characteristics

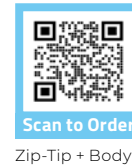
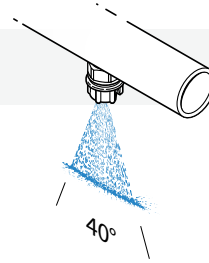
A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 50° at 40 PSI.

Model #	Tip Color	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
			5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF5002	Lime Green	0.034	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	43°	50°	57°
ZF5003	Lime Green	0.041	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	44°	50°	57°
ZF5004	Lime Green	0.047	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	44°	50°	56°
ZF5005	Lime Green	0.053	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	44°	50°	56°
ZF5006	Lime Green	0.058	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	45°	50°	56°
ZF5008	Lime Green	0.067	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	45°	50°	56°
ZF5010	White	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	43°	50°	55°
ZF5012	Orange	0.082	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	43°	50°	55°
ZF5015	Grey	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	43°	50°	55°
ZF5020	Lt. Blue	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	43°	50°	55°
ZF5030	Purple	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	43°	50°	54°
ZF5040	Green	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	43°	50°	54°
ZF5050	Yellow	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	43°	50°	53°
ZF5060	Blue	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	43°	50°	53°
ZF5070	Red	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	43°	50°	53°

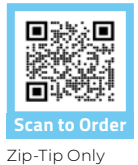
ZF40 Injection Molded

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 40° at 40 PSI.



Zip-Tip + Body



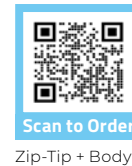
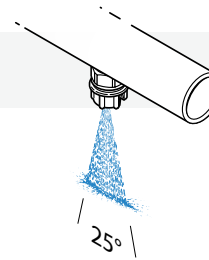
Zip-Tip Only

Model #	Tip Color	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
			5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF4002	Lime Green	0.034	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.224	0.245	0.283	0.32	0.39	0.55	26°	40°	46°
ZF4003	Lime Green	0.041	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	30°	40°	45°
ZF4004	Lime Green	0.047	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	32°	40°	45°
ZF4005	Lime Green	0.053	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	35°	40°	44°
ZF4006	Lime Green	0.058	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	37°	40°	44°
ZF4008	Lime Green	0.067	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	35°	40°	43°
ZF4010	White	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	30°	40°	43°
ZF4015	Grey	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	35°	40°	41°
ZF4020	Lt. Blue	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	33°	40°	43°
ZF4030	Purple	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	34°	40°	45°
ZF4040	Green	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	33°	40°	43°
ZF4050	Yellow	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	35°	40°	46°
ZF4060	Blue	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	37°	40°	48°
ZF4070	Red	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	36°	40°	47°

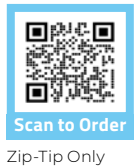
ZF25 Injection Molded

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 25° at 40 PSI.



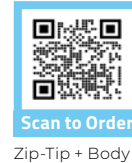
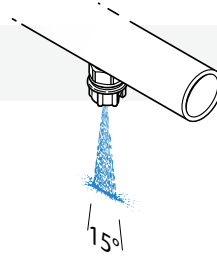
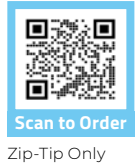
Zip-Tip + Body



Zip-Tip Only

Model #	Tip Color	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
			5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF2503	Lime Green	0.041	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.34	0.37	0.42	0.47	0.58	0.82	20°	25°	31°
ZF2504	Lime Green	0.047	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.45	0.49	0.57	0.63	0.77	1.10	19°	25°	31°
ZF2505	Lime Green	0.053	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	18°	25°	31°
ZF2506	Lime Green	0.058	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	17°	25°	31°
ZF2508	Lime Green	0.067	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	16°	25°	32°
ZF2510	White	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	17°	25°	31°
ZF2515	Grey	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	18°	25°	30°
ZF2520	Lt. Blue	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	18°	25°	28°
ZF2530	Purple	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	19°	25°	29°
ZF2540	Green	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	22°	25°	32°
ZF2550	Yellow	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	20°	25°	32°
ZF2560	Blue	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	18°	25°	28°
ZF2570	Red	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	19°	25°	27°

ZF15 Injection Molded

Scan to Order
Zip-Tip + Body

Scan to Order

Zip-Tip Only

Spray Characteristics

A low flow rate spray nozzle. Produces a flat, fan shaped spray pattern with an angle of 15° at 40 PSI.

Model #	Tip Color	Equivalent Orifice Diameter inches	Capacities at Various Pressures USGPM													Spray Angles		
			5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	300 psi	20 psi	40 psi	80 psi
ZF1505	Lime Green	0.053	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.37	10°	15°	20°
ZF1506	Lime Green	0.058	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.67	0.73	0.85	0.95	1.16	1.64	11°	15°	24°
ZF1508	Lime Green	0.067	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	2.19	11°	15°	21°
ZF1510	White	0.075	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.12	1.22	1.41	1.58	1.94	2.74	13°	15°	16°
ZF1515	Grey	0.091	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.68	1.84	2.12	2.37	2.90	4.1	11°	15°	20°
ZF1520	Lt. Blue	0.105	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.24	2.45	2.83	3.2	3.9	5.5	11°	15°	20°
ZF1530	Purple	0.129	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.4	3.7	4.2	4.7	5.8	8.2	11°	15°	18°
ZF1540	Green	0.149	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.5	4.9	5.7	6.3	7.7	11.0	12°	15°	18°
ZF1550	Yellow	0.167	1.77	2.09	2.50	3.06	3.5	4.3	5.0	5.6	6.1	7.1	7.9	9.7	13.7	12°	15°	19°
ZF1560	Blue	0.182	2.12	2.51	3.00	3.7	4.2	5.2	6.0	6.7	7.3	8.5	9.5	11.6	16.4	12°	15°	17°
ZF1570	Red	0.197	2.47	2.93	3.5	4.3	4.9	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19.2	12°	15°	19°

All injection molded zip-tips are available with optional Tabz. These provide additional grip, making them easier to insert and remove. Ideal for large washing systems with high nozzle turnover. Zip-tips with Tabz have a "T" at the end of the model # (eg. ZF1505T).



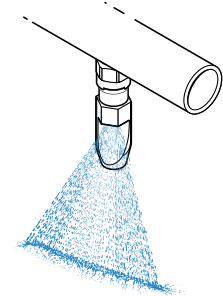
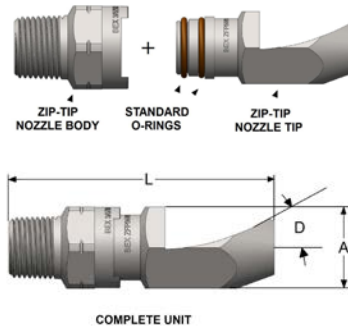
ZFP Series



Zip-Tip + Body



Zip-Tip Only



Spray Characteristics

The ZFP series nozzles produce a flat and thin fan-shaped spray with sharp edges and high impact over the area covered. The spray is deflected by a certain angle (angle D) away from the centerline of the spray nozzle.

Construction

The models listed are machined from bar stock, and are one piece construction.

Typical Applications:

- High Impact Applications
- Metal Wash
- Gravel Washing
- Vehicle Washing

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model Number	Orifice Diameter inches	Angle 'D' at 40 psi	Dimensions		Capacities at Various Pressures USGPM								Spray Angles		
			Material Size (A)	Length (L)	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	15 psi	40 psi	100 psi
ZFP5001	0.024	40°	1.12	0.73	0.061	0.071	0.087	0.100	0.122	0.141	0.158	0.194	30°	50°	58°
ZFP50025	0.038	41°	1.12	0.75	0.153	0.177	0.216	0.250	0.306	0.35	0.40	0.48	29°	50°	57°
ZFP5005	0.053	41°	1.12	1.04	0.306	0.35	0.43	0.50	0.61	0.71	0.79	0.97	30°	50°	59°
ZFP5010	0.075	52°	1.12	0.96	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	32°	50°	59°
ZFP5025	0.118	40°	1.12	1.04	1.53	1.77	2.17	2.50	3.06	3.5	4.0	4.8	41°	50°	58°
ZFP5040	0.149	45°	1.12	1.47	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	42°	50°	59°
ZFP5060	0.183	40°	1.12	1.76	3.7	4.2	5.2	6.0	7.3	8.5	9.5	11.6	41°	50°	52°
ZLFP50100	0.236	38°	1.44	2.37	6.1	7.1	8.7	10.0	12.2	14.1	15.8	19.4	44°	50°	54°
ZLFP50125	0.266	34°	1.44	2.55	7.7	8.8	10.8	12.5	15.3	17.7	19.8	24.2	39°	50°	57°
ZLFP50160	0.298	37°	1.44	2.34	9.8	11.3	13.9	16.0	19.6	22.6	25.3	31.0	46°	50°	55°
ZLFP50200	0.328	33°	1.44	2.55	12.2	14.1	17.3	20.0	24.5	28.3	32	39	47°	50°	55°
ZFP4040	0.149	34°	1.12	1.76	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	29°	40°	48°
ZFP4050	0.167	32°	1.12	1.91	3.06	3.5	4.3	5.0	6.1	7.1	7.9	9.7	30°	40°	47°
ZFP4060	0.183	31°	1.12	2.52	3.7	4.2	5.2	6.0	7.3	8.5	9.5	11.6	31°	40°	50°
ZFP4070	0.197	28°	1.12	2.50	4.3	4.9	6.1	7.0	8.6	9.9	11.1	13.6	33°	40°	50°
ZLFP4080	0.211	28°	1.44	2.50	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	33°	40°	48°
ZLFP4090	0.228	28°	1.44	2.50	5.5	6.4	7.8	9.0	11.0	12.7	14.2	17.4	34°	40°	46°
ZLFP40100	0.236	31°	1.44	2.61	6.1	7.1	8.7	10.0	12.2	14.1	15.8	19.4	34°	40°	46°

*ZFP assemblies use a ZBD body. ZLFP assemblies use a ZLBD body.

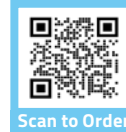
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ZFP Series Continued

Model Number	Orifice Diameter inches	Angle 'D' at 40 psi	Dimensions		Capacities at Various Pressures USGPM								Spray Angles		
			Material Size (A)	Length (L)	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	15 psi	40 psi	100 psi
ZFP3504	0.047	36°	1.12	0.83	0.245	0.283	0.35	0.40	0.49	0.57	0.63	0.77	20°	35°	41°
ZFP3510	0.075	37°	1.12	1.12	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	18°	35°	38°
ZFP3520	0.105	30°	1.12	1.34	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	25°	35°	42°
ZFP3525	0.117	29°	1.12	1.72	1.53	1.77	2.17	2.50	3.06	3.5	4.0	4.8	24°	35°	41°
ZFP3530	0.128	28°	1.12	1.78	1.84	2.12	2.60	3.00	3.7	4.2	4.7	5.8	25°	35°	42°
ZFP3540	0.149	31°	1.12	2.08	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	29°	35°	42°
ZFP3550	0.167	26°	1.12	2.17	3.06	3.5	4.3	5.0	6.1	7.1	7.9	9.7	30°	35°	40°
ZFP3560	0.183	29°	1.12	2.54	3.7	4.2	5.2	6.0	7.3	8.5	9.5	11.6	27°	35°	40°
ZLFP3580	0.211	22°	1.44	2.84	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	25°	35°	38°
ZLFP35100	0.221	24°	1.44	3.05	6.1	7.1	8.7	10.0	12.2	14.1	15.8	19.4	25°	35°	40°
ZLFP35160	0.295	22°	1.44	4.1	9.8	11.3	13.9	16.0	19.6	22.6	25.3	31.0	26°	35°	39°
ZLFP35200	0.333	24°	1.44	4.1	12.2	14.1	17.3	20.0	24.5	28.3	32	39	31°	35°	42°
ZFP2540	0.149	24°	1.12	2.19	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	22°	25°	27°
ZFP1510	0.075	22°	1.12	1.69	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	--	15°	21°
ZFP1520	0.105	16°	1.12	2.04	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	--	15°	18°
ZFP1530	0.129	20°	1.12	2.61	1.84	2.12	2.60	3.00	3.7	4.2	4.7	5.8	8°	15°	24°
ZFP1540	0.149	13°	1.12	3.4	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	8°	15°	20°
ZFP1550	0.167	14°	1.12	3.3	3.06	3.5	4.3	5.0	6.1	7.1	7.9	9.7	8°	15°	22°
ZFP1560	0.183	14°	1.12	4.5	3.7	4.2	5.2	6.0	7.3	8.5	9.5	11.6	11°	15°	19°
ZLFP1580	0.218	14°	1.44	4.7	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	11°	15°	18°
ZLFP15100	0.236	15°	1.44	5.1	6.1	7.1	8.7	10.0	12.2	14.1	15.8	19.4	11°	15°	17°
ZLFP15200	0.333	15°	1.44	6.8	12.2	14.1	17.3	20.0	24.5	28.3	32	39	11°	15°	17°
ZLFP15300	0.408	15°	1.44	6.9	18.4	21.2	26.0	30.0	37	42	47	58	12°	15°	18°

*ZFP assemblies use a ZBD body. ZLFP assemblies use a ZLBD body.

ZFL Series



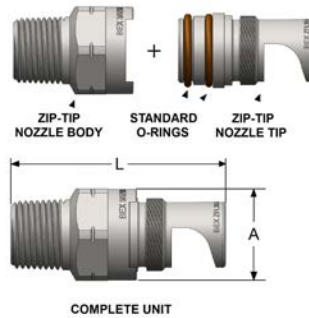
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Zip-Tip + Body

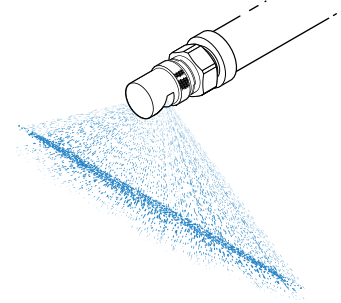


Scan to Order

Zip-Tip Only



COMPLETE UNIT



Spray Characteristics

The ZFL series nozzles produce a wide, flat fan-shaped spray with low impact by deflecting the spray 75° away from the centerline of the pipe connection.

Standard Materials

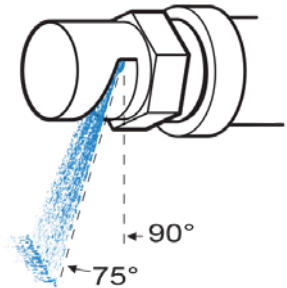
- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Construction

The models listed are machined from bar stock, and are one piece construction.

Typical Applications:

- Rinsing and Cooling
- Dishwashing
- Fertilizer Spraying
- Metal Wash
- Air & Steam blowing (refer to pages 169-170)



Model #	Orifice Diameter inches	Dimensions		Capacities at Various Pressures USGPM										Spray Angle					
		Material Size (A)	Length (L) inches	3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	3 psi	5 psi	7 psi	10 psi	20 psi	60 psi	
ZFL.25	0.017	0.88	2.08	0.016	0.021	0.025	0.030	0.037	0.042	0.052	0.060	0.074	--	--	--	90°	106°	120°	
ZFL.50	0.024	0.88	2.18	0.027	0.035	0.042	0.050	0.061	0.071	0.087	0.100	0.122	--	--	65°	78°	99°	120°	
ZFL.75	0.029	0.88	2.18	0.041	0.053	0.063	0.075	0.092	0.106	0.130	0.150	0.184	--	--	72°	85°	112°	140°	
ZFL1	0.033	0.88	2.18	0.055	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.245	--	--	90°	97°	135°	148°	
ZFL1.3	0.038	0.88	2.18	0.071	0.092	0.109	0.130	0.159	0.184	0.225	0.260	0.32	--	73°	80°	92°	115°	134°	
ZFL1.5	0.042	0.88	2.18	0.082	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.37	57°	69°	75°	87°	104°	125°	
ZFL2	0.047	0.88	2.02	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	60°	73°	82°	86°	104°	125°	
ZFL2.5	0.055	0.88	2.02	0.137	0.177	0.209	0.250	0.306	0.35	0.43	0.50	0.61	79°	87°	92°	101°	112°	130°	
ZFL3	0.059	0.88	2.02	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	84°	97°	106°	115°	130°	140°	
ZFL4	0.070	0.88	2.02	0.219	0.283	0.33	0.40	0.49	0.57	0.69	0.80	0.98	74°	87°	89°	101°	116°	127°	
ZFL5	0.076	0.88	2.02	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	78°	89°	97°	103°	113°	132°	
ZFL7.5	0.094	0.88	2.02	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	98°	105°	112°	120°	132°	144°	
ZFL10	0.110	0.88	2.02	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	116°	125°	134°	135°	144°	150°	
ZFL12	0.120	0.88	2.02	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	98°	105°	109°	118°	134°	139°	
ZFL15	0.129	0.88	2.11	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	100°	110°	115°	124°	131°	139°	
ZFL18	0.147	0.88	2.11	0.99	1.27	1.51	1.80	2.20	2.55	3.12	3.6	4.4	100°	112°	116°	124°	135°	137°	
ZFL20	0.154	0.88	2.11	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	115°	125°	128°	134°	142°	147°	
ZFL22	0.161	0.88	2.11	1.20	1.56	1.84	2.20	2.69	3.11	3.8	4.4	5.4	97°	108°	114°	120°	128°	132°	
ZFL24	0.169	0.88	2.11	1.31	1.70	2.01	2.40	2.94	3.4	4.2	4.8	5.9	106°	118°	121°	127°	136°	154°	
ZFL27	0.177	0.88	2.11	1.48	1.91	2.26	2.70	3.3	3.8	4.7	5.4	6.6	110°	120°	124°	129°	139°	146°	
ZFL30	0.188	0.88	2.11	1.64	2.12	2.51	3.00	3.7	4.2	5.2	6.0	7.3	104°	116°	121°	127°	135°	138°	
ZFL35	0.196	0.88	2.11	1.92	2.47	2.93	3.5	4.3	4.9	6.1	7.0	8.6	104°	114°	118°	126°	130°	137°	
ZFL40	0.209	0.88	2.11	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	104°	116°	121°	127°	135°	138°	
ZFL45	0.228	0.88	2.11	2.46	3.2	3.8	4.5	5.5	6.4	7.8	9.0	11.0	104°	114°	118°	126°	130°	137°	
ZFL60	0.266	0.88	2.11	3.3	4.2	5.0	6.0	7.3	8.5	10.4	12.0	14.7	110°	120°	124°	126°	130°	135°	

*ZFL assemblies use a ZBD body.

ZF00



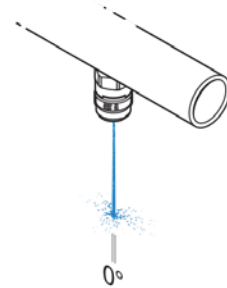
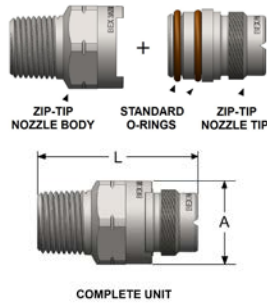
Scan to Order



Scan to Order

Zip-Tip + Body

Zip-Tip Only



Spray Characteristics

A high impact solid stream. For situations where maximum impact is required over a very small target area:

NOZZLE PIPE SIZE	Length 'L' (in)	Dim. 'A' (in)
1/8ZF	1.60	0.97
1/4ZF	1.70	0.97
3/8ZF	1.73	0.97
1/2ZF	1.80	0.97
1/2ZLF	2.11	1.25
3/4ZLF	2.19	1.25

Construction

The models listed are machined from bar stock and are one-piece construction.

Typical Applications:

- Metal Washing
- Agitation
- Mixing

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model Number	Orifice Diameter inches	Capacities at Various Pressures USGPM												
		5 psi	7 psi	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	200 psi	300 psi	400 psi	500 psi
ZF0002	0.034	0.070	0.084	0.100	0.141	0.173	0.200	0.245	0.283	0.32	0.45	0.55	0.63	0.71
ZF0003	0.041	0.106	0.126	0.150	0.212	0.260	0.300	0.37	0.42	0.47	0.67	0.82	0.95	1.06
ZF0004	0.047	0.141	0.167	0.200	0.283	0.35	0.40	0.49	0.57	0.63	0.89	1.10	1.26	1.41
ZF0005	0.053	0.177	0.209	0.250	0.35	0.43	0.50	0.61	0.71	0.79	1.12	1.37	1.58	1.77
ZF0006	0.058	0.212	0.251	0.300	0.42	0.52	0.60	0.73	0.85	0.95	1.34	1.64	1.90	2.12
ZF0008	0.067	0.283	0.33	0.40	0.57	0.69	0.80	0.98	1.13	1.26	1.79	2.19	2.53	2.83
ZF0010	0.075	0.35	0.42	0.50	0.71	0.87	1.00	1.22	1.41	1.58	2.24	2.74	3.2	3.5
ZF0012	0.089	0.42	0.50	0.60	0.85	1.04	1.20	1.47	1.70	1.90	2.68	3.3	3.8	4.2
ZF0015	0.191	0.53	0.63	0.75	1.06	1.30	1.50	1.84	2.12	2.37	3.4	4.1	4.7	5.3
ZF0020	0.105	0.71	0.84	1.00	1.41	1.73	2.00	2.45	2.83	3.2	4.5	5.5	6.3	7.1
ZF0030	0.129	1.06	1.26	1.50	2.12	2.60	3.00	3.7	4.2	4.7	6.7	8.2	9.5	10.6
ZF0040	0.149	1.41	1.67	2.00	2.83	3.5	4.0	4.9	5.7	6.3	8.9	11.0	12.6	14.1
ZF0050	0.167	1.77	2.09	2.50	3.5	4.3	5.0	6.1	7.1	7.9	11.2	13.7	15.8	17.7
ZF0060	0.182	2.12	2.51	3.00	4.2	5.2	6.0	7.3	8.5	9.5	13.4	16.4	19.0	21.2
ZF0070	0.197	2.47	2.93	3.5	4.9	6.1	7.0	8.6	9.9	11.1	15.7	19.2	22.1	24.7
ZLF0080	0.211	2.83	3.3	4.0	5.7	6.9	8.0	9.8	11.3	12.6	17.9	21.9	25.3	28.3
ZLF00100	0.236	3.5	4.2	5.0	7.1	8.7	10.0	12.2	14.1	15.8	22.4	27.4	32	35
ZLF00120	0.258	4.2	5.0	6.0	8.5	10.4	12.0	14.7	17.0	19.0	26.8	33	38	42
ZLF00150	0.289	5.3	6.3	7.5	10.6	13.0	15.0	18.4	21.2	23.7	34	41	47	53
ZLF00200	0.333	7.1	8.4	10.0	14.1	17.3	20.0	24.5	28.3	32	45	55	63	71
ZLF00400	0.471	14.1	16.7	20.0	28.3	35	40	49	57	63	89	110	126	141

*ZF assemblies use a ZBD body. ZLF assemblies use a ZLBD body.

ZS Series



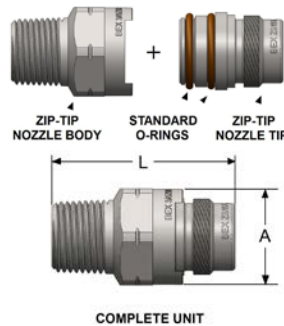
Scan to Order

Zip-Tip + Body



Scan to Order

Zip-Tip Only



COMPLETE UNIT



Spray Characteristics

Full cone spray pattern, with uniform distribution throughout the cone.

NOZZLE PIPE SIZE	Length 'L' (in)	Dim. 'A' (in)
1/8ZS	1.60	0.97
1/4ZS	1.70	0.97
3/8ZS	1.73	0.97
1/2ZS	1.80	0.97
1/2ZLS	2.11	1.25
3/4ZLS	2.19	1.25

Construction

The models listed are machined from bar stock and are one-piece construction. This nozzle contains a patented non-removable insert with larger flow passages than older styles, and is less susceptible to clogging.

Typical Applications:

- Chemical Processing
- Cooling Sprays
- Continuous Casting
- Foam Breaking

Standard Materials

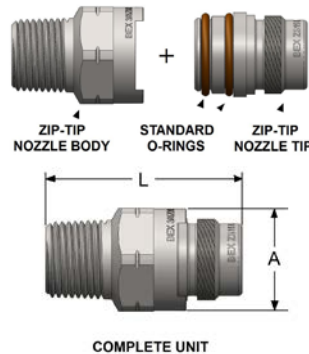
- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Refer to page 134 for plastic models

Model #	Capacities at Various Pressures USGPM												Spray Angle		
	3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
ZS1	0.055	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.245	0.283	0.32	0.39	--	55°	52°
ZS1.5	0.082	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.37	0.42	0.47	0.58	--	65°	57°
ZS2	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	0.57	0.63	0.77	54°	59°	60°
ZS3	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	0.85	0.95	1.16	50°	53°	60°
ZS3.5	0.192	0.248	0.293	0.35	0.43	0.50	0.61	0.70	0.86	0.99	1.11	1.36	48°	58°	61°
ZS5	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	60°	75°	70°
ZS6	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	67°	72°	70°
ZS6.5	0.36	0.46	0.54	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	48°	56°	70°
ZS7.5	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	2.12	2.37	2.90	55°	65°	48°
ZS8.5	0.47	0.60	0.71	0.85	1.04	1.20	1.47	1.70	2.08	2.40	2.69	3.3	58°	65°	63°
ZS10	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	60°	65°	62°
ZS14	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	78°	85°	75°
ZS15	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	4.2	4.7	5.8	63°	65°	60°
ZS18	0.99	1.27	1.51	1.80	2.20	2.55	3.12	3.6	4.4	5.1	5.7	7.0	85°	88°	76°
ZS20	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	76°	82°	75°
ZS22	1.20	1.56	1.84	2.20	2.69	3.11	3.8	4.4	5.4	6.2	7.0	8.5	76°	78°	76°
ZLS16	0.88	1.13	1.34	1.60	1.96	2.26	2.77	3.2	3.9	4.5	5.1	6.2	55°	60°	55°
ZLS25	1.37	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	9.7	68°	73°	65°
ZLS32	1.75	2.26	2.68	3.2	3.9	4.5	5.5	6.4	7.8	9.1	10.1	12.4	80°	90°	75°
ZLS40	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	86°	90°	81°

*ZS assemblies use a ZBD body. ZLS assemblies use a ZLBD body.

ZSW Series

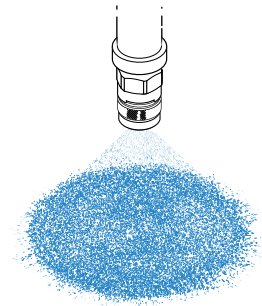


Zip-Tip + Body



Scan to Order

Zip-Tip Only



Spray Characteristics

A wide angle full cone spray pattern, with uniform distribution throughout the cone.

NOZZLE PIPE SIZE	Length 'L' (in)	Dim. 'A' (in)
1/8ZSW	1.60	0.97
1/4ZSW	1.70	0.97
3/8ZSW	1.73	0.97
1/2ZSW	1.80	0.97
1/2ZLSW	2.11	1.25
3/4ZLSW	2.19	1.25

Construction

The models listed are machined from bar stock and are one-piece construction. This nozzle contains a patented non-removable insert with larger flow passages than older styles, and is less susceptible to clogging.

Typical Applications

- High Impact Applications
- Metal Wash
- Gravel Washing
- Vehicle Washing

Standard Materials

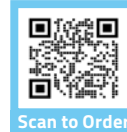
- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Refer to page 135 for plastic models

Model #	Capacities at Various Pressures USGPM												Spray Angle		
	3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
ZS2.8W	0.153	0.198	0.234	0.280	0.34	0.40	0.48	0.56	0.69	0.79	0.89	1.08	110°	105°	96°
ZS4.3W	0.236	0.304	0.36	0.43	0.53	0.61	0.74	0.86	1.05	1.22	1.36	1.67	117°	108°	110°
ZS5.6W	0.307	0.40	0.47	0.56	0.69	0.79	0.97	1.12	1.37	1.58	1.77	2.17	117°	110°	100°
ZS8W	0.44	0.57	0.67	0.80	0.98	1.13	1.39	1.60	1.96	2.26	2.53	3.10	118°	110°	103°
ZS10W	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	118°	108°	102°
ZS12W	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	120°	112°	102°
ZS14W	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	118°	114°	104°
ZS17W	0.93	1.20	1.42	1.70	2.08	2.40	2.94	3.4	4.2	4.8	5.4	6.6	118°	117°	102°
ZS20W	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	120°	120°	106°
ZS24W	1.31	1.70	2.01	2.40	2.94	3.4	4.2	4.8	5.9	6.8	7.6	9.3	122°	118°	106°
ZS27W	1.48	1.91	2.26	2.70	3.3	3.8	4.7	5.4	6.6	7.6	8.5	10.5	122°	120°	107°
ZLS30W	1.64	2.12	2.51	3.00	3.7	4.2	5.2	6.0	7.3	8.5	9.5	11.6	120°	118°	110°
ZLS35W	1.92	2.47	2.93	3.5	4.3	4.9	6.1	7.0	8.6	9.9	11.1	13.6	122°	118°	108°
ZLS40W	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	122°	119°	104°
ZLS45W	2.46	3.2	3.8	4.5	5.5	6.4	7.8	9.0	11.0	12.7	14.2	17.4	141°	118°	108°

*ZSW assemblies use a ZBD body. ZLSW assemblies use a ZLBD body.

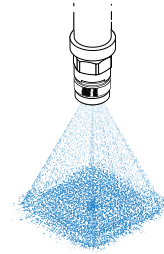
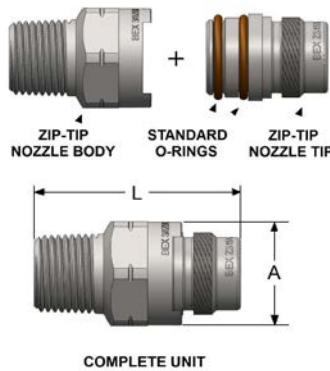
ZSQ Series



Zip-Tip + Body



Zip-Tip Only



Spray Characteristics

An approximately square spray pattern, with uniform distribution throughout the pattern.

NOZZLE PIPE SIZE	Length 'L' (in)	Dim. 'A' (in)
1/8ZSQ	1.60	0.97
1/4ZSQ	1.70	0.97
3/8ZSQ	1.73	0.97
1/2ZSQ	1.80	0.97
1/2ZLSQ	2.11	1.25
3/4ZLSQ	2.19	1.25

Construction

The models listed are machined from bar stock and are one-piece construction. This nozzle contains a patented non-removable insert with larger flow passages than older styles, and is less susceptible to clogging.

Typical Applications:

- ▶ Chemical Processing
- ▶ Cooling Sprays
- ▶ Continuous Casting

Standard Materials

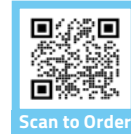
- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Refer to page 136 for plastic models

Model #	Capacities at Various Pressures USGPM												Spray Angle		
	3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
ZS3.6SQ	0.197	0.255	0.301	0.36	0.44	0.51	0.62	0.72	0.88	1.02	1.14	1.39	42°	55°	50°
ZS4.8SQ	0.263	0.34	0.40	0.48	0.59	0.68	0.83	0.96	1.18	1.36	1.52	1.86	50°	65°	60°
ZS6SQ	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	30°	65°	60°
ZS10SQ	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	61°	67°	60°
ZS12SQ	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	71°	76°	69°
ZS14SQ	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	78°	85°	75°
ZS18SQ	0.99	1.27	1.51	1.80	2.20	2.55	3.12	3.6	4.4	5.1	5.7	7.0	70°	75°	68°
ZLS29SQ	1.59	2.05	2.43	2.90	3.6	4.1	5.0	5.8	7.1	8.2	9.2	11.2	70°	75°	68°
ZLS36SQ	1.97	2.55	3.01	3.6	4.4	5.1	6.2	7.2	8.8	10.2	11.4	13.9	80°	85°	77°

*ZSQ assemblies use a ZBD body. ZLSQ assemblies use a ZLBD body.

ZSWSQ Series



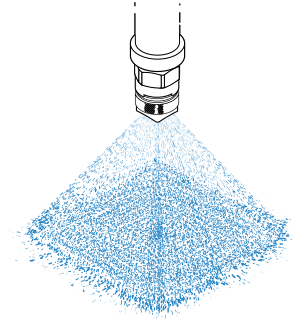
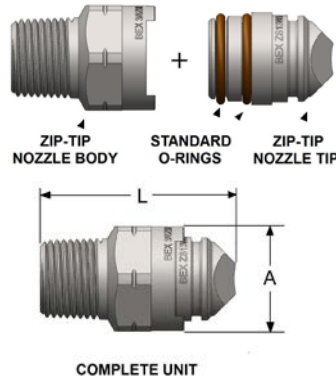
Scan to Order

Zip-Tip + Body



Scan to Order

Zip-Tip Only



Spray Characteristics

Full square wide angle spray pattern, with uniform distribution through the approximately square cone.

NOZZLE PIPE SIZE	Length 'L' (in)	Dim. 'A' (in)
1/8 ZSWSQ	1.60	0.97
1/4 ZSWSQ	1.70	0.97
3/8 ZSWSQ	1.73	0.97
1/2 ZSWSQ	1.80	0.97
1/2 ZLSWSQ	2.11	1.25
3/4 ZLSWSQ	2.19	1.25

Construction

The models listed are machined from bar stock and are one-piece construction. This nozzle contains a patented non-removable insert with larger flow passages than older styles, and is less susceptible to clogging.

Typical Applications:

- Chemical Processing
- Cooling Sprays
- Continuous Casting

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #	Capacities at Various Pressures USGPM												Spray Angle		
	3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
ZS14WSQ	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	102°	98°	84°
ZS17WSQ	0.93	1.20	1.42	1.70	2.08	2.40	2.94	3.4	4.2	4.8	5.4	6.6	50°	94°	82°
ZS20WSQ	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	60°	102°	86°
ZS24WSQ	1.31	1.70	2.01	2.40	2.94	3.4	4.2	4.8	5.9	6.8	7.6	9.3	104°	102°	86°
ZS27WSQ	1.48	1.91	2.26	2.70	3.3	3.8	4.7	5.4	6.6	7.6	8.5	10.5	104°	102°	87°
ZLS30WSQ	1.64	2.12	2.51	3.00	3.7	4.2	5.2	6.0	7.3	8.5	9.5	11.6	100°	96°	85°
ZLS35WSQ	1.92	2.47	2.93	3.5	4.3	4.9	6.1	7.0	8.6	9.9	11.1	13.6	104°	99°	88°
ZLS40WSQ	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	106°	104°	90°
ZLS45WSQ	2.46	3.2	3.8	4.5	5.5	6.4	7.8	9.0	11.0	12.7	14.2	17.4	106°	104°	94°
ZLS50WSQ	2.74	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	19.4	108°	102°	97°

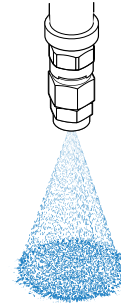
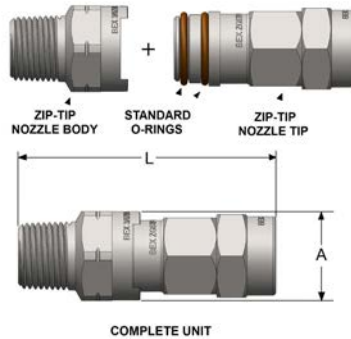
*ZSWSQ assemblies use a ZBD body. ZLSWSQ assemblies use a ZLBD body.

ZGS Series

Scan to Order
Zip-Tip + Body

Scan to Order

Zip-Tip Only



Spray Characteristics

Full cone spray pattern, with uniform distribution throughout the cone.

NOZZLE PIPE SIZE	Length L (in)	Dim. A (in)
1/8ZGS	1.98	0.97
1/4ZGS	2.12	0.97
3/8ZGS	2.56	0.97
1/2ZGS	2.63	0.97
1/2ZLGS	2.79	1.25
3/4ZLGS	2.87	1.25

Construction

This nozzle has a two-piece body and a removable insert. The insert features a patented design with larger flow passages compared to older styles, which makes it less susceptible to clogging.



Typical Applications:

- Chemical Processing
- Cooling Sprays
- Continuous Casting
- Foam Breaking

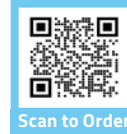
Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #	Capacities at Various Pressures USGPM												Spray Angle		
	3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
ZGS1	0.055	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.245	0.283	0.32	0.39	--	55°	52°
ZGS1.5	0.082	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.37	0.42	0.47	0.58	--	65°	57°
ZGS2	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	0.57	0.63	0.77	54°	59°	60°
ZGS3	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	0.85	0.95	1.16	50°	53°	60°
ZGS3.5	0.192	0.248	0.293	0.35	0.43	0.50	0.61	0.70	0.86	0.99	1.11	1.36	48°	58°	61°
ZGS5	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	60°	75°	70°
ZGS6	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	67°	72°	70°
ZGS6.5	0.36	0.46	0.54	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	48°	56°	70°
ZGS7.5	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	2.12	2.37	2.90	55°	65°	48°
ZGS8.5	0.47	0.60	0.71	0.85	1.04	1.20	1.47	1.70	2.08	2.40	2.69	3.3	58°	65°	63°
ZGS10	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	60°	65°	62°
ZGS14	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	78°	85°	75°
ZGS15	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	4.2	4.7	5.8	63°	65°	60°
ZGS18	0.99	1.27	1.51	1.80	2.20	2.55	3.12	3.6	4.4	5.1	5.7	7.0	85°	88°	76°
ZGS20	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	76°	82°	75°
ZLGS16	0.88	1.13	1.34	1.60	1.96	2.26	2.77	3.2	3.9	4.5	5.1	6.2	55°	60°	55°
ZLGS25	1.37	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	9.7	68°	73°	65°
ZLGS32	1.75	2.26	2.68	3.2	3.9	4.5	5.5	6.4	7.8	9.1	10.1	12.4	80°	90°	75°
ZLGS40	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	86°	90°	81°

*ZGS assemblies use a ZBD body. ZLGS assemblies use a ZLBD body.

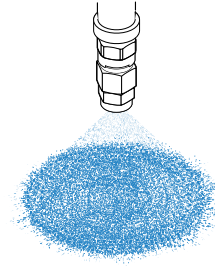
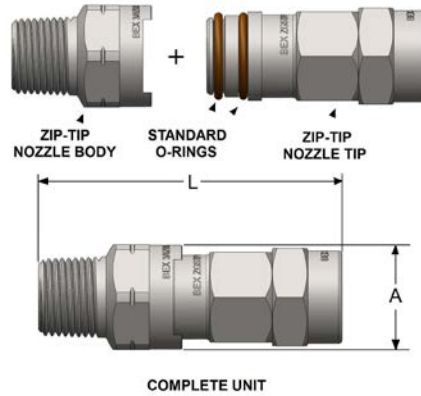
ZGSW Series



Zip-Tip + Body



Zip-Tip Only



Spray Characteristics

A wide angle full cone spray pattern, with uniform distribution throughout the cone.

NOZZLE PIPE SIZE	Length L (in)	Dim. A (in)
1/8ZGSW	1.98	0.97
1/4ZGSW	2.12	0.97
3/8ZGSW	2.56	0.97
1/2ZGSW	2.63	0.97
1/2ZLGSW	2.79	1.25
3/4ZLGSW	2.87	1.25

Construction

This nozzle has a two-piece body and a removable insert. The insert features a patented design with larger flow passages compared to older styles, which makes it less susceptible to clogging.



Typical Applications

- ▶ Chemical Processing
- ▶ Cooling Sprays
- ▶ Continuous Casting
- ▶ Foam Breaking

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #	Capacities at Various Pressures USGPM												Spray Angle		
	3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
ZGS2.8W	0.153	0.198	0.234	0.280	0.34	0.40	0.48	0.56	0.69	0.79	0.89	1.08	110°	105°	96°
ZGS4.3W	0.236	0.304	0.36	0.43	0.53	0.61	0.74	0.86	1.05	1.22	1.36	1.67	117°	108°	110°
ZGS5.6W	0.307	0.40	0.47	0.56	0.69	0.79	0.97	1.12	1.37	1.58	1.77	2.17	117°	110°	100°
ZGS8W	0.44	0.57	0.67	0.80	0.98	1.13	1.39	1.60	1.96	2.26	2.53	3.10	118°	110°	103°
ZGS10W	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	118°	108°	102°
ZGS12W	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	120°	112°	102°
ZGS14W	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	118°	114°	104°
ZGS17W	0.93	1.20	1.42	1.70	2.08	2.40	2.94	3.4	4.2	4.8	5.4	6.6	118°	117°	102°
ZGS20W	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	120°	120°	106°
ZGS24W	1.31	1.70	2.01	2.40	2.94	3.4	4.2	4.8	5.9	6.8	7.6	9.3	122°	118°	106°
ZGS27W	1.48	1.91	2.26	2.70	3.3	3.8	4.7	5.4	6.6	7.6	8.5	10.5	122°	120°	107°
ZLGS30W	1.64	2.12	2.51	3.00	3.7	4.2	5.2	6.0	7.3	8.5	9.5	11.6	120°	118°	110°
ZLGS35W	1.92	2.47	2.93	3.5	4.3	4.9	6.1	7.0	8.6	9.9	11.1	13.6	122°	118°	108°
ZLGS40W	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	122°	119°	104°
ZLGS45W	2.46	3.2	3.8	4.5	5.5	6.4	7.8	9.0	11.0	12.7	14.2	17.4	141°	118°	108°

*ZGSW assemblies use a ZBD body. ZLGSW assemblies use a ZLBD body.

ZGSQ Series



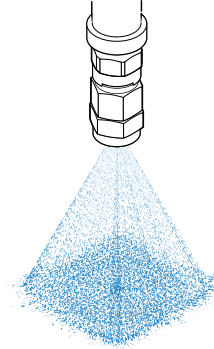
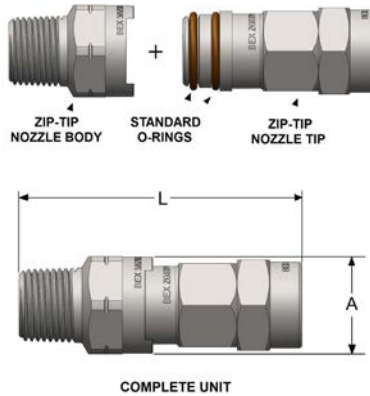
Scan to Order

Zip-Tip + Body



Scan to Order

Zip-Tip Only



Spray Characteristics

An approximately square spray pattern, with uniform distribution throughout the pattern.

NOZZLE PIPE SIZE	Length L (in)	Dim. A (in)
1/8 ZGSQ	1.98	0.97
1/4 ZGSQ	2.12	0.97
3/8 ZGSQ	2.56	0.97
1/2 ZGSQ	2.63	0.97
1/2 ZLGSQ	2.79	1.25
3/4 ZLGSQ	2.87	1.25

Construction

This nozzle has a two-piece body and a removable insert. The insert features a patented design with larger flow passages compared to older styles, which makes it less susceptible to clogging.



Typical Applications:

- Chemical Processing
- Cooling Sprays
- Continuous Casting

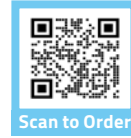
Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #	Capacities at Various Pressures USGPM												Spray Angle		
	3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
ZGS3.6SQ	0.197	0.255	0.301	0.36	0.44	0.51	0.62	0.72	0.88	1.02	1.14	1.39	42°	55°	50°
ZGS4.8SQ	0.263	0.34	0.40	0.48	0.59	0.68	0.83	0.96	1.18	1.36	1.52	1.86	50°	65°	60°
ZGS6SQ	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	30°	65°	60°
ZGS10SQ	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	61°	67°	60°
ZGS12SQ	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	71°	76°	69°
ZGS14SQ	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	78°	85°	75°
ZGS18SQ	0.99	1.27	1.51	1.80	2.20	2.55	3.12	3.6	4.4	5.1	5.7	7.0	70°	75°	68°
ZLGS29GSQ	1.59	2.05	2.43	2.90	3.6	4.1	5.0	5.8	7.1	8.2	9.2	11.2	70°	75°	68°
ZLGS36GSQ	1.97	2.55	3.01	3.6	4.4	5.1	6.2	7.2	8.8	10.2	11.4	13.9	80°	85°	77°

*ZGSQ assemblies use a ZBD body. ZLGSQ assemblies use a ZLBD body.

ZHGS Series



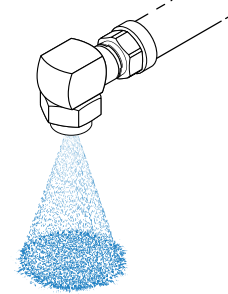
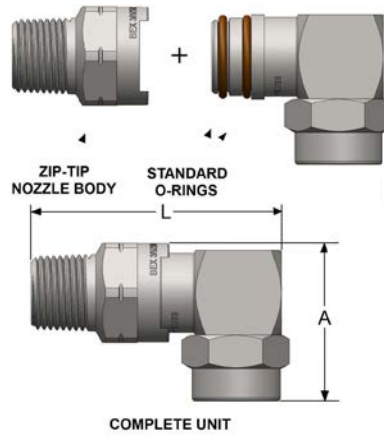
Scan to Order

Zip-Tip + Body



Scan to Order

Zip-Tip Only



Spray Characteristics

Full cone spray pattern, with uniform distribution throughout the cone.

NOZZLE PIPE SIZE	Length L (in)	Dim. A (in)
1/8ZHGS	2.11	1.48
1/4ZHGS	2.21	1.60
3/8ZHGS	2.24	1.65
1/2ZHGS	2.31	1.80
1/2ZLHGS	2.96	1.71
3/4ZLHGS	3.04	1.86

Construction

This nozzle has a two-piece body and a removable insert. Sprays at right angle to pipes. The insert features a patented design with larger flow passages compared to older styles, which makes it less susceptible to clogging.



Typical Applications:

- Chemical Processing
- Cooling Sprays
- Continuous Casting
- Foam Breaking

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #	Capacities at Various Pressures USGPM												Spray Angle		
	3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
ZHGS1	0.055	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.245	0.283	0.32	0.39	--	55°	52°
ZHGS1.5	0.082	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.37	0.42	0.47	0.58	--	65°	57°
ZHGS2	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	0.57	0.63	0.77	54°	59°	60°
ZHGS3	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	0.85	0.95	1.16	50°	53°	60°
ZHGS3.5	0.192	0.248	0.293	0.35	0.43	0.50	0.61	0.70	0.86	0.99	1.11	1.36	48°	58°	61°
ZHGS5	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	60°	75°	70°
ZHGS6	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	67°	72°	70°
ZHGS6.5	0.36	0.46	0.54	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	48°	56°	70°
ZHGS7.5	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	2.12	2.37	2.90	55°	65°	48°
ZHGS8.5	0.47	0.60	0.71	0.85	1.04	1.20	1.47	1.70	2.08	2.40	2.69	3.3	58°	65°	63°
ZHGS10	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	60°	65°	62°
ZHGS14	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	78°	85°	75°
ZHGS15	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	4.2	4.7	5.8	63°	65°	60°
ZHGS18	0.99	1.27	1.51	1.80	2.20	2.55	3.12	3.6	4.4	5.1	5.7	7.0	85°	88°	76°
ZHGS20	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	76°	82°	75°

*ZHGS assemblies use a ZBD body.

ZHGSW Series



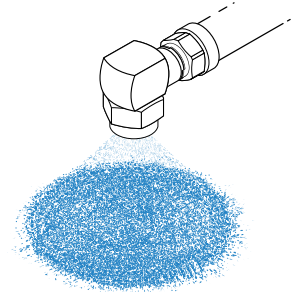
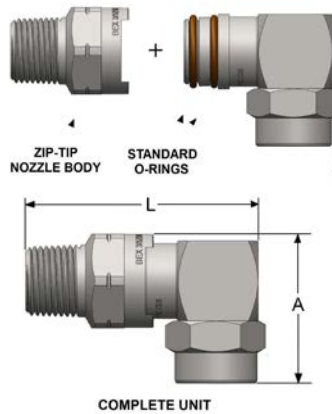
Scan to Order

Zip-Tip + Body



Scan to Order

Zip-Tip Only



Spray Characteristics

A wide angle full cone spray pattern, with uniform distribution throughout the cone.

NOZZLE PIPE SIZE	Length L (in)	Dim. A (in)
1/8 ZHGSW	2.11	1.48
1/4 ZHGSW	2.21	1.60
3/8 ZHGSW	2.24	1.65
1/2 ZHGSW	2.31	1.80
1/2 ZLHGSW	2.96	1.71
3/4 ZLHGSW	3.04	1.86

Construction

This nozzle has a two-piece body and a removable insert. Sprays at right angle to pipes. The insert features a patented design with larger flow passages compared to older styles, which makes it less susceptible to clogging.



Typical Applications

- Chemical Processing
- Cooling Sprays
- Continuous Casting
- Foam Breaking

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #	Capacities at Various Pressures USGPM												Spray Angle		
	3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
ZHGS2.8W	0.153	0.198	0.234	0.280	0.34	0.40	0.48	0.56	0.69	0.79	0.89	1.08	110°	105°	96°
ZHGS4.3W	0.236	0.304	0.36	0.43	0.53	0.61	0.74	0.86	1.05	1.22	1.36	1.67	117°	108°	110°
ZHGS5.6W	0.307	0.40	0.47	0.56	0.69	0.79	0.97	1.12	1.37	1.58	1.77	2.17	117°	110°	100°
ZHGS8W	0.44	0.57	0.67	0.80	0.98	1.13	1.39	1.60	1.96	2.26	2.53	3.10	118°	110°	103°
ZHGS10W	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	118°	108°	102°
ZHGS12W	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	120°	112°	102°
ZHGS14W	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	118°	114°	104°
ZHGS17W	0.93	1.20	1.42	1.70	2.08	2.40	2.94	3.4	4.2	4.8	5.4	6.6	118°	117°	102°
ZHGS20W	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	120°	120°	106°
ZHGS24W	1.31	1.70	2.01	2.40	2.94	3.4	4.2	4.8	5.9	6.8	7.6	9.3	122°	118°	106°
ZHGS27W	1.48	1.91	2.26	2.70	3.3	3.8	4.7	5.4	6.6	7.6	8.5	10.5	122°	120°	107°
ZLHGS30W	1.64	2.12	2.51	3.00	3.7	4.2	5.2	6.0	7.3	8.5	9.5	11.6	120°	118°	110°
ZLHGS35W	1.92	2.47	2.93	3.5	4.3	4.9	6.1	7.0	8.6	9.9	11.1	13.6	122°	118°	108°
ZLHGS40W	2.19	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	122°	119°	104°
ZLHGS45W	2.46	3.2	3.8	4.5	5.5	6.4	7.8	9.0	11.0	12.7	14.2	17.4	141°	118°	108°

*ZHGSW assemblies use a ZBD body. ZLHGSW assemblies use a ZLBD body.

ZHGSQ Series



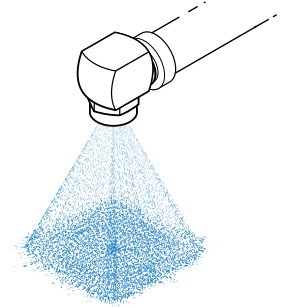
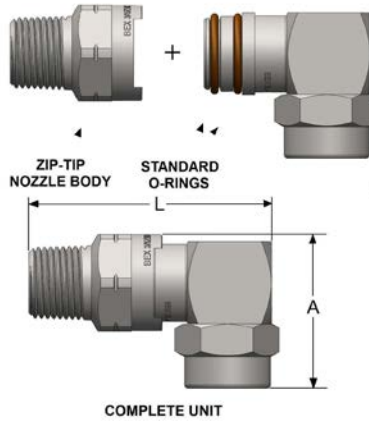
Scan to Order

Zip-Tip + Body



Scan to Order

Zip-Tip Only



Spray Characteristics

An approximately square spray pattern, with uniform distribution throughout the pattern.

NOZZLE PIPE SIZE	Length L (in)	Dim. A (in)
1/8 ZHGSQ	2.11	1.48
1/4 ZHGSQ	2.21	1.60
3/8 ZHGSQ	2.24	1.65
1/2 ZHGSQ	2.31	1.80
1/2 ZLHGSQ	2.96	1.71
3/4 ZLHGSQ	3.04	1.86

Construction

This nozzle has a two-piece body and a removable insert. Sprays at right angle to pipes. The insert features a patented design with larger flow passages compared to older styles, which makes it less susceptible to clogging.



Typical Applications:

- Chemical Processing
- Cooling Sprays
- Continuous Casting

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #	Capacities at Various Pressures USGPM												Spray Angle		
	3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
ZHGS3.6SQ	0.197	0.255	0.301	0.36	0.44	0.51	0.62	0.72	0.88	1.02	1.14	1.39	42°	55°	50°
ZHGS4.8SQ	0.263	0.34	0.40	0.48	0.59	0.68	0.83	0.96	1.18	1.36	1.52	1.86	50°	65°	60°
ZHGS6SQ	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	30°	65°	60°
ZHGS10SQ	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	61°	67°	60°
ZHGS12SQ	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	71°	76°	69°
ZHGS14SQ	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	78°	85°	75°
ZHGS18SQ	0.99	1.27	1.51	1.80	2.20	2.55	3.12	3.6	4.4	5.1	5.7	7.0	70°	75°	68°
ZLHGS29SQ	1.59	2.05	2.43	2.90	3.6	4.1	5.0	5.8	7.1	8.2	9.2	11.2	70°	75°	68°
ZLHGS36SQ	1.97	2.55	3.01	3.6	4.4	5.1	6.2	7.2	8.8	10.2	11.4	13.9	80°	85°	77°

*ZHGSQ assemblies use a ZBD body. ZLHGSQ assemblies use a ZLBD body.

ZHNS Series



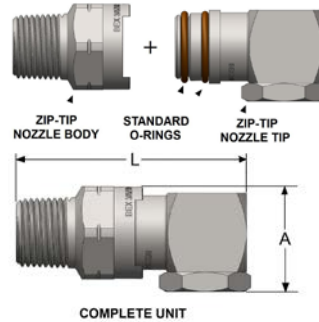
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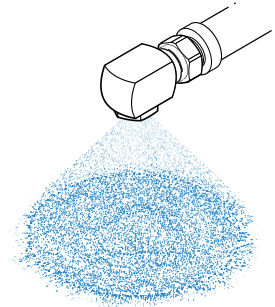
Scan to Order

Zip-Tip + Body

Zip-Tip Only



COMPLETE UNIT



Spray Characteristics

The ZHNS series vaneless nozzle projects a medium to coarse full-cone spray in a direction perpendicular to the nozzle inlet axis. The maximum free passage in this nozzle is substantially larger than most full-cone nozzles due to the 'vaneless' design. This nozzle is suitable for applications where a relatively coarse spray is required, and where standard nozzles are subject to plugging.

Construction

Machined from bar stock and constructed as a two-piece body. Sprays at right angle to pipe.

NOZZLE PIPE SIZE	Length L (in)	Dim. A (in)
1/8 ZHNS	2.11	1.32
1/4 ZHNS	2.21	1.32
3/8 ZHNS	2.24	1.32
1/2 ZHNS	2.31	1.32
1/2 ZLHNS	2.91	2.00
3/4 ZLHNS	2.91	2.00

Typical Applications:

- Washing and Rinsing
- Gas Cooling
- Chemical Processing
- Cooling Sprays
- Humidification
- Sewage Treatment

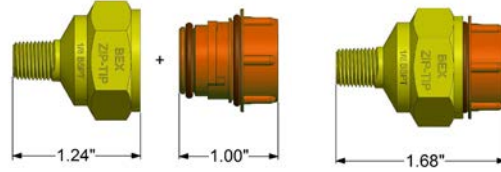
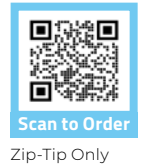
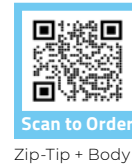
Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

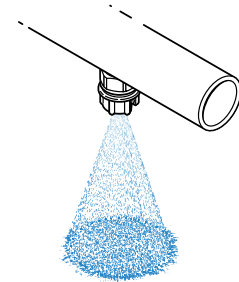
Model #	Capacities at Various Pressures USGPM											Spray Angle		
	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	10 psi	20 psi	40 psi
ZHNS5	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	60°	75°	85°
ZHNS7	0.50	0.59	0.70	0.86	0.99	1.21	1.40	1.71	1.98	2.21	2.71	60°	76°	90°
ZHNS8	0.57	0.67	0.80	0.98	1.13	1.39	1.60	1.96	2.26	2.53	3.10	63°	76°	85°
ZHNS10	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	63°	79°	84°
ZHNS11	0.78	0.92	1.10	1.35	1.56	1.91	2.20	2.69	3.11	3.5	4.3	70°	83°	86°
ZHNS13	0.92	1.09	1.30	1.59	1.84	2.25	2.60	3.2	3.7	4.1	5.0	80°	81°	93°
ZHNS16	1.13	1.34	1.60	1.96	2.26	2.77	3.2	3.9	4.5	5.1	6.2	75°	82°	86°
ZHNS20	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	79°	80°	87°
ZHNS23	1.63	1.92	2.30	2.82	3.3	4.0	4.6	5.6	6.5	7.3	8.9	77°	70°	91°
ZHNS26	1.84	2.18	2.60	3.2	3.7	4.5	5.2	6.4	7.4	8.2	10.1	79°	86°	93°
ZHNS29	2.05	2.43	2.90	3.6	4.1	5.0	5.8	7.1	8.2	9.2	11.2	82°	90°	96°
ZHNS33	2.33	2.76	3.3	4.0	4.7	5.7	6.6	8.1	9.3	10.4	12.8	86°	90°	95°
ZLHNS32	2.26	2.68	3.2	3.9	4.5	5.5	6.4	7.8	9.1	10.1	12.4	87°	87°	94°
ZLHNS40	2.83	3.3	4.0	4.9	5.7	6.9	8.0	9.8	11.3	12.6	15.5	70°	90°	96°
ZLHNS48	3.4	4.0	4.8	5.9	6.8	8.3	9.6	11.8	13.6	15.2	18.6	84°	93°	96°
ZLHNS56	4.0	4.7	5.6	6.9	7.9	9.7	11.2	13.7	15.8	17.7	21.7	87°	94°	96°
ZLHNS64	4.5	5.4	6.4	7.8	9.1	11.1	12.8	15.7	18.1	20.2	24.8	91°	90°	94°
ZLHNS72	5.1	6.0	7.2	8.8	10.2	12.5	14.4	17.6	20.4	22.8	27.9	86°	93°	96°

*ZHNS assemblies use a ZBD body. ZLHNS assemblies use a ZLBD body.

ZS Injection Molded Series



Injection Molded Z-Bodies are available in **1/8, 1/4, 3/8** and **1/2** male thread sizes.



Spray Characteristics

Full cone spray pattern, with uniform distribution throughout the cone. Spray angle is approximately 60° at 10 PSI.

Standard Materials

- L** Polypropylene
- K** PVDF
- KN** Natural PVDF

Refer to page 123 for metal models.

Construction

These nozzles are injection molded and contain a patented insert with larger flow passages than older styles, which are less susceptible to clogging.

Typical Applications:

- ▶ Printed Circuit Board Washing
- ▶ PCB-Etching/Developing
- ▶ Semiconductor Manufacturing
- ▶ Carpet Cleaning
- ▶ Fruit and Vegetable Washing
- ▶ Plating Processes
- ▶ Dust Suppression
- ▶ Acid Spraying
- ▶ Degreasing
- ▶ Coating Applications
- ▶ Metal Washing
- ▶ Chemical Spraying
- ▶ Rinsing Parts

Model #	Max. Free Passage inches	Capacities at Various Pressures USGPM												Spray Angle		
		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
ZS1	0.033	0.055	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.245	0.283	0.32	0.39	--	55°	52°
ZS1.5	0.046	0.082	0.106	0.126	0.150	0.184	0.212	0.260	0.300	0.37	0.42	0.47	0.58	--	65°	57°
ZS2	0.051	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	0.57	0.63	0.77	54°	59°	60°
ZS3	0.051	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	0.85	0.95	1.16	50°	53°	60°
ZS3.5	0.051	0.192	0.248	0.293	0.35	0.43	0.50	0.61	0.70	0.86	0.99	1.11	1.36	48°	58°	61°
ZS5	0.064	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	1.94	58°	68°	62°
ZS6	0.064	0.33	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	67°	72°	70°
ZS6.5	0.091	0.36	0.46	0.54	0.65	0.80	0.92	1.13	1.30	1.59	1.84	2.06	2.52	48°	56°	50°
ZS7.5	0.091	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	2.12	2.37	2.90	55°	65°	48°
ZS8.5	0.091	4.7	6.0	7.1	8.5	10.4	12.0	14.7	17.0	20.8	24.0	26.9	33	58°	65°	63°
ZS10	0.091	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	55°	65°	50°
ZS14	0.091	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	78°	85°	75°
ZS15	0.102	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	4.2	4.7	5.8	63°	65°	60°
ZS18	0.102	0.99	1.27	1.51	1.80	2.20	2.55	3.12	3.6	4.4	5.1	5.7	7.0	85°	88°	76°
ZS20	0.102	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	0.57	0.63	0.77	76°	82°	75°
ZS22	0.114	1.20	1.56	1.84	2.20	2.69	3.11	3.8	4.4	5.4	6.2	7.0	8.5	76°	78°	76°

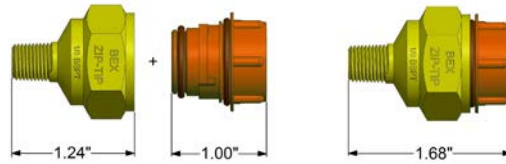
ZSW Injection Molded Series



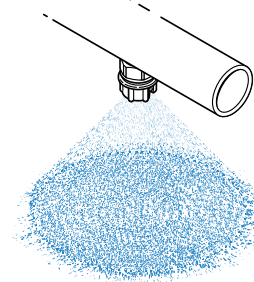
Zip-Tip + Body



Zip-Tip Only



Injection Molded Z-Bodies are available in **1/8, 1/4, 3/8** and **1/2** male thread sizes.



Spray Characteristics

A wide angle full cone spray pattern, with uniform distribution throughout the cone. Spray angle is approximately 110°-120° at 10 PSI.

Construction

These nozzles are injection molded and contain a patented insert with larger flow passages than older styles, which are less susceptible to clogging.

Typical Applications:

- ▶ Printed Circuit Board Washing
- ▶ PCB-Etching/Developing
- ▶ Semiconductor Manufacturing
- ▶ Carpet Cleaning
- ▶ Fruit and Vegetable Washing
- ▶ Plating Processes
- ▶ Dust Suppression
- ▶ Acid Spraying
- ▶ Degreasing
- ▶ Coating Applications
- ▶ Metal Washing
- ▶ Chemical Spraying
- ▶ Rinsing Parts

Standard Materials

- L** Polypropylene
- K** PVDF
- KN** Natural PVDF

Refer to page 124 for metal models.

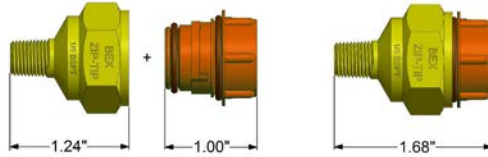
Model #	Max. Free Passage inches	Capacities at Various Pressures USGPM												Spray Angle		
		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
ZS2.8W	0.051	0.153	0.198	0.234	0.280	0.34	0.40	0.48	0.56	0.69	0.79	0.89	1.08	110°	105°	96°
ZS4.3W	0.051	0.236	0.304	0.36	0.43	0.53	0.61	0.74	0.86	1.05	1.22	1.36	1.67	117°	108°	100°
ZS5.6W	0.064	0.252	0.33	0.38	0.46	0.56	0.65	0.80	0.92	1.13	1.30	1.45	1.78	117°	110°	100°
ZS8W	0.081	0.44	0.57	0.67	0.80	0.98	1.13	1.39	1.60	1.96	2.26	2.53	3.10	118°	110°	103°
ZS10W	0.091	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	118°	108°	102°
ZS12W	0.091	0.66	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	120°	112°	102°
ZS14W	0.091	0.77	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	118°	114°	104°
ZS17W	0.102	0.93	1.20	1.42	1.70	2.08	2.40	2.94	3.4	4.2	4.8	5.4	6.6	118°	117°	102°
ZS20W	0.102	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	7.7	120°	120°	106°
ZS24W	0.102	1.31	1.70	2.01	2.40	2.94	3.4	4.2	4.8	5.9	6.8	7.6	9.3	122°	118°	106°

ZSQ Injection Molded Series

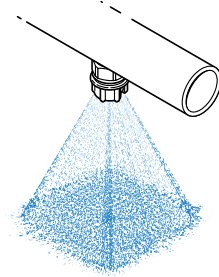
Scan to Order
Zip-Tip + Body

Scan to Order

Zip-Tip Only



Injection Molded Z-Bodies are available in **1/8, 1/4, 3/8** and **1/2** male thread sizes.



Spray Characteristics

An approximately square spray pattern, with uniform distribution throughout the pattern. Spray Angle is approximately 60° at 10 PSI.

Construction

These nozzles are injection molded and contain a patented insert with larger flow passages than older styles, which are less susceptible to clogging.

Typical Applications:

- ▶ Chemical Processing
- ▶ Cooling Sprays
- ▶ Continuous Casting

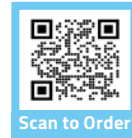
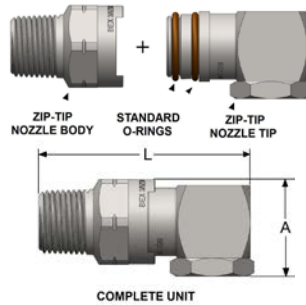
Standard Materials

- L** Polypropylene
- K** PVDF
- KN** Natural PVDF

Refer to page 125 for metal models.

Model #	Max. Free Passage inches	Capacities at Various Pressures USGPM											Spray Angle		
		5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi	7 psi	20 psi	80 psi
ZS3.6SQ	0.057	0.255	0.301	0.36	0.44	0.51	0.62	0.72	0.88	1.02	1.14	1.39	42°	55°	50°
ZS4.8SQ	0.064	0.34	0.40	0.48	0.59	0.68	0.83	0.96	1.18	1.36	1.52	1.86	50°	65°	60°
ZS6SQ	0.081	0.42	0.50	0.60	0.73	0.85	1.04	1.20	1.47	1.70	1.90	2.32	30°	65°	60°
ZS10SQ	0.091	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	3.9	61°	67°	60°
ZS12SQ	0.091	0.85	1.00	1.20	1.47	1.70	2.08	2.40	2.94	3.4	3.8	4.6	71°	76°	69°
ZS14SQ	0.091	0.99	1.17	1.40	1.71	1.98	2.42	2.80	3.4	4.0	4.4	5.4	78°	85°	75°
ZS18SQ	0.091	1.27	1.51	1.80	2.20	2.55	3.12	3.6	4.4	5.1	5.7	7.0	85°	88°	76°

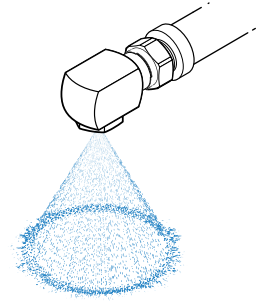
ZH Series



Zip-Tip + Body



Zip-Tip Only



Spray Characteristics

A hollow cone spray pattern. The standard included angle of the spray cone is 70° at 10 PSI. At low pressures, medium sized, uniform droplets are produced. At higher pressures finer droplets are produced.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Construction

This nozzle has a two-piece body. Sprays at right angle to pipes.

NOZZLE PIPE SIZE	Length L (in)	Dim. A (in)
1/8ZH	2.11	1.48
1/4ZH	2.21	1.60
3/8ZH	2.24	1.65
1/2ZH	2.31	1.80
1/2ZLH	2.96	1.71
3/4ZLH	3.04	1.86

All dimensions are in inches

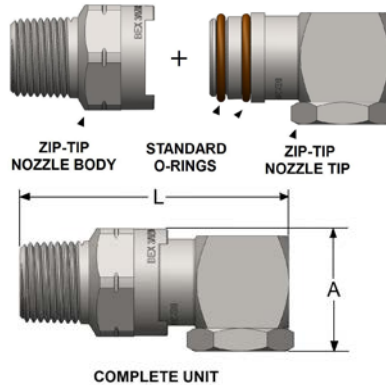
Typical Applications:

- ▶ Air and Gas Washing
- ▶ Aerating, Rinsing and Humidifying
- ▶ Industrial Washers and Spray Ponds
- ▶ Cooling Tunnels
- ▶ Roof Cooling
- ▶ Degreasing
- ▶ Dust Suppression
- ▶ Metal Treatment

Model #	Max. Free Passage inches	Capacities at Various Pressures USGPM											Spray Angle			
		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	10 psi	20 psi	40 psi	80 psi
ZH0.5	0.028	0.027	0.035	0.042	0.050	0.061	0.071	0.087	0.100	0.122	0.141	0.158	--	--	40°	45°
ZH1	0.060	0.055	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.245	0.283	0.32	--	61°	74°	69°
ZH2	0.085	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	0.57	0.63	65°	65°	72°	76°
ZH3	0.111	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	0.85	0.95	70°	70°	72°	74°
ZH5	0.136	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	70°	77°	80°	83°
ZH7.5	0.166	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	2.12	2.37	70°	70°	74°	75°
ZH10	0.170	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	70°	74°	76°	80°
ZH12.5	0.177	0.68	0.88	1.05	1.25	1.53	1.77	2.17	2.50	3.06	3.5	4.0	70°	82°	83°	83°
ZH15	0.213	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	4.2	4.7	70°	73°	75°	75°
ZH20	0.250	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	70°	73°	75°	75°
ZH25	0.279	1.37	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	70°	72°	73°	73°
ZH30	0.292	16.4	21.2	25.1	30.0	37	42	52	60	73	85	95	70°	70°	73°	72°
ZLH40	0.369	21.9	28.3	33	40	49	57	69	80	98	113	126	70°	75°	75°	75°
ZLH50	0.393	2.74	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	70°	70°	71°	73°
ZLH60	0.421	3.3	4.2	5.0	6.0	7.3	8.5	10.4	12.0	14.7	17.0	19.0	70°	70°	71°	71°
ZLH70	0.469	3.8	4.9	5.9	7.0	8.6	9.9	12.1	14.0	17.1	19.8	22.1	70°	74°	76°	76°
ZLH80	0.484	4.4	5.7	6.7	8.0	9.8	11.3	13.9	16.0	19.6	22.6	25.3	70°	73°	75°	76°
ZLH90	0.500	4.9	6.4	7.5	9.0	11.0	12.7	15.6	18.0	22.0	25.5	28.5	70°	70°	71°	73°
ZLH100	0.507	5.5	7.1	8.4	10.0	12.2	14.1	17.3	20.0	24.5	28.3	32	70°	73°	76°	78°
ZLH110	0.575	6.0	7.8	9.2	11.0	13.5	15.6	19.1	22.0	26.9	31.1	35	70°	72°	75°	72°
ZLH120	0.568	6.6	8.5	10.0	12.0	14.7	17.0	20.8	24.0	29.4	34	38	70°	70°	71°	71°

*ZH assemblies use a ZBD body. ZLH assemblies use a ZLBD body.

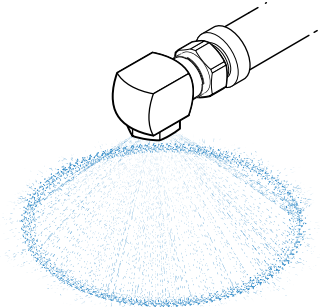
ZHW Series



Zip-Tip + Body



Zip-Tip Only



Spray Characteristics

A wide angle hollow cone spray pattern. The standard included angle of the spray cone is 120° at 10 PSI. At low pressures, medium sized, uniform droplets are produced. At higher pressures finer droplets are produced.

Construction

This nozzle has a two-piece body. Sprays at right angle to pipes.

Typical Applications:

- Water Cooling
- Roof Cooling
- Air Cooling
- Air Washing

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

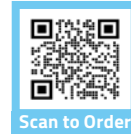
NOZZLE PIPE SIZE	Length L (in)	Dim. A (in)
1/8ZHW	2.11	1.48
1/4ZHW	2.21	1.60
3/8ZHW	2.24	1.65
1/2ZHW	2.31	1.80
1/2ZLHW	2.96	1.71
3/4ZLHW	3.04	1.86

All dimensions are in inches

Model #	Max. Free Passage inches	Capacities at Various Pressures USGPM											Spray Angle			
		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	10 psi	20 psi	40 psi	80 psi
ZH1W	0.055	0.055	0.071	0.084	0.100	0.122	0.141	0.173	0.200	0.245	0.283	0.32	120°	110°	102°	90°
ZH2W	0.077	0.110	0.141	0.167	0.200	0.245	0.283	0.35	0.40	0.49	0.57	0.63	120°	110°	105°	92°
ZH3W	0.093	0.164	0.212	0.251	0.300	0.37	0.42	0.52	0.60	0.73	0.85	0.95	120°	114°	104°	90°
ZH5W	0.109	0.274	0.35	0.42	0.50	0.61	0.71	0.87	1.00	1.22	1.41	1.58	120°	113°	107°	98°
ZH7.5W	0.158	0.41	0.53	0.63	0.75	0.92	1.06	1.30	1.50	1.84	2.12	2.37	120°	115°	110°	92°
ZH10W	0.170	0.55	0.71	0.84	1.00	1.22	1.41	1.73	2.00	2.45	2.83	3.2	120°	115°	110°	93°
ZH12.5W	0.188	0.68	0.88	1.05	1.25	1.53	1.77	2.17	2.50	3.06	3.5	4.0	120°	118°	110°	94°
ZH15W	0.201	0.82	1.06	1.26	1.50	1.84	2.12	2.60	3.00	3.7	4.2	4.7	120°	115°	108°	92°
ZH20W	0.234	1.10	1.41	1.67	2.00	2.45	2.83	3.5	4.0	4.9	5.7	6.3	120°	118°	116°	110°
ZH25W	0.265	1.37	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	120°	117°	115°	110°
ZH30W	0.280	1.64	2.12	2.51	3.00	3.7	4.2	5.2	6.0	7.3	8.5	9.5	120°	115°	110°	102°
ZLH50W	0.358	2.74	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	120°	115°	108°	103°
ZLH80W	0.468	4.4	5.7	6.7	8.0	9.8	11.3	13.9	16.0	19.6	22.6	25.3	120°	117°	110°	103°

*ZHW assemblies use a ZBD body. ZLHW assemblies use a ZLBD body.

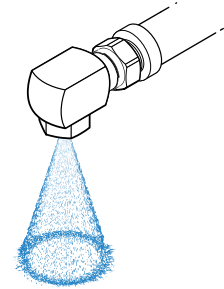
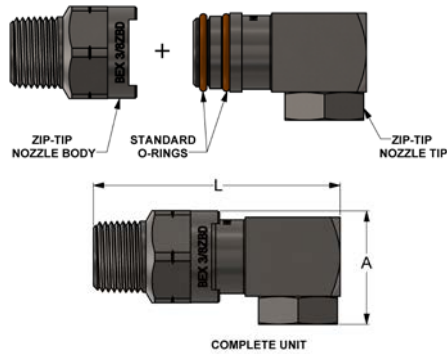
ZPH Series



Zip-Tip + Body



Zip-Tip Only



Spray Characteristics

Designed specifically for phosphating applications, this hollow cone spray pattern features a large droplet size and low impingement. This results in a tighter and more consistent phosphate crystalline structure.

NOZZLE PIPE SIZE	Length 'L' (in)	Dim. 'A' (in)
1/8 ZPH Body	2.25	0.875
1/4 ZPH Body	2.35	0.875
3/8 ZPH Body	2.35	0.875
1/2 ZPH Body	2.43	0.875

Construction

This nozzle has a two-piece body. Sprays at right angle to pipes.



Typical Applications:

- Phosphating
- Rinsing
- Water Cooling
- Metal Treatment
- Industrial Washers

Standard Materials

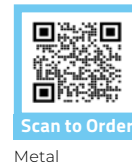
- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Model #	Orifice Diameter		Capacities at Various Pressures USGPM										Spray Angle		
	Body	Cap	5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	10 psi	15 psi	30 psi
ZPH23	0.312	0.220	1.63	1.92	2.30	2.82	3.3	4.0	4.6	5.6	6.5	7.3	45°	53°	60°
ZPH28	0.312	0.231	1.98	2.34	2.80	3.4	4.0	4.8	5.6	6.9	7.9	8.9	40°	43°	48°
ZPH51	0.375	0.344	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	40°	50°	50°
ZPH53	0.375	0.375	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	70°	70°	70°

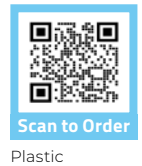
*ZPH assemblies use a ZBD body.

Zip-Tip Bodies, Adapters And Accessories

ZBD, ZLBD Adapter



Metal



Plastic



Metal ZBD and ZLBD variations.



Injection Molded ZBD.

Description

The standard adapter included in all zip-tip assemblies. It is threaded directly into a pipe, allowing a Zip-Tip nozzle to then be locked in place.

There are two sizes available for brass and stainless models. ZBD bodies are compatible with Z nozzles. ZLBD bodies are slightly larger, and are compatible with larger ZL nozzles.

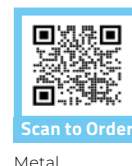
Injection molded Zip-Tips use a standard ZBD which fits all injection molded tips.

Standard Materials

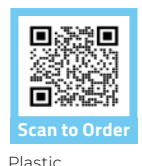
- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel
- L** Polypropylene
- K** PVDF
- KN** Nat. PVDF

Thread Size	Metal ZBD	METAL ZLBD	Injection Mold ZBD
1/8"	✓		✓
1/4"	✓		✓
3/8"	✓	✓	✓
1/2"	✓	✓	✓
3/4"		✓	

ZTA, ZLTA Adapter



Metal



Plastic



Description

Used where compatibility between a threaded nozzle and a ZBD or a ZLBD is needed. Features female threaded outlet sizes in **1/8, 1/4, 3/8** and **1/2**.

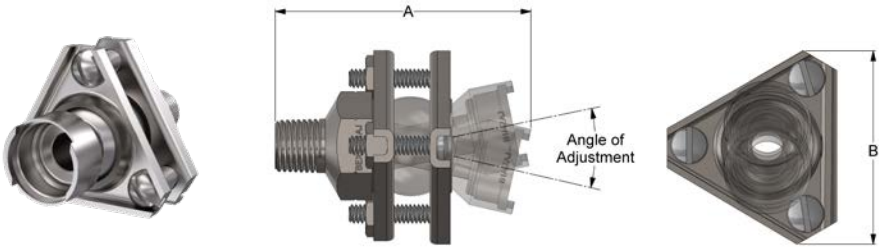
Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel
- L** Polypropylene*
- K** PVDF*

*ZTA only



ZAJ, ZLAJ Adapter



Description

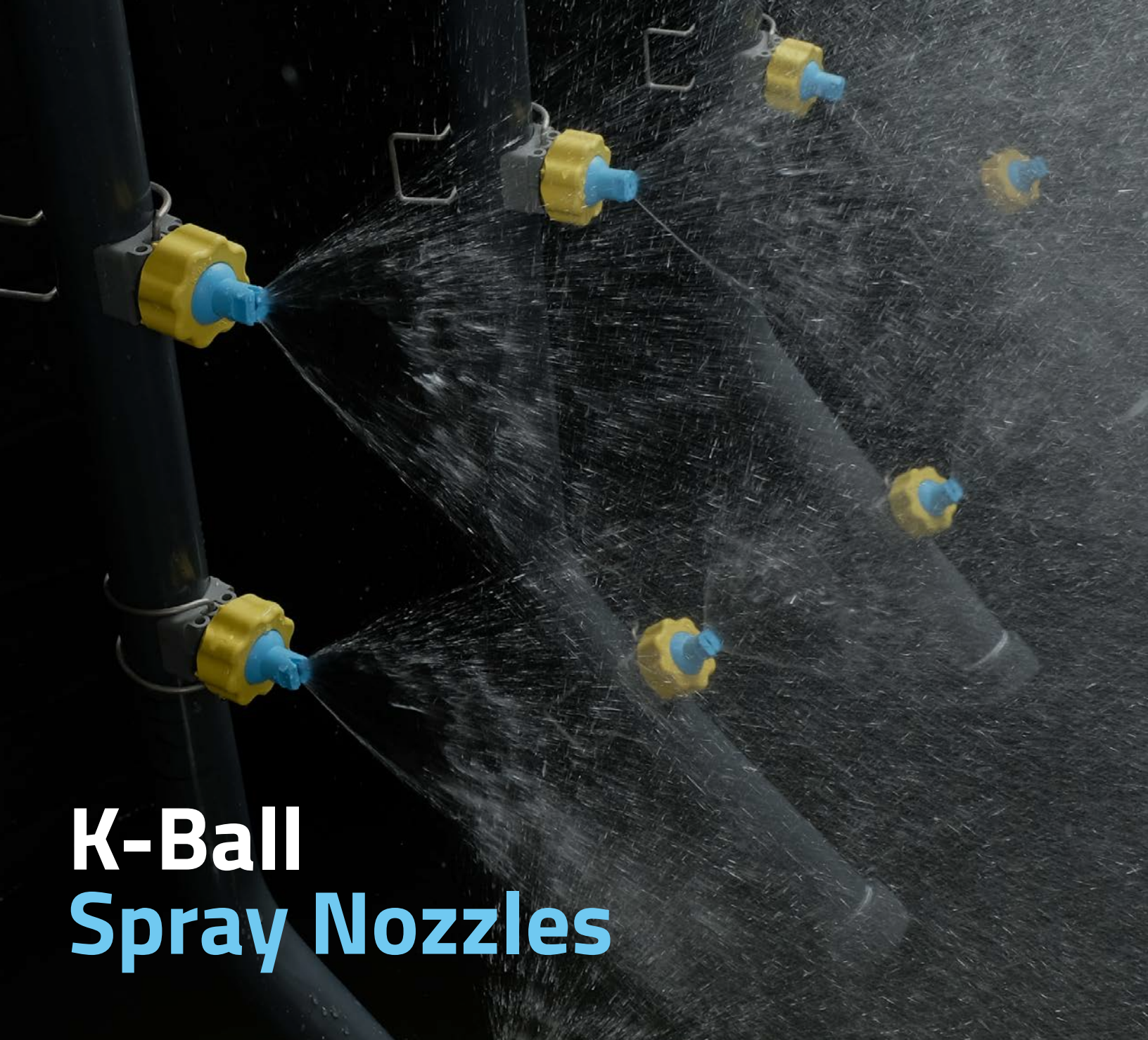
ZAJ and ZLAJ adapters are adjustable joints with a zip-tip outlet. These can be used to move zip-tip nozzles into a desired position without affecting the

surrounding piping. They can also be used as an adjustable union in piping systems. The recommended maximum pressure is 120 PSI.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Dimensions (inches)					
Model Number	Inlet Pipe Size	Outlet Z-Body Size	Dim. 'A' (inches)	Dim. 'B' (inches)	Maximum Angle of Adjustment
1/8 ZAJ	1/8 male	ZBD	2.38	1.96	60°
1/4 ZAJ	1/4 male	ZBD	2.44	1.96	60°
3/8 ZAJ	3/8 male	ZBD	2.44	1.96	60°
1/2 ZLAJ	1/2 male	ZLBD	2.81	2.92	45°

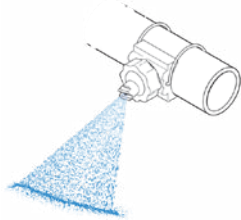


K-Ball Spray Nozzles

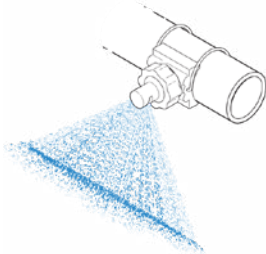
Overview143

Models

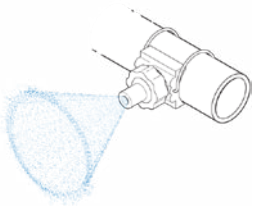
BF Series144
BFL Series.....145
BPH Series.....146
K-Plug.....146



BF Series



BFL Series



BPH Series

K-Ball Clip-On Spray Nozzles & Assemblies

The BEX adjustable K-Ball assemblies are designed for use in multi-stage washers and parts washing machines. They are easy to install by drilling a 9/16" hole into a 1", 1 1/4", 1 1/2", or 2" diameter pipe and attaching the assembly to the pipe with a clip. The spray ball can be easily adjusted or replaced by loosening or tightening the cap, without the need for any tools.

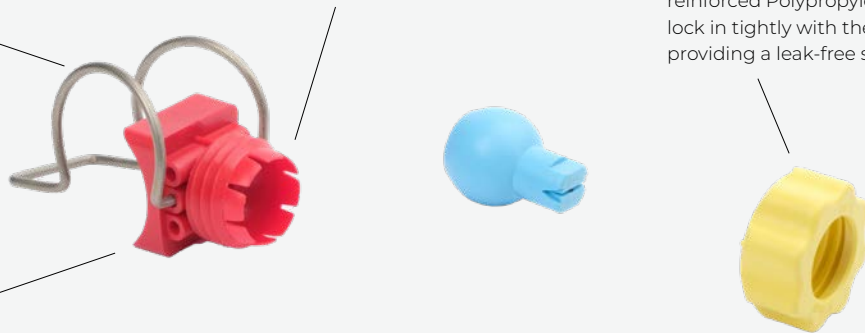


Heavy-duty stainless steel spring clips allow operating pressures up to 100 PSI. A dual-clip system is also available for pressures up to 150 PSI.

Optional **"finger" system** on the K-Body prevents movement of the spray ball while the cap is being tightened.

K-Ball cap is designed with strong threads made of glass-reinforced Polypropylene, which lock in tightly with the K-body, providing a leak-free spray.

K-Ball bodies fit securely onto the pipe. Available in glass-reinforced Polypropylene for temperatures up to 175°F, and PVDF for temperatures up to 275°F. Includes one standard KOR O-ring for sealing the 9/16" connection hole to the pipe. A KCOR O-ring is also available for sealing 21/32" connection holes.



With a variety of interchangeable spray balls, the K-ball system can support a wide range of spray patterns, flow-rates, and angles.

BF Balls



Flat fan patterns which taper at the edges to permit overlapping of sprays.

Available in angles ranging from 0° to 110°, & flow rates from 1 to 15 USGPM at 40 PSI.

BFL Balls



A wide, flat shaped spray with low impact. The spray is deflected 75° down from the centerline of the nozzle.

Available in 6 capacity options

BPH Balls



A hollow cone pattern with low impact for phosphating applications.

Available in 4 capacity options

K-Plug

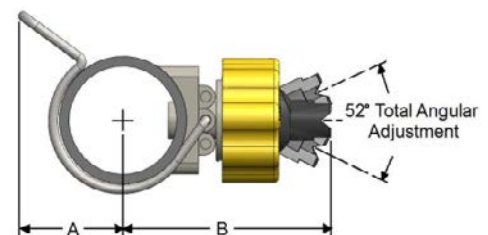


Completely shut off the water flow through a clip-on opening.

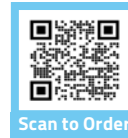
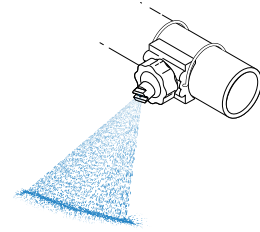
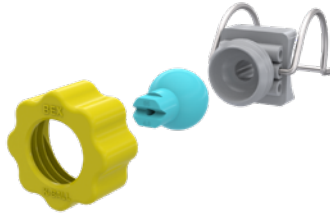
K-Ball bodies are compatible with 4 standard pipe sizes. Each is color coded to indicate the pipe size it will fit, and whether the body features "fingers".

Pipe Sizes	Standard Body	Body with Fingers
1"	1K (white)	1KF (green)
1-1¼"	1.2K (grey)	1.2KF (yellow)
1-1½"	1.5K (black)	1.5KF (red)
2"	2K (tan)	2KF (blue)

Pipe Size	Dim A.	Dim B.
1"	1¾ (45 mm)	2⅞ (73 mm)
1¼"	2 (51 mm)	3 (77 mm)
1½"	2⅛ (54 mm)	3⅞ (80 mm)
2"	2⅜ (61 mm)	3½ (89 mm)



BF Spray Ball

Scan to Order
Full AssemblyScan to Order
Ball Only

Spray Characteristics

The BF series spray nozzles produce a flat, fan-shaped spray pattern with spray angles ranging from 15° to 110°. The spray density tapers off towards the edges of the pattern to allow for overlapping while maintaining uniform spray density. These nozzles are suitable for various washing and spraying applications.

Construction

Made of corrosion-resistant plastic and equipped with a heavy-duty stainless steel spring clip that can withstand pressures up to 100 PSI at 175° F.

Typical Applications:

- ▶ Parts Cleaning
- ▶ Pretreatment
- ▶ Spray Washing & Rinsing

Standard Materials

- L** Polypropylene
- K** PVDF

**Do not mix different materials in the same K-Ball Assembly*

Model #	Ball Color	Equivalent Orifice Diameter (inches)	Capacities at Various Pressures USGPM														Spray Angle	
			5 psi	7 psi	10 psi	15 psi	20 psi	25 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	20 psi	40 psi	
BF11060	Blue	0.183	2.12	2.51	3.00	3.7	4.2	4.7	5.2	6.0	6.7	7.3	8.5	9.5	11.6	107°	110°	
BF9530	Purple	0.129	1.06	1.26	1.50	1.84	2.12	2.37	2.60	3.00	3.4	3.7	4.2	4.7	5.8	63°	95°	
BF9540	Green	0.149	1.41	1.67	2.00	2.45	2.83	3.2	3.5	4.0	4.5	4.9	5.7	6.3	7.7	63°	95°	
BF9550	Yellow	0.167	1.77	2.09	2.50	3.06	3.5	4.0	4.3	5.0	5.6	6.1	7.1	7.9	9.7	63°	95°	
BF9560	Blue	0.183	2.12	2.51	3.00	3.7	4.2	4.7	5.2	6.0	6.7	7.3	8.5	9.5	11.6	63°	95°	
BF8010	Black	0.074	0.35	0.42	0.50	0.61	0.71	0.79	0.87	1.00	1.12	1.22	1.41	1.58	1.94	75°	80°	
BF8020	Lt. Blue	0.105	0.71	0.84	1.00	1.22	1.41	1.58	1.73	2.00	2.24	2.45	2.83	3.2	3.9	63°	80°	
BF8030	Purple	0.129	1.06	1.26	1.50	1.84	2.12	2.37	2.60	3.00	3.4	3.7	4.2	4.7	5.8	63°	80°	
BF8040	Green	0.149	1.41	1.67	2.00	2.45	2.83	3.2	3.5	4.0	4.5	4.9	5.7	6.3	7.7	76°	80°	
BF8050	Yellow	0.167	1.77	2.09	2.50	3.06	3.5	4.0	4.3	5.0	5.6	6.1	7.1	7.9	9.7	77°	80°	
BF8060	Blue	0.183	2.12	2.51	3.00	3.7	4.2	4.7	5.2	6.0	6.7	7.3	8.5	9.5	11.6	77°	80°	
BF8070	Red	0.197	2.47	2.93	3.5	4.3	4.9	5.5	6.1	7.0	7.8	8.6	9.9	11.1	13.6	78°	80°	
BF80100	Brown	0.238	3.5	4.2	5.0	6.1	7.1	7.9	8.7	10.0	11.2	12.2	14.1	15.8	19.4	75°	80°	
BF6520	Lt. Blue	0.105	0.71	0.84	1.00	1.22	1.41	1.58	1.73	2.00	2.24	2.45	2.83	3.2	3.9	63°	65°	
BF6530	Purple	0.129	1.06	1.26	1.50	1.84	2.12	2.37	2.60	3.00	3.4	3.7	4.2	4.7	5.8	63°	65°	
BF6540	Green	0.149	1.41	1.67	2.00	2.45	2.83	3.2	3.5	4.0	4.5	4.9	5.7	6.3	7.7	63°	65°	
BF6550	Yellow	0.167	1.77	2.09	2.50	3.06	3.5	4.0	4.3	5.0	5.6	6.1	7.1	7.9	9.7	63°	65°	
BF6560	Blue	0.183	2.12	2.51	3.00	3.7	4.2	4.7	5.2	6.0	6.7	7.3	8.5	9.5	11.6	63°	65°	
BF6570	Red	0.197	2.47	2.93	3.5	4.3	4.9	5.5	6.1	7.0	7.8	8.6	9.9	11.1	13.6	63°	65°	
BF65100	Brown	0.238	3.5	4.2	5.0	6.1	7.1	7.9	8.7	10.0	11.2	12.2	14.1	15.8	19.4	58°	65°	
BF5020	Lt. Blue	0.105	0.71	0.84	1.00	1.22	1.41	1.58	1.73	2.00	2.24	2.45	2.83	3.2	3.9	63°	50°	
BF5030	Purple	0.129	1.06	1.26	1.50	1.84	2.12	2.37	2.60	3.00	3.4	3.7	4.2	4.7	5.8	63°	50°	
BF5040	Green	0.149	1.41	1.67	2.00	2.45	2.83	3.2	3.5	4.0	4.5	4.9	5.7	6.3	7.7	43°	50°	
BF5050	Yellow	0.167	1.77	2.09	2.50	3.06	3.5	4.0	4.3	5.0	5.6	6.1	7.1	7.9	9.7	43°	50°	
BF5060	Blue	0.183	2.12	2.51	3.00	3.7	4.2	4.7	5.2	6.0	6.7	7.3	8.5	9.5	11.6	43°	50°	
BF5070	Red	0.197	2.47	2.93	3.5	4.3	4.9	5.5	6.1	7.0	7.8	8.6	9.9	11.1	13.6	43°	50°	
BF50100	Brown	0.238	3.5	4.2	5.0	6.1	7.1	7.9	8.7	10.0	11.2	12.2	14.1	15.8	19.4	44°	50°	
BF4040	Green	0.149	1.41	1.67	2.00	2.45	2.83	3.2	3.5	4.0	4.5	4.9	5.7	6.3	7.7	33°	40°	
BF4050	Yellow	0.167	1.77	2.09	2.50	3.06	3.5	4.0	4.3	5.0	5.6	6.1	7.1	7.9	9.7	35°	40°	

Continues on Next Page ▶

BF Spray Ball Continued

Model #	Ball Color	Equivalent Orifice Diameter (inches)	Capacities at Various Pressures USGPM													Spray Angle	
			5 psi	7 psi	10 psi	15 psi	20 psi	25 psi	30 psi	40 psi	50 psi	60 psi	80 psi	100 psi	150 psi	20 psi	40 psi
BF4060	Blue	0.183	2.12	2.51	3.00	3.7	4.2	4.7	5.2	6.0	6.7	7.3	8.5	9.5	11.6	37°	40°
BF4070	Red	0.197	2.47	2.93	3.5	4.3	4.9	5.5	6.1	7.0	7.8	8.6	9.9	11.1	13.6	35°	40°
BF40100	Brown	0.238	3.5	4.2	5.0	6.1	7.1	7.9	8.7	10.0	11.2	12.2	14.1	15.8	19.4	33°	40°
BF2540	Green	0.149	1.41	1.67	2.00	2.45	2.83	3.2	3.5	4.0	4.5	4.9	5.7	6.3	7.7	22°	25°
BF2550	Yellow	0.167	1.77	2.09	2.50	3.06	3.5	4.0	4.3	5.0	5.6	6.1	7.1	7.9	9.7	20°	25°
BF2560	Blue	0.183	2.12	2.51	3.00	3.7	4.2	4.7	5.2	6.0	6.7	7.3	8.5	9.5	11.6	18°	25°
BF2570	Red	0.197	2.47	2.93	3.5	4.3	4.9	5.5	6.1	7.0	7.8	8.6	9.9	11.1	13.6	19°	25°
BF25100	Brown	0.236	3.5	4.2	5.0	6.1	7.1	7.9	8.7	10.0	11.2	12.2	14.1	15.8	19.4	21°	25°
BF15100	Brown	0.236	3.5	4.2	5.0	6.1	7.1	7.9	8.7	10.0	11.2	12.2	14.1	15.8	19.4	13°	15°
BF15120	Black	0.258	4.2	5.0	6.0	7.3	8.5	9.5	10.4	12.0	13.4	14.7	17.0	19.0	23.2	12°	15°
BF15150	Black	0.289	5.3	6.3	7.5	9.2	10.6	11.9	13.0	15.0	16.8	18.4	21.2	23.7	29.0	12°	15°

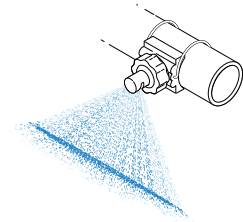
BFL Spray Ball



Scan to Order
Full Assembly



Scan to Order
Ball Only



Spray Characteristics

The BFL ball produces a wide, flat shaped spray with low impact. The spray is deflected 75° from the centerline of the nozzle.

Construction

Made of corrosion-resistant plastic and equipped with a heavy-duty stainless steel spring clip that can withstand pressures up to 100 PSI at 175° F.

Typical Applications:

- ▶ Rinsing and Cooling
- ▶ Dishwashing
- ▶ Fertilizer Spraying
- ▶ Metal Wash

Standard Materials

L Polypropylene

K PVDF

**Do not mix different materials in the same K-Ball Assembly*

Model #	Equiv. Orif. Dia. (inches)	Capacities at Various Pressures USGPM										Spray Angle	
		3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	25 psi	30 psi	40 psi	50 psi	3 psi	5 psi
BFL5	0.076	1.04	0.35	0.42	0.50	0.61	0.71	0.79	0.87	1.00	1.12	114°	130°
BFL10	0.110	0.55	0.71	0.84	1.00	1.22	1.41	1.58	1.73	2.00	2.24	134°	146°
BFL18	0.149	0.99	1.27	1.51	1.80	2.20	2.55	2.85	3.12	3.6	4.0	130°	142°
BFL24	0.167	1.31	1.70	2.01	2.40	2.94	3.4	3.8	4.2	4.8	5.4	121°	136°
BFL30	0.183	1.64	2.12	2.51	3.00	3.7	4.2	4.7	5.2	6.0	6.7	120°	133°
BFL40	0.218	2.19	2.83	3.3	4.0	4.9	5.7	6.3	6.9	8.0	8.9	130°	144°

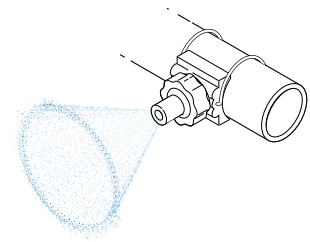
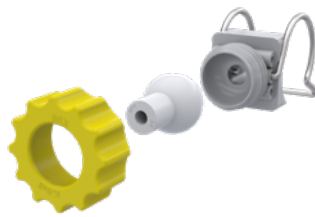
BPH Spray Ball



Scan to Order
Full Assembly



Scan to Order
Ball Only



Spray Characteristics

The BPH ball is specifically designed for phosphating applications. It produces a hollow cone spray with large droplets and low impingement, resulting in a tighter and more consistent phosphate crystalline structure. This spray pattern minimizes the misting of phosphate spray, reducing pre-coating, streaking, and carryover to adjacent stages.

Construction

Made of corrosion-resistant plastic and equipped with a heavy-duty stainless steel spring clip that can withstand pressures up to 100 PSI at 175° F.

Standard Materials

- L** Polypropylene
- K** PVDF

**Do not mix different materials in the same K-Ball Assembly*

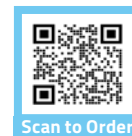
Typical Applications:

Ideal for a variety of phosphating applications, as well as some standard hollow cone applications including:

- ▶ Rinsing
- ▶ Water Cooling
- ▶ Metal Treatment
- ▶ Industrial Washers

Model #	Ball Color	Maximum Free Passage (inches)	Capacities at Various Pressures USGPM										Spray Angle			
			3 psi	5 psi	7 psi	10 psi	15 psi	20 psi	25 psi	30 psi	40 psi	5 psi	7 psi	10 psi	20 psi	
BPH23	Green	0.191	1.26	1.63	1.92	2.30	2.82	3.3	3.6	4.0	4.6	45°	46°	48°	49°	
BPH28	White	0.191	5.8	1.98	2.34	2.80	3.4	4.0	4.4	4.8	5.6	44°	52°	53°	55°	
BPH51	Grey	0.280	2.74	3.5	4.2	5.0	6.1	7.1	7.9	8.7	10.0	37°	40°	42°	48°	
BPH53	Black	0.280	2.74	3.5	4.2	5.0	6.1	7.1	7.9	8.7	10.0	62°	70°	71°	73°	

K-Plug Shut Off



Scan to Order
Full Assembly



Scan to Order
Component Only



Spray Characteristics

The K-PLUG nozzle ball is used in place of a nozzle ball to completely shut off the flow through the nozzle.

Construction

Made of corrosion-resistant plastic and a stainless steel clip. Heavy-duty spring clip good to 100 PSI at 175° F.

Standard Materials

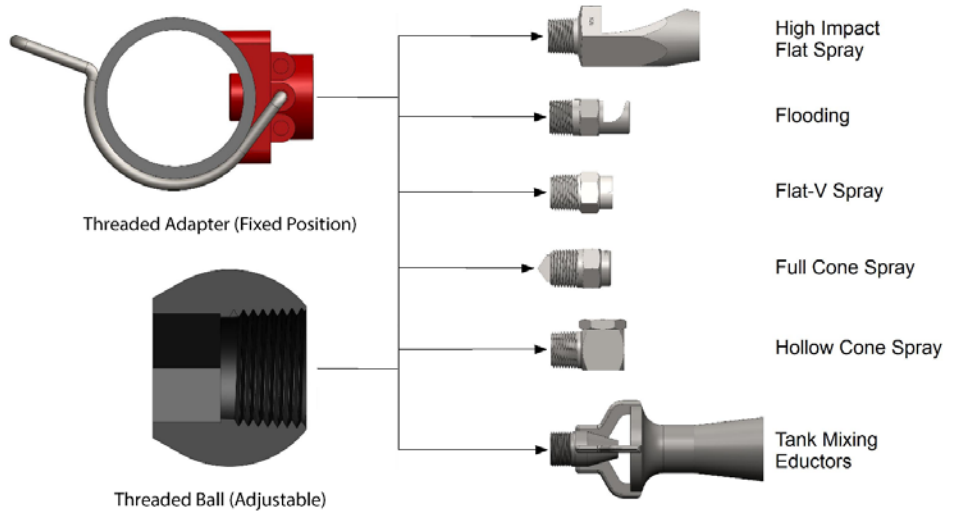
- L** Polypropylene
- K** PVDF

**Do not mix different materials in the same K-Ball Assembly*

K-Ball Clip-On Adapters

BEX offers a wide range of adapters, so that practically any of our nozzles can be interchangeable across a variety of connection styles.

The BEX threaded body and threaded ball adapters can connect most threaded nozzles or eductors to a pipe, using the same installation method as the K-Ball Clip On system. This system supports products with 3/8" or 1/2" thread sizes.



Clip-On Threaded Adapter



Scan to Order

Allows for quick mounting and removal of threaded nozzles. The Clip-On Threaded Adapter is clipped over a 9/16" hole in a pipe, and does not require a K-Body or

K-Cap. The nozzle is directly tightened into the adapter, meaning it maintains a fixed position.

ADAPTER THREAD	MODEL NUMBER			
	1" Pipe	1 1/4" Pipe	1 1/2" Pipe	2" Pipe
1/8" NPT Female	1K.1	1.2K.1	1.5K.1	2K.1
1/4" NPT Female	1K.2	1.2K.2	1.5K.2	2K.2
3/8" NPT Female	1K.3	1.2K.3	1.5K.3	2K.3



Threaded Ball Adapter



Scan to Order

The Threaded Ball is used as part of a K-Ball Clip On assembly, allowing BEX threaded nozzles or eductors in compatible sizes to work in a Clip-On assembly.

Just like a K-Ball Clip-On assembly, the ball can be adjusted by tightening or loosening the K-Cap, allowing for adjustable positioning.

Model #	Description	Angular Adjustmen
1B	1/8" NPT Female Thread	52°
2B	1/4" NPT Female Thread	52°
3B	3/8" NPT Female Thread	52°
5B	1/2" NPT Female Thread	34°



Threaded Body

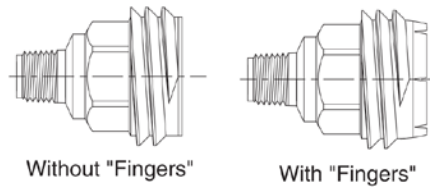


Scan to Order

The BEX threaded K-Ball® body provides the ability to adjust the direction of the spray pattern by simply twisting the K-Ball® cap, repositioning the nozzle, and tightening the cap.

The same 52° nozzle angle of adjustability exists in the threaded body as in the K-Ball® clip-on body. This plastic threaded body is useful when a metal clip is undesirable or where space limitations prevent using a spring clip-on nozzle.

MALE NPT THREAD	MODEL NUMBER	
	Without "Fingers"	With "Fingers"
1/4	1/4 KBD	1/4 KFBD
3/8	3/8 KBD	3/8 KFBD
1/2	1/2 KBD	1/2 KFBD



KZBD Adapter



Scan to Order

The KZBD adapters are used to attach plastic Zip-Tip nozzles to a BEX K-Ball Assembly. This makes it easy to replace and clean the nozzle, and allows for adjustable positioning. These adapters are compatible with all Injection Molded Zip-Tip nozzles.



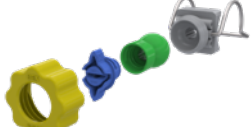
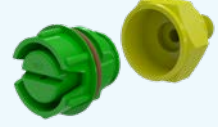
K-System Risers

BEX offers custom built riser systems, which include pre-drilled holes for K-Ball assemblies.

See [pages 150-151](#) for more details.

K-Ball Adapter Compatibility Chart

By using a K-Ball adapter, practically any nozzle in the BEX catalogue can be used in a K-Ball assembly. Threaded nozzles and Zip-Tip quick disconnect nozzles can be attached to the ball, opening up thousands of possibilities for spraying applications.

Nozzle Connection	Pipe Connection	Adapter	Adjustable Position?	Assembled Image	Exploded Image	Compatible Spray Categories
Threaded	Clip-On	K-Ball Adapter	✓			Flat Fan (F, FP, FL) Full Cone (S) Hollow Cone (H) Solid Stream (FO) Tank Mixing Eductor
Zip-Tip	Clip-On	KZBD	✓			Flat Fan (ZF) Full Cone (ZS) Solid Stream (ZF0)
Threaded	Clip-On	Threaded Adapter	✗			Flat Fan (F, FP, FL) Full Cone (S) Hollow Cone (H) Solid Stream (FO) Tank Mixing Eductor
Ball	Threaded	Threaded K-Ball	✓			Flat Fan (BF, BFL, ZF) Full Cone (ZS) Hollow Cone (BPH) Plug (KPLUG)
Zip-Tip	Threaded	ZBD	✗			Flat Fan (ZF, ZFP, ZFL) Full Cone (ZS) Hollow Cone (ZH) Solid Stream (ZF0)
Ball	Clip-On	K-Ball Assembly	✓			Flat Fan (BF, BFL) Hollow Cone (BPH) Plug (KPLUG)

K-System Risers

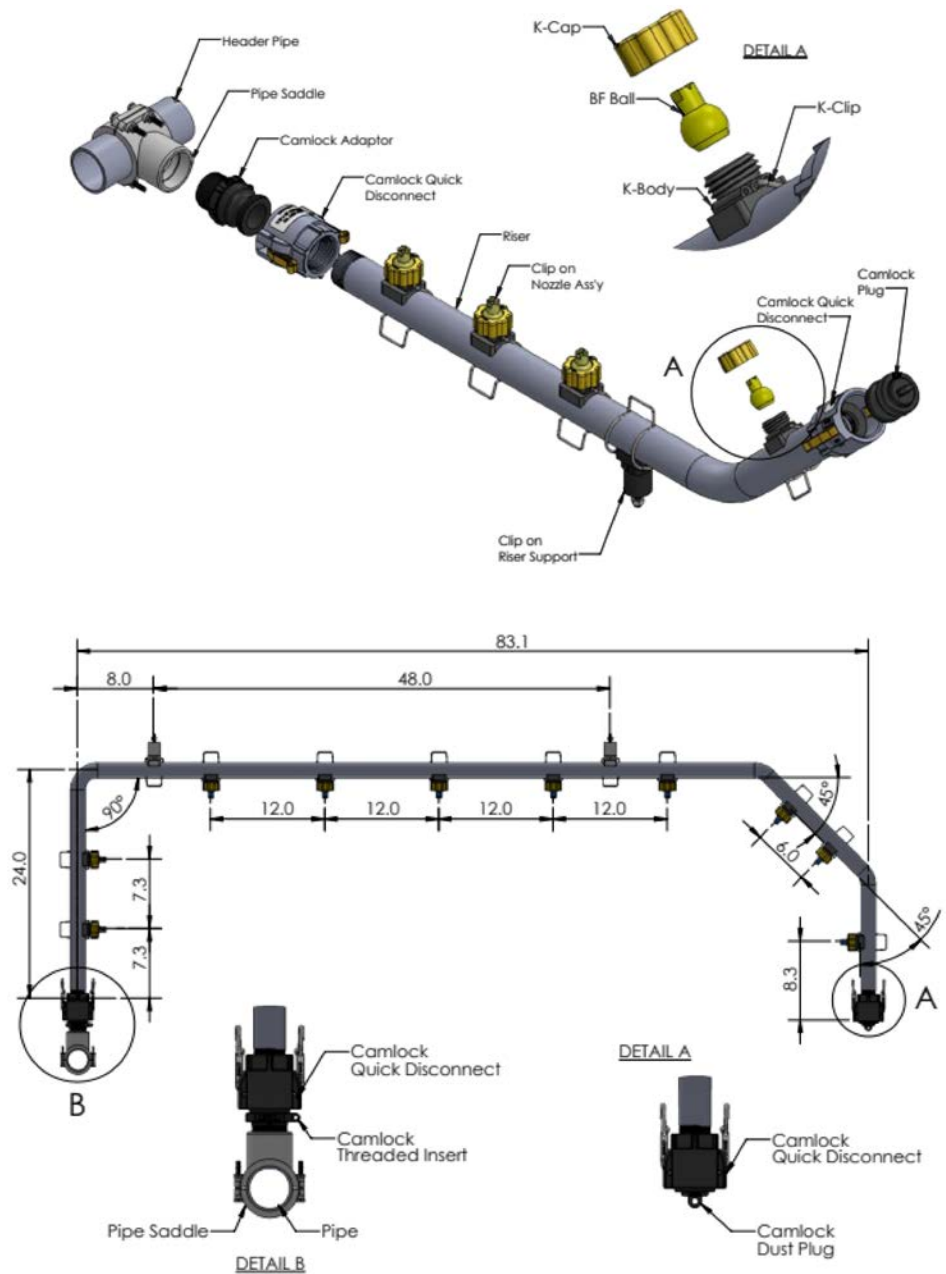
Complete Riser and Nozzle System



BEX K-System Risers are tailor-made piping solutions crafted for the mounting of your clip-on nozzle assemblies. Each Riser System is meticulously designed and manufactured in-house, drawing upon our extensive decades-long expertise in spray nozzles to optimize every Riser Assembly for the specific objectives of your unique application.

To initiate the process, simply provide us with the details of your application, and BEX will engineer a riser system precisely tailored to your requirements. Whether your project involves a straightforward single-stage configuration or a more intricate multi-stage operation, our engineers at BEX have a track record of developing systems across diverse industries. Share your specifications with us, and we will construct risers to your exact needs, equipped BEX nozzles.

Our range of riser options includes SCH40 and SCH80 PVC, as well as CPVC pipe sizes of 1", 1¼", 1½", and 2". Take advantage of our extensive selection of readily available nozzles.



Saddles



Camlocks



Ball Valves



Tee Fittings



Glued Threaded

End Caps



Glued Threaded

Elbow Fittings



Glued Threaded

How to Order K-System Risers

BEX sales support can assist you with any questions you have.

- 1 **DESIGN:** Provide us with a rough sketch of your desired layout, including the following details:
 - Pipes:** Length, quantity, spec (eg. 1" sched 40 PVC), number of bends and angle of bends
 - Nozzles:** Quantity, flow rate, angle and spray type
 - Accessories:** Tees, caps, elbows, riser clamps, cam locks, saddles.
- 2 **APPROVAL:** A quote and drawing will be provided to you for approval.
- 3 **PRODUCTION:** Once approved, a unique riser part number will be assigned and production will begin. Risers are inspected, nozzles are tested, and the assembly is packaged and shipped.





Tank Mixing Eductors

What is an Eductor?153

Models

TMP Plastic Eductors.....154

Cast Eductors.....155

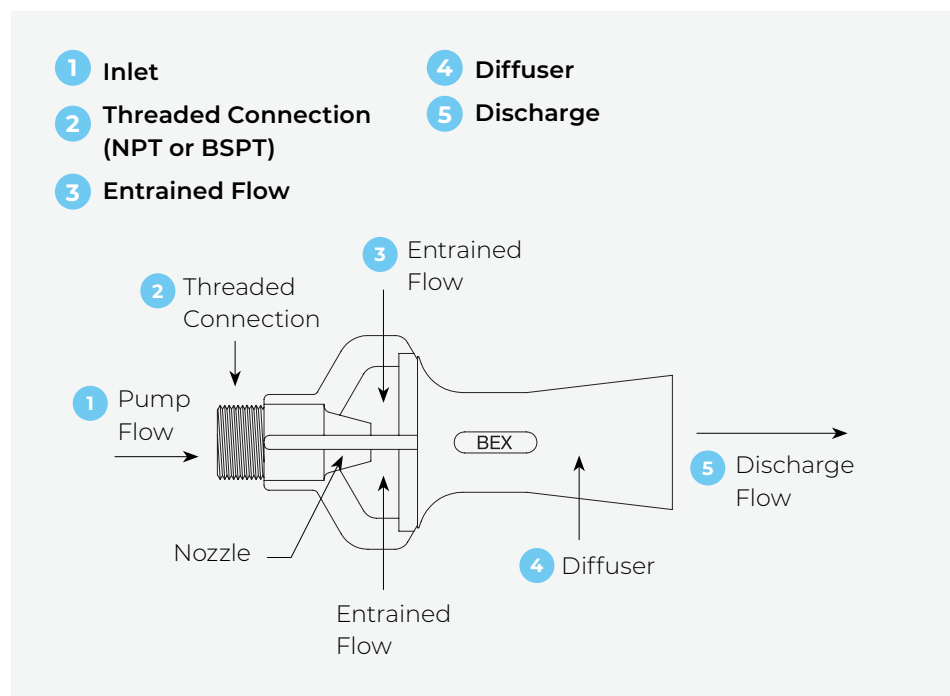


What is an Eductor?

Tank mixing eductors are used to ensure thorough mixing of the tank's contents. Eductors are typically linked to a recirculating pump and submerged within the tank.

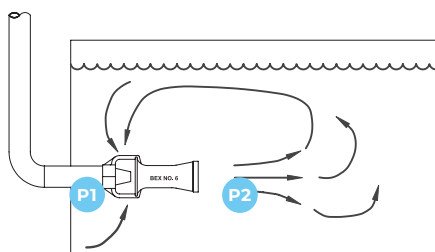
- ▶ Eductors can also be used to sweep debris or sludge toward an intake filter, suspending solids and adjusting pH levels.
- ▶ BEX eductors use a unique venturi design which enables smaller pumps to circulate large volumes of tank solution. The eductor will circulate 4 to 5 gallons of solution for each gallon pumped, resulting in quiet, efficient mixing.
- ▶ Both NPT and BSPT thread types are readily available, with larger models featuring female threads for convenient installation.
- ▶ Standard materials are Polypropylene, PVDF, 316SS, Alloy 20, Cast Iron and PVC. Other materials available upon request.

Parts diagram



Sparging

Eductors can also be used for Sparging - heating the contents of a tank by injecting steam.



Applications:

BEX Steam Spargers heat water and other liquids quickly and efficiently by direct injection of steam. They are designed for tank immersion and eliminate water hammer noise.

Selecting the right Eductor:

- 1 Calculate the required steam flow rate from the following equation:

$$\text{Steam Rate (LB/HR)} = \frac{\text{Temp. increase of water (°F)} \times \text{weight of water (lbs.)}}{\text{Time allowed to heat tank (hrs.)} \times 1000}$$
- 2 Knowing the steam flow rate and the steam pressure available at the sparger, choose the sparger(s) from the table below. Using several small spargers may be advisable to using one large sparger.
- 3 To help eliminate steam hammer, ensure that the absolute pressure at the eductor entrance (P1) is at least twice the absolute pressure inside the tank at eductor depth (P2).

Model Number	Max. Free Passage (in)	Steam Capacities (lbs/hr) at Various Pressures (PSI)							
		20 PSI	30 PSI	40 PSI	60 PSI	80 PSI	100 PSI	120 PSI	150 PSI
T0M	0.288	136	175	214	293	371	450	214	646
T2M	0.386	212	273	334	456	579	701	334	1006
T3M	0.481	352	453	555	758	861	1164	555	1671
T4M	0.612	590	760	930	1270	1610	1950	930	2800
T5	0.781	896	1154	1412	1929	2445	2962	1412	4253
T6	1.188	1975	2544	3113	4525	5390	6528	3113	9374

Note:

1 Imperial gallon of water = 10.00 lbs.
 1 cubic foot of water = 62.40lbs.

1 U.S. gallon water = 8.33 lbs.
 1 litre of water = 2.20 lbs.

TMP Series Plastic Educators



Scan to Order

Educator Molded Plastic



Scan to Order

Mini Educator

BEX TMP plastic educators offer a cost-effective solution for various tank mixing needs. Their unique venturi design allows smaller pumps to efficiently circulate large volumes of tank solution. With a circulation rate of four to five gallons of solution per each pumped gallon, TMP educators are commonly used in small

to medium-sized tanks. For smaller applications, the TMMP "Mini" Educators are particularly suitable.

These educators find wide-ranging applications, including chemical mixing, solid suspension, pH adjustment, debris or sludge removal towards a filter intake, and

other valuable uses. The capacity tables below provide the water flow rate through the educator orifice. To determine the total discharge, multiply this value by five (5).

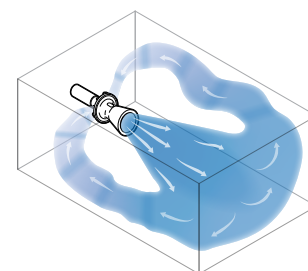
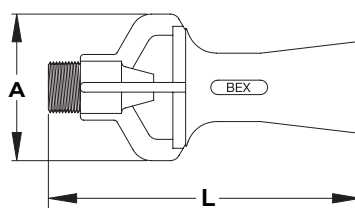
Standard Materials

- L** Polypropylene
- K** PVDF

TMP Molded Plastic Models



Educator Molded Plastic

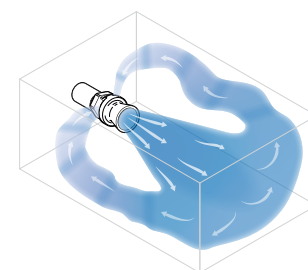
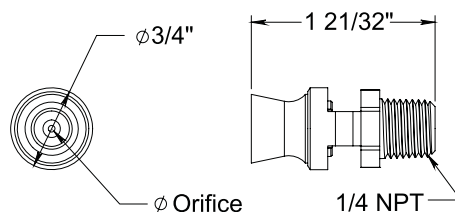


Model #	Maximum Free Passage inches	Pipe size inches	Material Size (A) inches	Length (L) inches	Capacities at Various Pressures USGPM							
					10 psi	15 psi	20 psi	25 psi	30 psi	35 psi	40 psi	50 psi
T00MP	0.188	1/4	1.50	3.12	3.2	3.9	4.5	5.0	5.5	5.9	6.3	7.1
T0MP	0.288	3/8	2.12	4.5	7.5	9.2	10.6	11.9	13.0	14.0	15.0	16.8
T2MP	0.386	3/4	3.00	6.4	13.5	16.5	19.1	21.0	23.0	25.0	27.0	30.0
T3MP	0.481	1	3.8	8.5	21.0	26.0	30.0	33	36	39	42	47
T4MP	0.612	1 1/2	4.6	9.9	33	40	47	52	57	62	66	74

TMMP Mini Plastic Models



Mini Educator



Model #	Maximum Free Passage inches	Entrainment Ratio	Color	Capacities at Various Pressures USGPM							
				10 psi	15 psi	20 psi	25 psi	30 psi	35 psi	40 psi	50 psi
TMMP6	0.059	4.700	Red	0.310	0.38	0.44	0.49	0.54	0.58	0.62	0.69
TMMP11	0.079	3.700	Green	0.55	0.67	0.78	0.87	0.95	1.03	1.10	1.23
TMMP18	0.098	2.200	Blue	0.90	1.10	1.27	1.42	1.56	1.68	1.80	2.01
TMMP26	0.118	1.600	Yellow	1.30	1.59	1.84	2.06	2.25	2.43	2.60	2.91

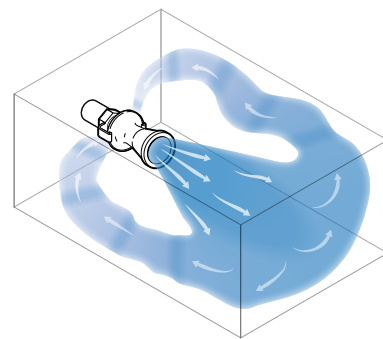
TM Cast Eductors



316SS Cast



Cast Iron



BEX T Series Cast Eductors offer a more durable and resistant solution for tank mixing applications. They feature a unique venturi design that enables the circulation of large volumes of tank solution using larger pumps. With these eductors, four to five gallons of solution can be circulated for each gallon pumped.

T Series eductors are ideal for medium to large tanks. They are manufactured through investment casting using either 316 Stainless Steel or Cast Iron, and other materials can be made available upon request.

These eductors are well-suited for various applications, including mixing chemicals, suspending solids, adjusting pH, sweeping debris or sludge towards a filter intake, and many other practical uses. The capacity tables provided below illustrate the water flow through the eductor orifice. To determine the total discharge, simply multiply this value by five (5).

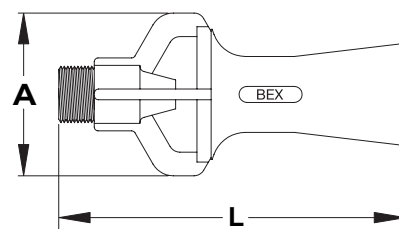


6 316SS Cast Eductor



1 Cast Iron Eductor

**Only available in T4, T5 and T6 models*



Model #	Maximum Free Passage inches	Pipe size inches	Material Size (A) inches	Length (L) inches	Capacities at Various Pressures USGPM							
					10 psi	15 psi	20 psi	25 psi	30 psi	35 psi	40 psi	50 psi
T0M	0.288	3/8	2.12	4.5	7.5	9.2	10.6	11.9	13.0	14.0	15.0	16.8
T2M	0.386	3/4	3.00	6.4	16.1	19.7	22.8	25.0	27.0	30.0	32	36
T22M	0.422	3/4	3.00	6.4	13.5	16.5	19.1	21.0	23.0	25.0	27.0	30.0
T3M	0.481	1	3.8	8.5	21.0	26.0	30.0	33	36	39	42	47
T4M	0.612	1 1/2	4.6	9.9	33	40	47	52	57	62	66	74
T5	0.781	2	4.9	12.2	55	67	78	87	95	103	110	123
T6	1.188	3	7.5	17.1	126	154	178	199	218	236	252	282

The capacity table provides the flow of water through the eductor orifice. To determine total discharge, multiply this value by five (5).

Sizing

Eductor sizing calculations are based on the number of turns required to achieve the desired mixing or agitation in a tank. A turn is defined as a volume equal to the tank volume passing through the **discharge** of the eductor.

Example:

One 6000 gallon tank with four eductors. To accomplish one turn, 6000 gallons have to pass through the discharges.

$$100 \text{ gal/min. eductor} \times 60 \text{ min/hour} \times 4 \text{ eductors} = 24000 \text{ gal/hour}$$

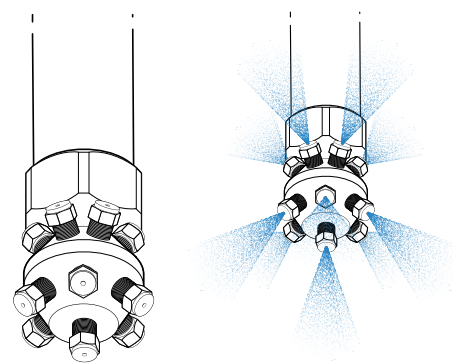
$$\text{Number of tank turnovers} = 24000 \text{ gal/hour} \div 6000 \text{ gal/turn} = 4 \text{ turns/hour}$$

Typical range of many applications is 10-30 turns per hour. BEX does not design tanks or specify suitable ranges for turnover requirement.

Special Use Nozzles

Special Use Nozzles refer to BEX products which have unique spray characteristics, or are designed for industry-specific applications.

TWA Tank Washing Assembly Series



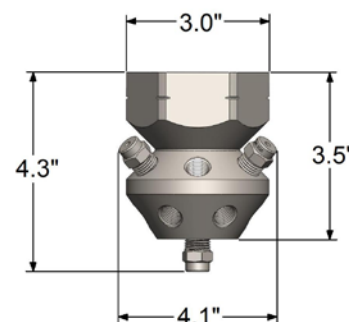
The TWA Tank Washing Assembly provides a fixed, non-rotating spray pattern. The assembly body has thirteen (13) individual female NPT nozzle connections which are designed to accept full cone nozzles (S Series and YS Series).

- ▶ Suitable for a variety of tank washing applications where the maximum tank diameter is no greater than approximately 10 feet.
- ▶ The assembly will pass through a tank opening of at least 4.1" in diameter. A 1 1/2" female NPT connection attached to the supply line.
- ▶ Maximum operating pressure is 60 PSI

For best results, use a S (page 57), GS (page 61), or YS (pages 72-73), full cone spray nozzle. A wide variety of flow rates are available. A few standard combinations are listed in the table below.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel



Model		Capacities at Various Pressures USGPM						
One Piece Body Non-Removable Insert	Two Piece Body Removable Insert	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi
1-1/2TWA1/4S5	1-1/2TWA1/4GS5	6.5	9.2	11.3	13.0	15.9	18.4	20.6
1-1/2TWA1/4S10	1-1/2TWA1/4GS10	13.0	18.4	22.5	26.0	32	37	41
1-1/2TWA3/8S15	1-1.2TWA3/8GS15	20.0	28.3	35	40	49	57	63
1-1/2TWA3/8S22	1-1/2TWA3/8GS22	29.0	41	50	58	71	82	92





M7S Tank Washing Assembly Series

Spray Characteristics

The M7S Tank Washing Assembly provides a fixed, non-rotating spray pattern, using an array of seven (7) GS style full-cone nozzle caps.

Multiple full-cone spray nozzle caps produce a relatively small droplet size for large flow rates and are less susceptible to clogging. Nozzle caps are easily removed for cleaning or nozzle change-out.

- ▶ Suitable for a variety of tank washing applications where the maximum tank diameter is no greater than approximately 10 feet.
- ▶ The assembly will pass through a tank opening of at least 4.1" in diameter. A 3/4" to 1 1/2" female NPT connection is attached to the supply line.
- ▶ Maximum operating pressure is 60 PSI

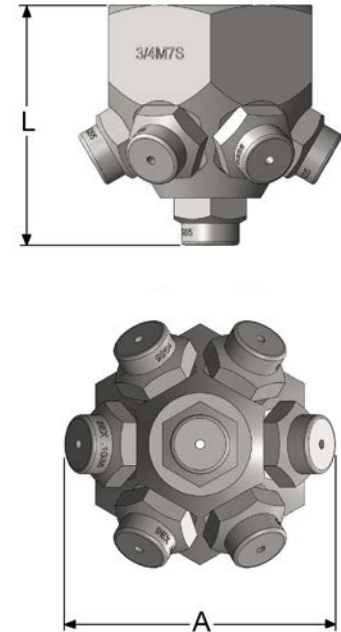
For best results, use GS series full cone spray nozzle caps from page 61. A wide variety of flow rates are available. A few standard combinations are listed in the table below.

Body Size	Dim 'A'	Dim 'L'
3/4M7S	2.4	2.1
1M7S	2.9	2.5
1 1/2M7S	4.1	3.4

All dimensions are in inches

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel



Model #	Pipe Size NPT Female	Nozzle Cap Model #	Capacities at Various Pressures USGPM						
			20 psi	40 psi	60 psi	80 psi	100 psi	125 psi	150 psi
3/4M7S1	3/4	1/8GS1	1.00	1.41	1.73	2.00	2.24	2.50	2.74
3/4M7S1.5	3/4	1/8GS1.5	1.50	2.12	2.60	3.00	3.4	3.8	4.1
3/4M7S2	3/4	1/8GS2	2.00	2.83	3.5	4.0	4.5	5.0	5.5
3/4M7S3	3/4	1/8GS3	3.00	4.2	5.2	6.0	6.7	7.5	8.2
3/4M7S3.5	3/4	1/8GS3.5	3.5	4.9	6.1	7.0	7.8	8.8	9.6
3/4M7S5	3/4	1/8GS5	5.0	7.1	8.7	10.0	11.2	12.5	13.7
1M7S6.5	1	1/4GS6.5	6.5	9.2	11.3	13.0	14.5	16.2	17.8
1M7S7.5	1	1/4GS7.5	7.5	10.6	13.0	15.0	16.8	18.8	20.5
1M7S10	1	1/4GS10	10.0	14.1	17.3	20.0	22.4	25.0	27.4
1-1/2M7S9.5	1-1/2	3/8GS9.5	9.5	13.4	16.5	19.0	21.2	23.8	26.0
1-1/2M7S15	1-1/2	3/8GS15	15.0	21.2	26.0	30.0	34	38	41
1-1/2M7S16	1-1/2	1/2GS16	16.0	22.6	27.7	32	36	40	44
1-1/2M7S20	1-1/2	3/8GS20	20.0	28.3	35	40	45	50	55
1-1/2M7S22	1-1/2	3/8GS22	22.0	31.1	38	44	49	55	60
1-1/2M7S25	1-1/2	1/2GS25	25.0	35	43	50	56	62	68
1-1/2M7S32	1-1/2	1/2GS32	32	45	55	64	72	80	88
1-1/2M7S40	1-1/2	1/2GS40	40	57	69	80	89	100	110

M7C Tank Washing Assembly Series



Scan to Order

Spray Characteristics

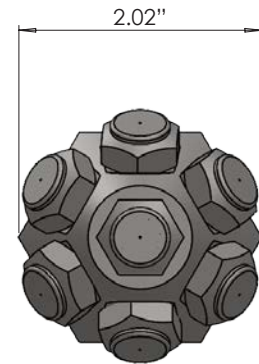
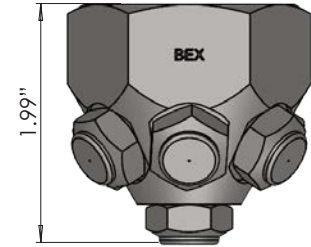
The M7C Tank Washing Assembly provides a fixed, non-rotating spray pattern, using an array of seven (7) hollow cone C-series hydraulic atomizing nozzle caps mounted on a cluster nozzle body to produce a radially oriented array of hollow cone sprays.

Multiple hydraulic atomizing spray nozzle caps produce a small droplet size with a higher flow rate and larger distribution than a single nozzle assembly. Nozzle caps are easily removed for nozzle change-out.

- Suitable for a variety of tank washing applications where the maximum tank diameter is no greater than approximately 10 feet.
- The assembly will pass through a tank opening of at least 4.1" in diameter. A 1" female NPT connection is attached to the supply line.

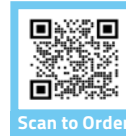
Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel



Model #	Capacities at Various Pressures USGPH								
	30 psi	40 psi	80 psi	100 psi	200 psi	300 psi	500 psi	700 psi	1000 psi
1M7C1.9	3.6	4.1	5.8	6.5	9.2	11.3	14.6	17.3	20.6
1M7C2.4	4.5	5.2	7.4	8.2	11.7	14.3	18.4	21.8	26.1
1M7C3.0	5.6	6.5	9.2	10.3	14.6	17.8	23.0	27.3	33
1M7C3.8	7.1	8.3	11.7	13.1	18.5	22.6	29.2	35	41
1M7C4.7	8.8	10.2	14.4	16.1	22.8	28.0	36	43	51
1M7C5.9	11.1	12.8	18.1	20.3	28.7	35	45	54	64
1M7C7.4	13.9	16.1	22.7	25.4	36	44	57	67	80
1M7C9.2	17.3	20.0	28.3	31.6	45	55	71	84	100
1M7C12	22.6	26.1	37	41	58	71	92	109	130
1M7C14	26.3	30.4	43	48	68	83	108	127	152
1M7C18	34	39	55	62	87	107	138	164	195
1M7C23	43	50	71	79	112	137	177	209	250
1M7C28	53	61	86	96	136	167	215	254	304
1M7C35	66	76	108	120	170	208	269	318	380
1M7C44	83	96	135	151	214	262	338	400	478
1M7C55	103	119	169	189	267	327	422	500	597
1M7C69	130	150	212	237	335	410	530	627	749
1M7C86	162	187	264	295	418	512	660	781	934

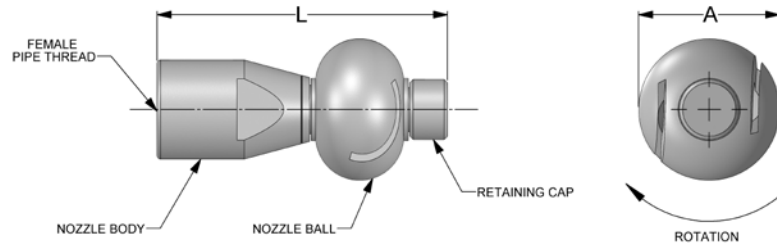
TWK Plastic Rotating Nozzle



Threaded



Sanitary



Spray Characteristics

The TWK series rotating nozzles provide true 360° spray coverage in a very compact assembly. The bearing mechanism is self-lubricating and self-cleaning. This nozzle can be installed in any orientation and is effective in vessels up to 3 meters (10 feet) in diameter.

The maximum recommended operating pressure is 100 PSI at 180°F.

Construction

Machined from bar stock.

Standard Materials

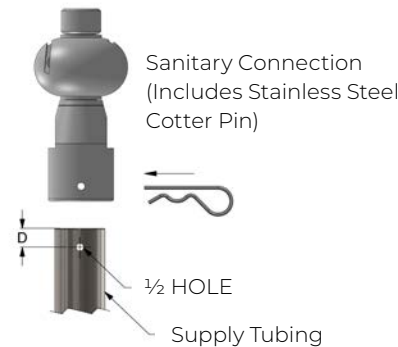
- L** Polypropylene
- K** PVDF
- T** Teflon

Typical Applications:

- ▶ Keg Washing
- ▶ Carboy/Jug Washing
- ▶ Spray Tank Washing
- ▶ Small Tank Rinsing
- ▶ Machine Clean-In-Place (C.I.P)
- ▶ Barrel Washing/Rinsing

Special Features

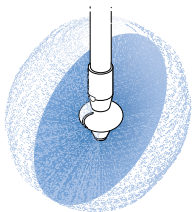
- ▶ True 360° coverage
- ▶ Easy disassembly/assembly and cleaning
- ▶ FDA approved materials
- ▶ Keyed ball cannot be installed backwards



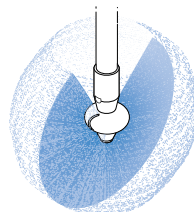
Threaded



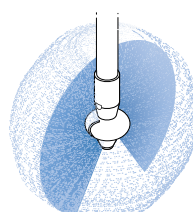
Sanitary



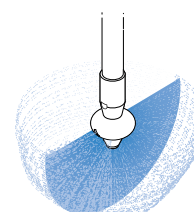
TWK360



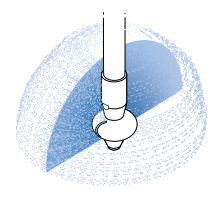
TWK270



TWK072



TWK180



TWK081

TWK Plastic Rotating Nozzle Continued

Model	Maximum Free Passage inches	Spray Coverage	Sanitary Tubing Size inches	Capacities at Various Pressures USGPM										Dimensions		
				5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	"D"	"A"	"L"
1/4TWK36050	0.063	360°	0.500	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	0.375	1.00	2.00
3/8TWK36075	0.063	360°	0.630	2.69	3.2	3.8	4.7	5.4	6.6	7.6	9.3	10.7	12.0	0.375	1.25	2.50
1/2TWK360100	0.063	360°	0.750	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	0.375	1.50	2.90
3/4TWK360180	0.063	360°	1.000	6.4	7.5	9.0	11.0	12.7	15.6	18.0	22.0	25.5	28.5	0.500	2.00	3.9
1/4TWK27050	0.063	270°	0.500	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	0.375	1.00	2.00
3/8TWK27075	0.063	270°	0.630	2.69	3.2	3.8	4.7	5.4	6.6	7.6	9.3	10.7	12.0	0.375	1.25	2.50
1/2TWK270100	0.063	270°	0.750	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	0.375	1.50	2.90
3/4TWK270180	0.063	270°	1.000	6.4	7.5	9.0	11.0	12.7	15.6	18.0	22.0	25.5	28.5	0.500	2.00	3.9
1/4TWK07250	0.063	270°	0.500	0.88	1.05	1.25	1.53	1.77	2.17	2.50	3.06	3.5	4.0	0.375	1.00	2.00
3/8TWK07275	0.063	270°	0.630	1.34	1.59	1.90	2.33	2.69	3.3	3.8	4.7	5.4	6.0	0.375	1.25	2.50
1/2TWK072100	0.063	270°	0.750	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	0.375	1.50	2.90
3/4TWK072180	0.063	270°	1.000	3.2	3.8	4.5	5.5	6.4	7.8	9.0	11.0	12.7	14.2	0.500	2.00	3.9
1/4TWK18050	0.063	180°	0.500	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	0.375	1.00	2.00
3/8TWK18050	0.063	180°	0.630	2.69	3.2	3.8	4.7	5.4	6.6	7.6	9.3	10.7	12.0	0.375	1.25	2.50
1/2TWK18050	0.063	180°	0.750	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	0.375	1.50	2.90
3/4TWK18050	0.063	180°	1.000	6.4	7.5	9.0	11.0	12.7	15.6	18.0	22.0	25.5	28.5	0.500	2.00	3.9
1/4TWK08150	0.063	180°	0.500	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	0.375	1.00	2.00
3/8TWK08175	0.063	180°	0.630	2.69	3.2	3.8	4.7	5.4	6.6	7.6	9.3	10.7	12.0	0.375	1.25	2.50
1/2TWK081100	0.063	180°	0.750	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	0.375	1.50	2.90
3/4TWK081180	0.063	180°	1.000	6.4	7.5	9.0	11.0	12.7	15.6	18.0	22.0	25.5	28.5	0.500	2.00	3.9

*Sanitary Connection styles include a "S" at the start of the Model #. For example: S1/4TWK36050

TWK Stainless Rotating Nozzle



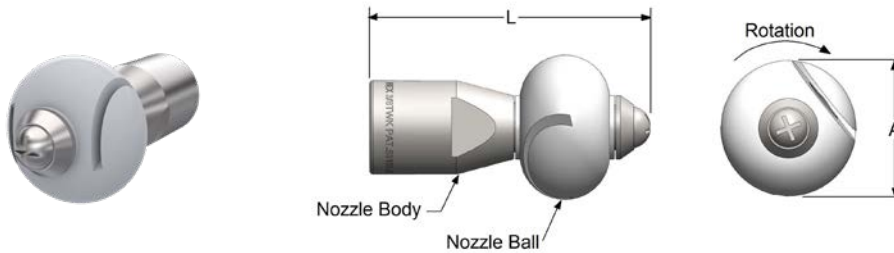
Scan to Order

Threaded



Scan to Order

Sanitary



TWK Steel Threaded



TWK Steel Sanitary

Spray Characteristics

The TWK series rotating nozzles provide true 360° spray coverage in a very compact assembly. The bearing mechanism is self-lubricating and self-cleaning. This nozzle can be installed in any orientation and is effective in vessels up to 3 meters (10 feet) in diameter.

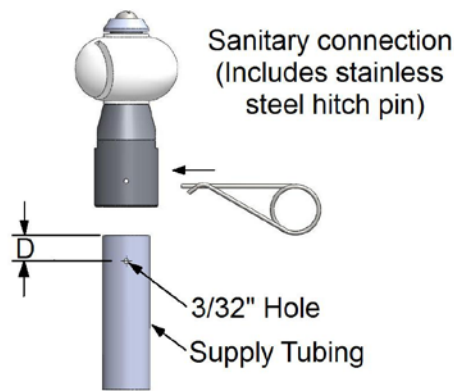
The maximum recommended operating pressure is 100 PSI at 180°F.

Special Features

- ▶ True 360° coverage
- ▶ Easy disassembly/assembly and cleaning
- ▶ FDA approved materials
- ▶ Keyed ball cannot be installed backwards

Construction

Standard nozzle body material is 316 stainless steel. Spray ball is available in a variety of materials.



Typical Applications:

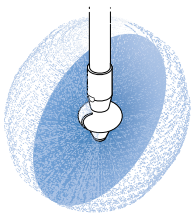
- ▶ Keg Washing
- ▶ Carboy/Jug Washing
- ▶ Spray Tank Washing
- ▶ Small Tank Rinsing
- ▶ Machine Clean-In-Place (C.I.P)
- ▶ Barrel Washing/Rinsing

Standard Materials (Nozzle Ball)

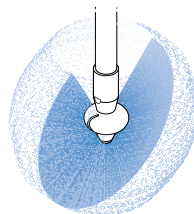
- L** Polypropylene
- K** PVDF
- T** Teflon
- 6** 316 Stainless Steel (PVDF Bushings)

Standard Materials (Nozzle Body)

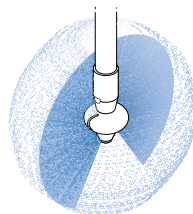
- 6** 316 Stainless Steel



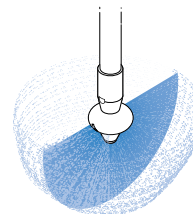
TWK360



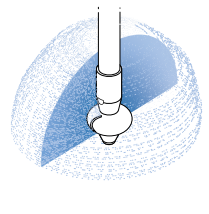
TWK270



TWK072



TWK180



TWK081

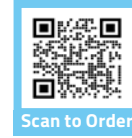
TWK Steel Rotating Nozzle Continued

Model	Maximum Free Passage inches	Spray Coverage	Sanitary Tubing Size inches	Capacities at Various Pressures USGPM											Dimensions		
				5 psi	7 psi	10 psi	15 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	"D"	"A"	"L"	
1/4TWK36050	0.063	360°	0.500	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	0.375	1.00	2.00	
3/8TWK36075	0.063	360°	0.630	2.65	3.14	3.8	4.6	5.3	6.5	7.5	9.2	10.6	11.9	0.375	1.25	2.50	
1/2TWK360100	0.063	360°	0.750	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	0.375	1.50	2.90	
3/4TWK360180	0.063	360°	1.000	6.4	7.5	9.0	11.0	12.7	15.6	18.0	22.0	25.5	28.5	0.500	2.00	3.9	
1TWK360320	0.125	360°	1.250	11.3	13.4	16.0	19.6	22.6	27.7	32	39	45	51	0.500	2.00	4.5	
1/4TWK27050	0.063	270°	0.500	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	0.375	1.00	2.00	
3/8TWK27075	0.063	270°	0.630	2.65	3.14	3.8	4.6	5.3	6.5	7.5	9.2	10.6	11.9	0.375	1.25	2.50	
1/2TWK270100	0.063	270°	0.750	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	0.375	1.50	2.90	
3/4TWK270180	0.063	270°	1.000	6.4	7.5	9.0	11.0	12.7	15.6	18.0	22.0	25.5	28.5	0.500	2.00	3.9	
1TWK360320	0.125	360°	1.250	11.3	13.4	16.0	19.6	22.6	27.7	32	39	45	51	0.500	2.00	4.5	
1TWK360500	0.152	360°	1.250	17.7	20.9	25.0	30.6	35	43	50	61	71	79	0.500	2.00	4.5	
1/4TWK07250	0.063	270°	0.500	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	0.375	1.00	2.00	
3/8TWK07275	0.063	270°	0.630	2.65	3.14	3.8	4.6	5.3	6.5	7.5	9.2	10.6	11.9	0.375	1.25	2.50	
1/2TWK072100	0.063	270°	0.750	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	0.375	1.50	2.90	
3/4TWK072180	0.063	270°	1.000	6.4	7.5	9.0	11.0	12.7	15.6	18.0	22.0	25.5	28.5	0.500	2.00	3.9	
1TWK360320	0.125	360°	1.250	11.3	13.4	16.0	19.6	22.6	27.7	32	39	45	51	0.500	2.00	4.5	
1TWK360500	0.152	360°	1.250	17.7	20.9	25.0	30.6	35	43	50	61	71	79	0.500	2.00	4.5	
1/4TWK18050	0.063	180°	0.500	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	0.375	1.00	2.00	
3/8TWK18075	0.063	180°	0.630	2.65	3.14	3.8	4.6	5.3	6.5	7.5	9.2	10.6	11.9	0.375	1.25	2.50	
1/2TWK180100	0.063	180°	0.750	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	0.375	1.50	2.90	
3/4TWK180180	0.063	180°	1.000	6.4	7.5	9.0	11.0	12.7	15.6	18.0	22.0	25.5	28.5	0.500	2.00	3.5	
1TWK360320	0.125	360°	1.250	11.3	13.4	16.0	19.6	22.6	27.7	32	39	45	51	0.500	2.00	4.5	
1TWK360500	0.152	360°	1.250	17.7	20.9	25.0	30.6	35	43	50	61	71	79	0.500	2.00	4.5	
1/4TWK08150	0.063	180°	0.500	1.77	2.09	2.50	3.06	3.5	4.3	5.0	6.1	7.1	7.9	0.375	1.00	2.00	
3/8TWK08175	0.063	180°	0.630	2.65	3.14	3.8	4.6	5.3	6.5	7.5	9.2	10.6	11.9	0.375	1.25	2.50	
1/2TWK081100	0.063	180°	0.750	3.5	4.2	5.0	6.1	7.1	8.7	10.0	12.2	14.1	15.8	0.375	1.50	2.90	
3/4TWK081180	0.063	180°	1.000	6.4	7.5	9.0	11.0	12.7	15.6	18.0	22.0	25.5	28.5	0.500	2.00	3.9	
1TWK360320	0.125	360°	1.250	11.3	13.4	16.0	19.6	22.6	27.7	32	39	45	51	0.500	2.00	4.5	
1TWK360500	0.152	360°	1.250	17.7	20.9	25.0	30.6	35	43	50	61	71	79	0.500	2.00	4.5	

*Sanitary Connection styles include a "S" at the start of the Model #. For example: S1/4TWK36050



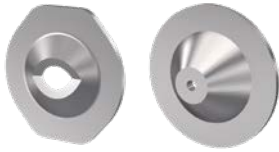
WF Series



Flat Fan



Solid Stream

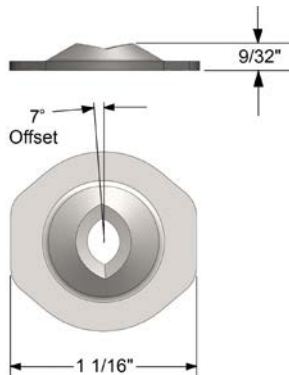


WF Series shower nozzles are designed to work in a number of commercially available "shower" bar systems where a self-aligning replaceable nozzle disc is required. The back protruding design permits the nozzle orifice to be cleaned from inside the header, using a rotating brush.

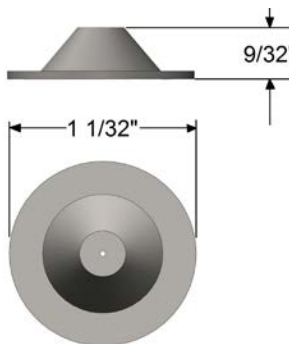
Spray Characteristics

Available in 30° and 60° flat V-shaped spray patterns, as well as zero (0) degree solid stream spray. All flat V-shaped spray models are prealigned to a standard 7° offset angle to allow for spray overlap without interference from the adjacent nozzles. (Refer to drawings shown below).

WF Flat Stream Nozzle

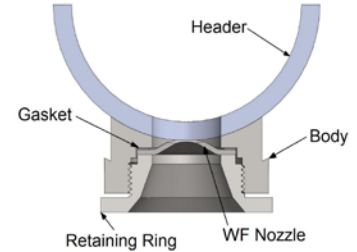


WF Solid Stream Nozzle



Construction

Standard material of construction for the spray disc is 317 stainless steel. A gasket is available for sealing the face between the nozzle disc and the body. See page 167 for *ruby orifice* version.

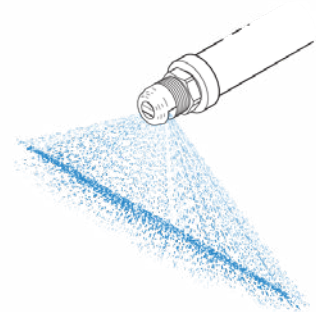
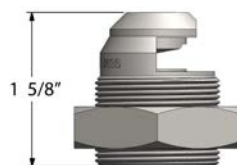


Model ID	Spray Angle at 40 PSI	Capacities at Various Pressures USGPM							
		20 psi	40 psi	60 psi	80 psi	100 psi	200 psi	400 psi	600 psi
WF00004	0°	0.028	0.040	0.049	0.057	0.063	0.089	0.126	0.155
WF00007	0°	0.050	0.070	0.086	0.099	0.111	0.156	0.221	0.271
WF00009	0°	0.064	0.090	0.110	0.127	0.142	0.201	0.285	0.35
WF0001	0°	0.071	0.100	0.122	0.141	0.158	0.224	0.32	0.39
WF0002	0°	0.141	0.200	0.245	0.283	0.32	0.45	0.63	0.77
WF0003	0°	0.212	0.300	0.37	0.42	0.47	0.67	0.95	1.16
WF0004	0°	0.283	0.40	0.49	0.57	0.63	0.89	1.26	1.55
WF0008	0°	0.57	0.80	0.98	1.13	1.26	1.79	2.53	3.10
WF0012	0°	0.85	1.20	1.47	1.70	1.90	2.68	3.8	4.6
WF0020	0°	1.41	2.00	2.45	2.83	3.2	4.5	6.3	7.7
WF3002	30°	0.141	0.200	0.245	0.283	0.32	0.45	0.63	0.77
WF3003	30°	0.212	0.300	0.37	0.42	0.47	0.67	0.95	1.16
WF3004	30°	0.283	0.40	0.49	0.57	0.63	0.89	1.26	1.55
WF3006	30°	0.42	0.60	0.73	0.85	0.95	1.34	1.90	2.32
WF3008	30°	0.57	0.80	0.98	1.13	1.26	1.79	2.53	3.10
WF3010	30°	0.71	1.00	1.22	1.41	1.58	2.24	3.2	3.9
WF3012	30°	0.85	1.20	1.47	1.70	1.90	2.68	3.8	4.6
WF3016	30°	1.13	1.60	1.96	2.26	2.53	3.6	5.1	6.2
WF3020	30°	1.41	2.00	2.45	2.83	3.2	4.5	6.3	7.7
WF6002	60°	0.141	0.200	0.245	0.283	0.32	0.45	0.63	0.77
WF6003	60°	0.212	0.300	0.37	0.42	0.47	0.67	0.95	1.16
WF6004	60°	0.283	0.40	0.49	0.57	0.63	0.89	1.26	1.55
WF6006	60°	0.42	0.60	0.73	0.85	0.95	1.34	1.90	2.32
WF6008	60°	0.57	0.80	0.98	1.13	1.26	1.79	2.53	3.10
WF6010	60°	0.71	1.00	1.22	1.41	1.58	2.24	3.2	3.9
WF6012	60°	0.85	1.20	1.47	1.70	1.90	2.68	3.8	4.6
WF6016	60°	1.13	1.60	1.96	2.26	2.53	3.6	5.1	6.2
WF6020	60°	1.41	2.00	2.45	2.83	3.2	4.5	6.3	7.7
WF6025	60°	1.77	2.50	3.06	3.5	4.0	5.6	7.9	9.7
WF6031	60°	2.19	3.10	3.8	4.4	4.9	6.9	9.8	12.0
WF6040	60°	2.83	4.0	4.9	5.7	6.3	8.9	12.6	15.5
WF6049	60°	3.5	4.9	6.0	6.9	7.7	11.0	15.5	19.0
WF6077	60°	5.4	7.7	9.4	10.9	12.2	17.2	24.3	29.8
WF6099	60°	7.0	9.9	12.1	14.0	15.7	22.1	31.3	38
WF60124	60°	8.8	12.4	15.2	17.5	19.6	27.7	39	48

WA Series



Scan to Order



Typically used by the pulp and paper industry, the WA series uses a self cleaning system to filter out unwanted solids. By reducing the supplied pressure, an internal piston retracts to purge fibers and other suspended solids from the clogged nozzle, reducing shower maintenance and water consumption.

Spray Characteristics

Available in flat fan and solid stream 0° models.

Construction

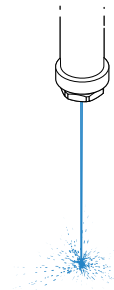
Standard thread size is 1 1/8"-20.
Standard Material of Construction is 6 316 Stainless Steel.

Typical Applications:

- ▶ Pulp and Paper
- ▶ Cleaning Fabric (wire)
- ▶ Cleaning Felts
- ▶ Pre-wetting Showers
- ▶ Knock-off Showers
- ▶ Lubrication Showers

Model #	Spray Angle at 40 psi	Capacities at Various Pressures USGPM													
		20 psi	30 psi	40 psi	50 psi	60 psi	70 psi	80 psi	90 psi	100 psi	120 psi	140 psi	180 psi	200 psi	250 psi
WA0002	0°	0.141	0.173	0.200	0.224	0.245	0.265	0.283	0.300	0.32	0.35	0.37	0.42	0.45	0.50
WA0006	0°	0.42	0.52	0.60	0.67	0.73	0.79	0.85	0.90	0.95	1.04	1.12	1.27	1.34	1.50
WA0008	0°	0.57	0.69	0.80	0.89	0.98	1.06	1.13	1.20	1.26	1.39	1.50	1.70	1.79	2.00
WA0010	0°	0.71	0.87	1.00	1.12	1.22	1.32	1.41	1.50	1.58	1.73	1.87	2.12	2.24	2.50
WA1506	15°	1.06	1.30	1.50	1.68	1.84	1.98	2.12	2.25	2.37	2.60	2.81	3.2	3.4	3.8
WA3005	30°	0.35	0.43	0.50	0.56	0.61	0.66	0.71	0.75	0.79	0.87	0.94	1.06	1.12	1.25
WA3014	30°	0.99	1.21	1.40	1.57	1.71	1.85	1.98	2.10	2.21	2.42	2.62	2.97	3.13	3.5
WA4012	40°	0.85	1.04	1.20	1.34	1.47	1.59	1.70	1.80	1.90	2.08	2.24	2.55	2.68	3.00
WA4014	40°	0.99	1.21	1.40	1.57	1.71	1.85	1.98	2.10	2.21	2.42	2.62	2.97	3.13	3.5
WA4032	40°	2.26	2.77	3.2	3.6	3.9	4.2	4.5	4.8	5.1	5.5	6.0	6.8	7.2	8.0
WA4516	45°	1.13	1.39	1.60	1.79	1.96	2.12	2.26	2.40	2.53	2.77	2.99	3.4	3.6	4.0
WA4525	45°	1.77	2.17	2.50	2.80	3.06	3.3	3.5	3.8	4.0	4.3	4.7	5.3	5.6	6.2
WA5032	50°	2.26	2.77	3.2	3.6	3.9	4.2	4.5	4.8	5.1	5.5	6.0	6.8	7.2	8.0
WA6016	60°	1.13	1.39	1.60	1.79	1.96	2.12	2.26	2.40	2.53	2.77	2.99	3.4	3.6	4.0
WA6038	60°	2.69	3.3	3.8	4.2	4.7	5.0	5.4	5.7	6.0	6.6	7.1	8.1	8.5	9.5
WA8011	80°	0.78	0.95	1.10	1.23	1.35	1.46	1.56	1.65	1.74	1.91	2.06	2.33	2.46	2.75
WA8030	80°	2.12	2.60	3.00	3.4	3.7	4.0	4.2	4.5	4.7	5.2	5.6	6.4	6.7	7.5
WA8046	80°	3.3	4.0	4.6	5.1	5.6	6.1	6.5	6.9	7.3	8.0	8.6	9.8	10.3	11.5
WA11011	110°	0.78	0.95	1.10	1.23	1.35	1.46	1.56	1.65	1.74	1.91	2.06	2.33	2.46	2.75
WA12008	120°	0.57	0.69	0.80	0.89	0.98	1.06	1.13	1.20	1.26	1.39	1.50	1.70	1.79	2.00
WA13016	130°	1.13	1.39	1.60	1.79	1.96	2.12	2.26	2.40	2.53	2.77	2.99	3.4	3.6	4.0
WA13025	130°	1.77	2.17	2.50	2.80	3.06	3.3	3.5	3.8	4.0	4.3	4.7	5.3	5.6	6.2

WN Series



Spray Characteristics

BEX WN series spray nozzles are designed to deliver a solid stream of liquid for high precision applications.

Construction

Standard material of construction is 316 Stainless Steel. See page 167 for ruby orifice version.

Typical Applications:

Uses include cleaning and washing of felts, suction rolls, fabric (wire), and other areas that require flow control and precision delivery of the nozzle stream.

Model #	Orifice Dia. inches	Capacities at Various Pressures USGPM						
		40 psi	60 psi	80 psi	100 psi	300 psi	600 psi	900 psi
WN14	0.014	0.055	0.067	0.078	0.087	0.151	0.213	0.261
WN28	0.028	0.110	0.135	0.156	0.174	0.301	0.43	0.52
WN33	0.033	0.160	0.196	0.226	0.253	0.44	0.62	0.76
WN40	0.040	0.230	0.282	0.32	0.36	0.63	0.89	1.09
WN55	0.055	0.40	0.49	0.57	0.63	1.10	1.55	1.90
WN70	0.070	0.67	0.82	0.95	1.06	1.84	2.60	3.2
WN94	0.094	1.20	1.47	1.70	1.90	3.3	4.6	5.7
WN125	0.125	2.00	2.49	2.83	3.2	5.5	7.8	9.5

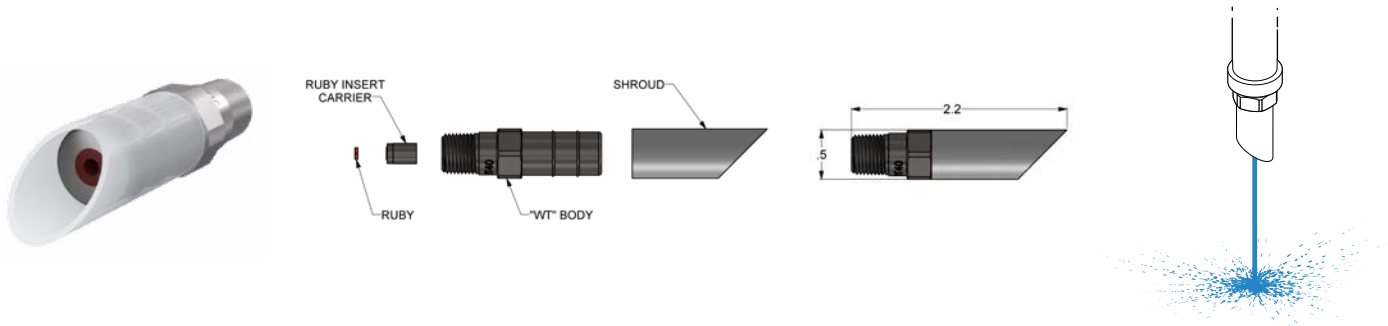
Ruby Orifice Nozzles

For extremely high pressure applications, ruby orifice nozzles provide unmatched durability.

WT Series



Scan to Order



Engineered specifically for the pulp and paper industry, the WF series is designed to give a laminar stream of liquid at various pressures up to 2000 PSI with much higher wear resistance than the equivalent nozzles with a stainless steel orifice. Provides a

precise and tight solid stream of water, ideal for paper trimming applications where there is significant distance between the nozzle orifice and the target.

Construction

Consists of a ruby insert pressed into a 7 317 stainless steel housing.

Model #	Orifice Dia. inches	Capacities at Various Pressures USGPM									
		100 psi	200 psi	300 psi	400 psi	500 psi	600 psi	800 psi	1000 psi	1500 psi	2000 psi
WT32	0.032	0.210	0.297	0.36	0.42	0.47	0.51	0.59	0.66	0.81	0.94
WT35	0.035	0.250	0.35	0.43	0.50	0.56	0.61	0.71	0.79	0.97	1.12
WT40	0.040	0.33	0.47	0.57	0.66	0.74	0.81	0.93	1.04	1.28	1.48
WT45	0.045	0.40	0.57	0.69	0.80	0.89	0.98	1.13	1.26	1.55	1.79



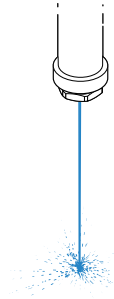
The WA, WF, WN and WT series nozzles are ideal for various applications in the Pulp and Paper Industry



Ruby WN Series



Scan to Order



Spray Characteristics

WN Series nozzles provide a consistent solid stream of water at various pressures up to 800 PSI. Ideal for paper trimming applications.

Construction

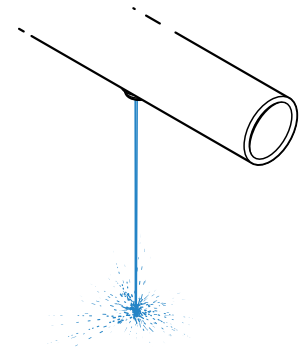
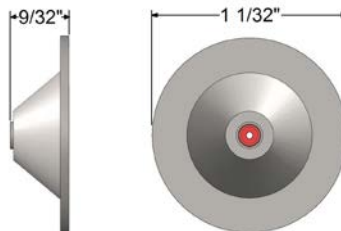
Consists of a ruby insert pressed into a 316 Stainless Steel housing. Uses a 9/16"-24 UNF threaded connection.

Model #	Orifice Dia. inches	Capacities at Various Pressures USGPM								
		20 psi	40 psi	60 psi	80 psi	100 psi	250 psi	300 psi	600 psi	800 psi
WN32	0.032	0.094	0.133	0.163	0.188	0.210	0.33	0.36	0.51	0.59
WN35	0.035	0.112	0.158	0.194	0.224	0.250	0.40	0.43	0.61	0.71
WN40	0.040	0.148	0.209	0.256	0.295	0.33	0.52	0.57	0.81	0.93
WN45	0.045	0.179	0.253	0.310	0.36	0.40	0.63	0.69	0.98	1.13

Ruby WF Series



Scan to Order



Spray Characteristics

WF Series nozzles provide a consistent solid stream of water at various pressures up to 800 PSI. Ideal for paper trimming applications.

Construction

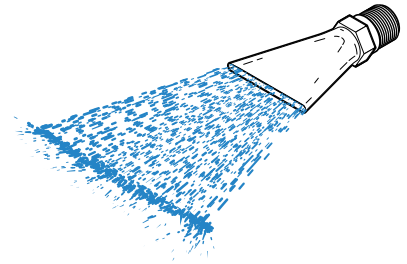
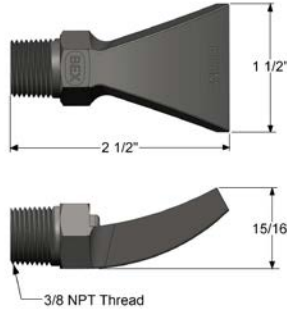
Consists of a ruby insert pressed into a 316 Stainless Steel housing. A disc-style nozzle ideal for mounting in a pipe using a gasket and retaining ring.

Model #	Orifice Dia. inches	Capacities at Various Pressures USGPM								
		20 psi	40 psi	60 psi	80 psi	100 psi	250 psi	300 psi	600 psi	800 psi
WF32	0.032	0.094	0.133	0.163	0.188	0.210	0.33	0.36	0.51	0.59
WF35	0.035	0.112	0.158	0.194	0.224	0.250	0.40	0.43	0.61	0.71
WF40	0.040	0.148	0.209	0.256	0.295	0.33	0.52	0.57	0.81	0.93
WF45	0.045	0.179	0.253	0.310	0.36	0.40	0.63	0.69	0.98	1.13

SN 4224



Scan to Order



Spray Characteristics

SN4224 is a specially designed spray nozzle that provides high impact per unit area. This flat spray nozzle works particularly well for screen-filters, pulp "knock-off" showers and other applications where loose scale and debris removal are required.

Model #	Orifice Diameter	Capacities at Various Pressures USGPM				
		20 psi	40 psi	60 psi	80 psi	100 psi
SN4224	0.125	2.05	2.90	3.6	4.1	4.6

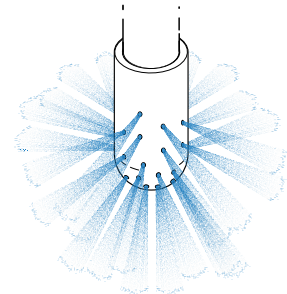
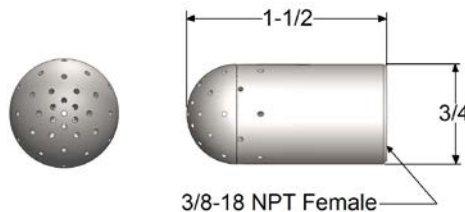
Construction

SN4224 is available in 6 316 Stainless Steel with a 1/8" orifice and a 3/8" NPT male fitting.

SN 4922



Scan to Order

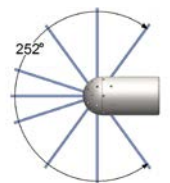


Spray Characteristics

SN4922 is a stationary nozzle that disperses multiple solid-stream sprays in a 252° radius. Used for tanks where high impingement is required for cleaning. This nozzle is also commonly used for air applications.

Water Capacities

Model #	Capacities at Various Pressures USGPM							
	10 psi	20 psi	30 psi	40 psi	60 psi	80 psi	100 psi	150 psi
SN4922	4.6	6.5	8.0	9.2	11.3	13.0	14.5	17.8



Construction

One piece construction machined from 6 316 Stainless Steel. Features a female 3/8" threaded connection.

Air Capacities

Model #	Thread Size (NPT)	CAPACITY (SCFM) AT VARIOUS PRESSURES (PSI)				
		10 PSI	20 PSI	30 PSI	60 PSI	90 PSI
SN4922	1/4"	14.2	21.1	27.3	46	63.9



Air Applications

FL & ZFL Series



FL Series

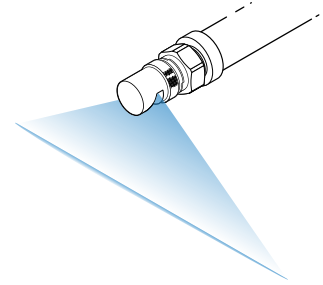


ZFL Series

ZF Threaded



ZFL Zip-Tip



The FL and ZFL series spray nozzles may also be used with air or steam, resulting in a deflected curtain of gas extending no more than a few inches away from the nozzle. For most applications, the maximum practical target distance from the nozzle is 10 inches.

There is no difference between the parts used for liquid or air applications, but the capacity chart below has data specific for air and steam applications.

Spray Characteristics

A wide, flat fan-shaped spray with low impact. The spray is deflected 75° away from the centerline of the pipe connection.

Additional Note

For FL threaded connection dimensions, refer to the capacity table on *pages 51-52*.

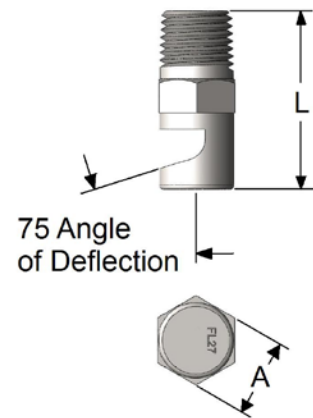
For ZFL Zip-Tip connection dimensions, see *page 121*.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Typical Applications:

- ▶ Cleaning
- ▶ Cooling
- ▶ Blow-off Surfaces



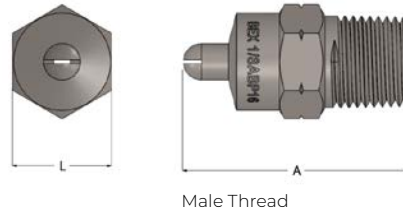
FL & ZFL Series Continued

Model #	Orifice Diameter inches	Dimensions		Air Capacities at Various Pressures					Steam Capacities at Various Pressures					Width at 6" Distance from the Nozzle (inches)	
		Material Size (A) inches	Length (L) inches	10 psi	20 psi	40 psi	50 psi	80 psi	10 psi	20 psi	40 psi	50 psi	80 psi	10	15
1/8FL.25	0.017	0.44	0.56	0.100	0.140	0.220	0.260	0.38	0.114	0.38	0.60	0.71	1.04	2	4½
1/8FL.50	0.024	0.44	0.56	0.190	0.270	0.43	0.50	0.74	0.56	0.79	1.25	1.47	2.20	2	5
1/8FL.75	0.029	0.44	0.81	0.280	0.39	0.61	0.73	1.06	0.83	1.17	1.84	2.20	3.2	2½	6
1/8FL1	0.033	0.44	0.81	0.36	0.51	0.80	0.95	1.39	1.09	1.52	2.40	2.80	4.1	3	6
1/8FL1.3	0.038	0.44	0.81	0.48	0.68	1.07	1.27	1.86	1.46	2.00	3.2	3.7	5.5	3	6½
1/4FL1.3	0.038	0.56	0.94	0.48	0.68	1.07	1.27	1.86	1.46	2.00	3.2	3.7	5.5	3	6½
1/8FL1.5	0.042	0.44	0.81	0.58	0.83	1.31	1.55	2.30	1.79	2.50	3.9	4.7	6.8	3½	6½
1/4FL1.5	0.042	0.56	0.94	0.58	0.83	1.31	1.55	2.30	1.79	2.50	3.9	4.7	6.8	3½	6½
1/8FL2	0.047	0.44	0.81	0.73	1.03	1.62	1.92	2.80	2.30	3.2	5.0	6.0	8.7	3½	7½
1/4FL2	0.047	0.56	0.94	0.73	1.03	1.62	1.92	2.80	2.30	3.2	5.0	6.0	8.7	3½	7½
1/8FL2.5	0.055	0.44	0.81	1.00	1.42	2.20	2.60	3.9	3.10	4.4	6.9	8.2	12.0	4	7½
1/4FL2.5	0.055	0.56	0.94	1.00	1.42	2.20	2.60	3.9	3.10	4.4	6.9	8.2	12.0	4	7½
1/8FL3	0.059	0.44	0.81	1.15	1.63	2.60	3.00	4.4	3.6	5.0	7.9	9.3	13.6	5	8
1/4FL3	0.059	0.56	0.94	1.15	1.63	2.60	3.00	4.4	3.6	5.0	7.9	9.3	13.6	5	8
1/8FL4	0.070	0.44	0.94	1.61	2.30	3.6	4.3	6.3	5.1	7.2	11.3	13.4	19.6	5	9
1/4FL4	0.070	0.56	1.00	1.61	2.30	3.6	4.3	6.3	5.1	7.2	11.3	13.4	19.6	5	9
1/8FL5	0.076	0.44	0.94	1.90	2.70	4.3	5.0	7.4	6.0	8.5	13.4	15.8	23.0	6	10
1/4FL5	0.076	0.56	1.00	1.90	2.70	4.3	5.0	7.4	6.0	8.5	13.4	15.8	23.0	6	10
1/8FL7.5	0.094	0.44	0.94	2.91	4.2	6.6	7.8	11.5	9.3	13.1	21.0	24.0	36	6½	10
1/4FL7.5	0.094	0.56	1.00	2.91	4.2	6.6	7.8	11.5	9.3	13.1	21.0	24.0	36	6½	10
1/8FL10	0.110	0.44	0.94	4.0	5.7	9.0	10.6	15.6	12.8	17.9	28.0	33	49	7	11
1/4FL10	0.110	0.56	1.00	4.0	5.7	9.0	10.6	15.6	12.8	17.9	28.0	33	49	7	11
1/8FL12	0.120	0.44	1.06	4.7	6.8	10.7	12.7	18.6	15.3	21.0	33	39	57	7	11½
1/4FL12	0.120	0.56	1.31	4.7	6.8	10.7	12.7	18.6	15.3	21.0	33	39	57	7	11½
1/8FL15	0.129	0.44	1.06	5.5	8.4	132	15.7	23.0	18.8	26.0	41	48	71	7	12
1/4FL15	0.129	0.56	1.31	5.5	8.4	13.2	15.7	23.0	18.8	26.0	41	48	71	7	12
1/8FL18	0.147	0.43	1.06	7.1	10.3	16.2	19.2	28.0	23.0	32	50	60	87	8	13
1/4FL18	0.147	0.56	1.31	7.1	10.3	116	19.2	28.0	23.0	32	50	60	87	8	13
1/8FL20	0.154	0.44	1.06	7.8	11.3	17.8	21.0	31.0	25.0	35	55	65	96	8½	14½
1/4FL20	0.154	0.56	1.31	7.8	11.3	17.8	21.0	31.0	25.0	35	55	65	96	8½	14½
1/4FL22	0.161	0.56	1.31	8.5	12.3	19.4	23.0	34	28.0	39	61	73	106	8½	14½
1/4FL24	0.169	0.56	1.31	9.4	13.6	21.0	25.0	37	31.0	43	68	80	117	8½	15
1/4FL27	0.177	0.56	1.31	10.3	14.9	23.0	28.0	41	34	47	74	88	128	8½	15
3/8FL30	0.188	0.69	1.50	11.6	16.8	26.0	31.0	46	38	53	84	99	145	8½	15½

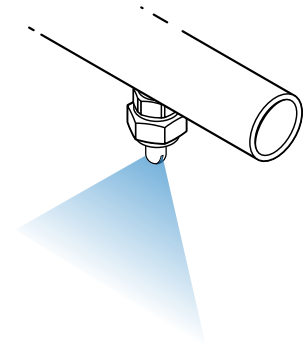
ABP Series



Scan to Order



Male Thread



Spray Characteristics

ABP Series air blow-off nozzles project a flat fan-shaped curtain of gas in a direction parallel to the axis of the nozzle body. Gases most commonly used are air and steam.

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

Construction

The models listed are machined from bar stock and are one-piece construction.

MODEL NUMBER	PIPE SIZE (NPT)	OVERALL LENGTH (L) inches
$\frac{1}{8}$ ABP	$\frac{1}{8}$	0.438
$\frac{1}{4}$ ABP	$\frac{1}{4}$	0.563
$\frac{3}{8}$ ABP	$\frac{3}{8}$	0.688

Lengths will vary slightly for ABP72 models. View online for exact dimensions.

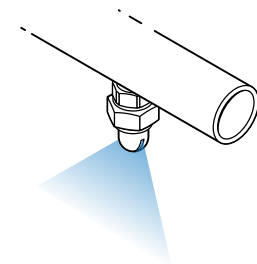
Typical Applications:

- ▶ Cooling of Components/Parts
- ▶ Debris Removal
- ▶ Cleaning and Drying of Parts
- ▶ Small Gas Curtains

ABO Series Air Blow-Off Nozzles



Scan to Order



Spray Characteristics

ABO Series air blow-off nozzles project a flat fan-shaped curtain of gas in a direction parallel to the axis of the nozzle body. Gases most commonly used are air and steam.

ABO nozzles are designed with large maximum free passage sizes. This produces wider, more uniform coverage, and also helps to reduce clogging and minimize the effects of minor tip damage.

The Cap and Body are designed to allow easy assembly/disassembly and cleaning.

Construction

ABO assemblies include a body, a retaining cap and a nozzle tip.

Model #	PIPE SIZE (NPT)	OVERALL LENGTH (L) inches
$\frac{1}{8}$ ABO	$\frac{1}{8}$	1.77
$\frac{1}{4}$ ABO	$\frac{1}{4}$	1.83
$\frac{3}{8}$ ABO	$\frac{3}{8}$	1.90

Typical Applications:

- ▶ Cooling of Components/Parts
- ▶ Debris Removal
- ▶ Cleaning and Drying of Parts
- ▶ Small Gas Curtains

Standard Materials

- B** Brass
- 3** 303 Stainless Steel
- 6** 316 Stainless Steel

ABO Series Continued

MODEL NUMBER	SLOT WIDTH (Inches)	AIR CAPACITY (S.C.F.M.)				STEAM CAPACITY (lbs/hr)				DISTANCE FROM NOZZLE (INCHES)	APPROX. WIDTH OF AIR COVERAGE (INCHES)						
		10 psi	20 psi	60 psi	100 psi	10 psi	20 psi	60 psi	100 psi		5 psi	10 psi	20 psi	40 psi	60 psi	80 psi	100 psi
ABP16	0.016	0.67	1.10	2.4	3.6	1.20	2.3	5.0	7.6	2	5	5	6	8	9	10	10
										4	7	8	9	12	14	16	16
ABO16	0.016	0.67	1.10	2.4	3.6	1.20	2.3	5.0	7.6	6	9	10	11	16	19	22	23
										10	10	13	15	21	25	28	29
ABP20	0.020	1.40	2.0	4.3	6.6	2.9	4.5	9.7	14.9	20	12	16	20	32	35	39	40
										2	5	6	7	9	10	11	11
ABO20	0.020	1.40	2.0	4.3	6.6	2.9	4.5	9.7	14.9	4	8	10	12	13	16	17	17
										6	10	13	16	18	21	24	24
ABP28	0.028	2.3	3.5	7.5	11.6	5.0	7.9	17.0	26.0	10	15	20	24	25	29	30	30
										20	24	28	31	33	38	41	42
ABO28	0.028	2.3	3.5	7.5	11.6	5.0	7.9	17.0	26.0	2	6	6	6	9	11	12	14
										4	8	9	9	12	16	18	23
ABP40	0.040	4.2	6.0	12.9	19.8	9.0	13.0	28.0	43.0	6	10	12	12	18	21	25	29
										10	15	17	18	26	29	34	37
ABO40	0.040	4.2	6.0	12.9	19.8	9.0	13.0	28.0	43.0	20	24	29	30	38	44	48	51
										2	7	8	8	11	11	12	12
ABP51	0.051	7.1	11.0	24.0	36.0	16.0	24.0	52.0	79.0	4	11	11	12	17	18	22	22
										6	13	13	16	23	24	29	30
ABO51	0.051	7.1	11.0	24.0	36.0	16.0	24.0	52.0	79.0	10	15	17	23	31	32	38	42
										20	22	28	40	45	46	50	55
ABP72	0.072	13.0	19.0	41.0	63.0	27.0	43.0	93.0	142.0	2	87	9	10	13	14	16	23
										4	12	15	16	21	24	28	32
ABO72	0.072	13.0	19.0	41.0	63.0	27.0	43.0	93.0	142.0	6	16	20	22	28	34	38	43
										10	24	29	30	40	46	49	53
ABP72	0.072	13.0	19.0	41.0	63.0	27.0	43.0	93.0	142.0	20	36	41	43	55	62	62	63
										2	7	9	12	16	20	22	23
ABO72	0.072	13.0	19.0	41.0	63.0	27.0	43.0	93.0	142.0	4	11	13	15	25	22	36	37
										6	14	17	19	34	41	45	47
ABP72	0.072	13.0	19.0	41.0	63.0	27.0	43.0	93.0	142.0	10	20	24	26	45	55	49	62
										20	33	39	41	55	70	74	76

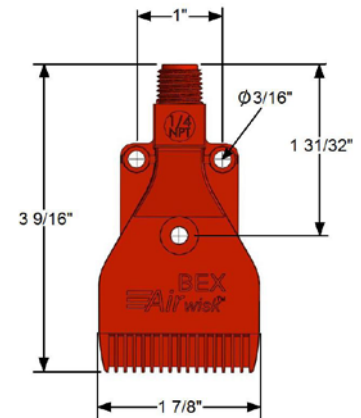
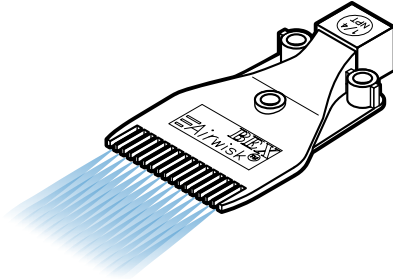
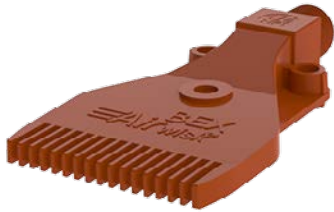
*ABP and ABO nozzles share the same spray characteristics.



Airwisk Blow-off Nozzles



Scan to Order



Spray Characteristics

BEX Airwisk nozzles produce a concentrated flat fan pattern of high impact air for cooling, drying and blow off applications.

The Airwisk's design efficiently controls compressed air usage, reduces energy costs and provides optimum air distribution.

Construction

The BEX Airwisk is made of hard-wearing ABS plastic (rated to 150° F) and has a maximum pressure of 100 PSI.

The Airwisk can be mounted individually or side by side to provide greater coverage.

Typical Applications

- ▶ Cooling of Components/Parts
- ▶ Cleaning and Drying of Parts
- ▶ Air Curtains
- ▶ Debris Removal

Model #	Thread Size (NPT)	CAPACITY (SCFM) AT VARIOUS PRESSURES (PSI)				
		10 PSI	30 PSI	40 PSI	60 PSI	90 PSI
¼AW15	¼"	6.5	12.3	15.0	20.5	28.7



Air Atomizers



JPL Series

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Air Atomizer Assemblies

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JPD Series Flat Spray	183
JPV Spray.....	184
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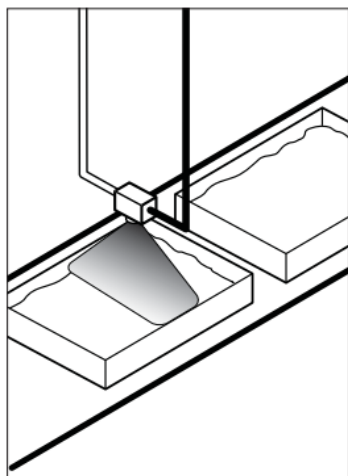
JPL Series

The BEX JPL Air Atomizing Spray Nozzles atomize liquids using air or gas, resulting in an extremely fine mist available in a range of spray patterns. They're commonly used for tasks like humidifying, cooling, air pollution control, coating surfaces, lubricating machinery, curing materials, dispersing chemicals, and other applications where a traditional liquid dispersion is undesirable.

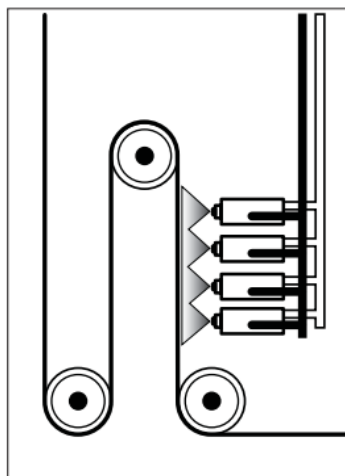
JPL Series can also replace existing atomizing products. In fact, many of the components in the JPL Series can be interchanged with those from other manufacturers.



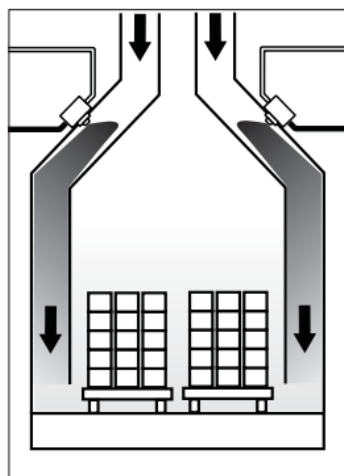
Typical Applications



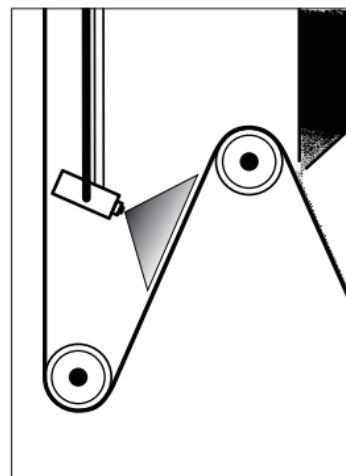
Vitamin/Bacteriostat liquid accurately spray portioned on animal feed.



Moisturizing, anti-static application on fabric.



Humidity control in curing ovens, kilns and furnaces.



Adhesive application to paper prior to abrasive coating.

How to Select a Setup

All BEX JPL Series products are designed to offer flexibility in performance, allowing users to adjust the liquid and air feed according to their setup. By tweaking the liquid and/or air source, the user can obtain various spray droplets and atomization effects.

The performance tables included here provide spray capacities for specific liquid/air flow combinations under standard conditions. However, it's important to note that these tables don't represent the only possible outcomes for each setup.

Every spray setup includes an air cap and a liquid cap that determine the specific spray pattern, capacity, and coverage performance. The setup can produce comparable spray performance with any of the available bodies.

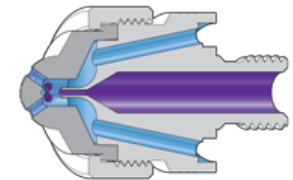


Internal Mix

Liquid and gas are mixed internally to produce a completely atomized spray. Available in Round, Wide-Angle Round and Flat Spray patterns.

Common Applications:

Dust control, pesticide application, humidification, cooling, coating and low viscosity fluids



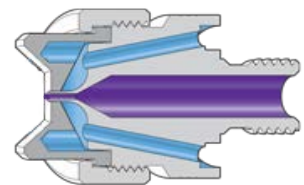
■ Liquid ■ Air

External Mix

Liquid atomization is controlled by altering the air pressure without changing the liquid pressure. Effective for higher viscosity liquids and abrasive suspensions.

Common Applications:

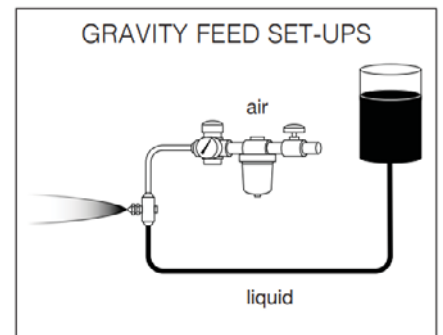
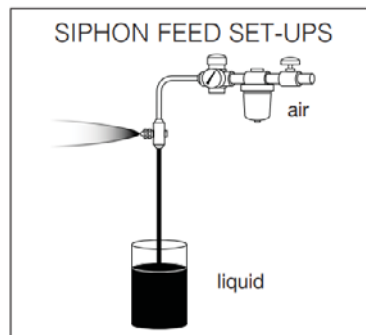
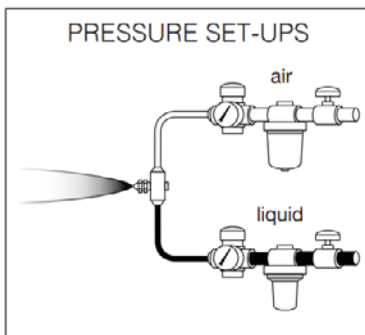
Precisely metered applications, adhesives, coatings and viscous fluids.



■ Liquid ■ Air

Basic Nozzle Installations

The air and liquid pressures can be adjusted to produce either fine or coarse droplet sizes. For finer atomization, increase the air pressure and/or decrease the liquid pressure.



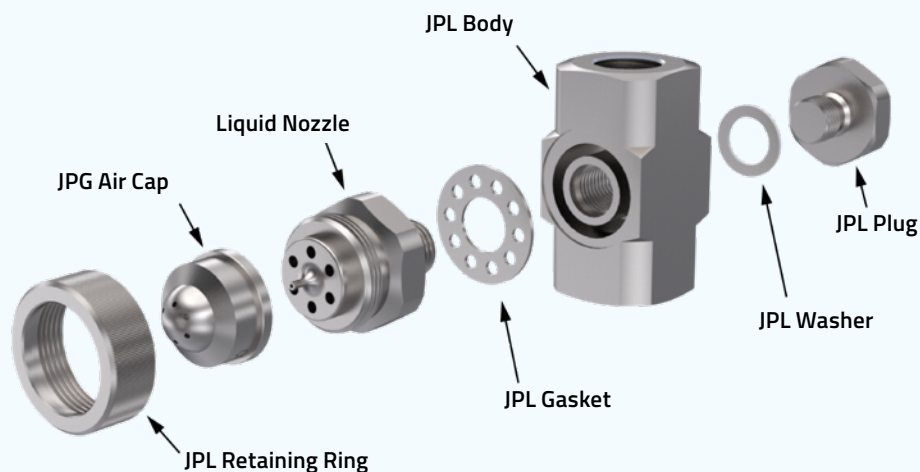
The liquid is supplied to the nozzle under pressure. Air and liquid can be externally or internally mixed to produce the proper atomized spray.

The liquid is supplied by either a liquid siphon or gravity feed. These set-ups are designed to draw liquid through the feed line into the air flow where it is properly atomized.

JPL Assembly Overview

A standard BEX JPL assembly consists of seven (7) components that fit together to produce an atomized liquid spray pattern.

The Air Cap determines the spray pattern, while the Liquid Nozzle determines the liquid/air flow rates.



Air Cap Selection

JPE Series *Page 181*

Round Spray
Pressure Feed - Internal Mix



JPG Series *Page 182*

Wide Round Spray
Pressure Feed - Internal Mix



JPD Series *Page 183*

Flat Spray
Pressure Feed - Internal Mix



JPV Series *Page 184*

Round Spray
Siphon/Gravity Feed - Internal Mix



JPK Series *Page 185*

Flat Spray
Siphon/Gravity Feed - Internal Mix



JPT Series *Page 186-187*

Flat Spray
Pressure Feed - External Mix



Liquid Cap Selection

The liquid cap determines the amount of liquid passing through the assembly. The orifices are equally distributed throughout the surface with various diameters to control the flow rate of the air/liquid.



Standard Body Selection

A variety of bodies and plugs are available to support wall mounts, shut-off needles, automatic or manual applications, and more.

JPL



The most commonly used body style for air atomizer assemblies. Air enters from the top, liquid enters from the bottom.

JBPL



Air and liquid inlets are on back of this body, parallel the nozzle outlet.

JTPL



Air and liquid inlets are both on top of this body, perpendicular from the nozzle outlet.

Automatic Body Selection

BEX Automatic Air Actuated Spray Nozzles can be fitted with any BEX spray set-up to meet your atomizing needs. Liquid flow to the nozzle assembly may be either pressure, gravity or siphon fed. The flow is precisely controlled through an automatically operated air cylinder inside the body. Typical applications include: moistening, die lubrication, coatings, pattern lubrication, paper mills, and many others.



Standard Automatic Bodies

2JAPL



Use one air line for atomizing the water and a second air line for the shutoff needle.

2JSPL



Use a single air line for both atomizing the water and controlling the shutoff needle.

2JAFPL



Use one air line for atomizing the water and a second air line for the shutoff needle. Includes manual shut-off.

2JSFPL



Use a single air line for both atomizing the water and controlling the shutoff needle. Includes manual shut-off.

Mounts

JPLN Thin Wall Mount



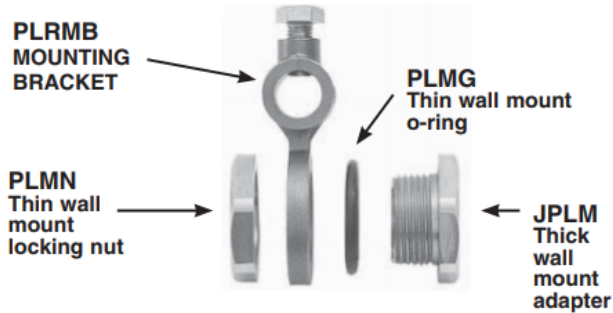
The thin wall mounting, simply add a PLMN locking nut and a PLMG O-Ring to the JPLM thick wall adapter. These tools allow any JPL assembly to mount to a wall that's less than 3/8" thick.

JPLM Thick Wall Mount



The JPLM adapter is a replacement for the cap retaining ring, and it has a 3/4" MNPT adapter. This allows any JPL assembly to be mounted to a wall over 3/8" thick.

PLRMB Rod Mounting Bracket



The rod mounting bracket allows for any air atomizing body to be mounted to a 1/2" diameter steel rod. Simply use the hardware from the thin wall mount (JPLN).

Extensions

Extensions allow the spray tip to be positioned 6" or 12" away from the body. They can be used on both Manual Bodies and Automatic Bodies.

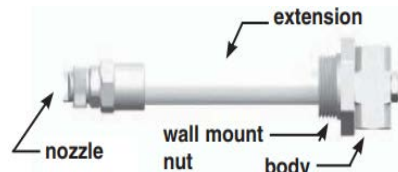
JX6P



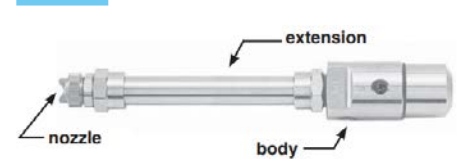
JX12PL



For Manual Bodies (JPL, JTPL, JBPL)



For Automatic Bodies (JAPL, JAFPL, JSPL, JSFPL)



Air Atomizer Assemblies

With so many variations available, Air Atomizer assemblies use a combination of numbers and letters to identify the features of each assembly. Use this guide for reference, or contact BEX directly for assistance.

FITTING CODE	BODY CODE	SET-UP CODE	OPTION CODES*	MATERIAL CODE																																																																												
<table><tr><th>Code</th><th>Description</th></tr><tr><td>2</td><td>1/4" x 1/4" NPT</td></tr><tr><td>B2</td><td>1/4"x 1/4" BSPT</td></tr></table>	Code	Description	2	1/4" x 1/4" NPT	B2	1/4"x 1/4" BSPT	MANUAL BODIES <table><tr><th>Code</th><th>Description</th></tr><tr><td>JPL</td><td>Standard Body</td></tr><tr><td>JPTL</td><td>Top-Connect Body</td></tr><tr><td>JBPL</td><td>Back-Connect Body</td></tr><tr><td>JMPL</td><td>Thick Wall-Mount</td></tr><tr><td>JNPL</td><td>Thin Wall-Mount</td></tr><tr><td>JX6PL</td><td>6" Extension</td></tr><tr><td>JX12PL</td><td>12" Extension</td></tr></table> AUTOMATIC AIR-ACTUATED BODIES <table><tr><th>Code</th><th>Description</th></tr><tr><td>JAPL</td><td>Automatic Body</td></tr><tr><td>JAFPL</td><td>Automatic w/ Shutoff</td></tr><tr><td>JSPL</td><td>Single-Airline Automatic</td></tr><tr><td>JSFPL</td><td>Single-Airline w/ Shutoff</td></tr><tr><td>JAX6PL</td><td>6" Extended Automatic</td></tr><tr><td>JAX12PL</td><td>12" Extended Automatic</td></tr></table>	Code	Description	JPL	Standard Body	JPTL	Top-Connect Body	JBPL	Back-Connect Body	JMPL	Thick Wall-Mount	JNPL	Thin Wall-Mount	JX6PL	6" Extension	JX12PL	12" Extension	Code	Description	JAPL	Automatic Body	JAFPL	Automatic w/ Shutoff	JSPL	Single-Airline Automatic	JSFPL	Single-Airline w/ Shutoff	JAX6PL	6" Extended Automatic	JAX12PL	12" Extended Automatic	<table><tr><th>Code</th><th>Description</th><th>Page#</th></tr><tr><td>11, 12A, 12, 22B, 22, 42</td><td>JPE – Internal Mix, Round Spray</td><td>181</td></tr><tr><td>16, 26B, 30, 26, 29, 46</td><td>JPG – Internal Mix, Wide Angle Round Spray</td><td>182</td></tr><tr><td>13A, 13, N13, 14, 23B, N23, 23, 43</td><td>JPD – Internal Mix, Flat Spray</td><td>183</td></tr><tr><td>1A, 1, 2A, 2, 4, 5</td><td>JPV – Internal Mix, Gravity/Siphon Feed, Round Spray</td><td>184</td></tr><tr><td>F1, F2C, F3B, F4B</td><td>JPK – Internal Mix, Round</td><td>185</td></tr><tr><td>E15B, E18B, E15A, E18A, E15, E18, E25B, E28A, E25, E45B, E45A, E45</td><td>JPT – External Mix, Flat</td><td>186-187</td></tr></table>	Code	Description	Page#	11, 12A, 12, 22B, 22, 42	JPE – Internal Mix, Round Spray	181	16, 26B, 30, 26, 29, 46	JPG – Internal Mix, Wide Angle Round Spray	182	13A, 13, N13, 14, 23B, N23, 23, 43	JPD – Internal Mix, Flat Spray	183	1A, 1, 2A, 2, 4, 5	JPV – Internal Mix, Gravity/Siphon Feed, Round Spray	184	F1, F2C, F3B, F4B	JPK – Internal Mix, Round	185	E15B, E18B, E15A, E18A, E15, E18, E25B, E28A, E25, E45B, E45A, E45	JPT – External Mix, Flat	186-187	<table><tr><th>Code</th><th>Description</th></tr><tr><td>NP</td><td>Nickle-Plated Brass</td></tr><tr><td>3</td><td>303 Stainless Steel</td></tr><tr><td>6</td><td>316 Stainless Steel</td></tr></table> <table><tr><th>Code</th><th>Description</th></tr><tr><td>H</td><td>Hex Retaining Ring</td></tr><tr><td>T</td><td>Teflon Gasket & Washer</td></tr><tr><td>C</td><td>Clean-out Assembly <i>*Not compatible with back connect body</i></td></tr><tr><td>F</td><td>Flow Control (Shut off) <i>*Not compatible with back connect body</i></td></tr><tr><td>S</td><td>Flow Control and Clean out <i>*Not compatible with back connect body</i></td></tr></table>	Code	Description	NP	Nickle-Plated Brass	3	303 Stainless Steel	6	316 Stainless Steel	Code	Description	H	Hex Retaining Ring	T	Teflon Gasket & Washer	C	Clean-out Assembly <i>*Not compatible with back connect body</i>	F	Flow Control (Shut off) <i>*Not compatible with back connect body</i>	S	Flow Control and Clean out <i>*Not compatible with back connect body</i>
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Part Number Examples

2JPL 12 3

A standard JPL assembly consisting of: 1/4" x 1/4" NPT fitting standard JPL body; retaining ring, rear plug, fiber gasket and fiber washer, JPE40- air cap and JL2860 liquid nozzle in 303SS

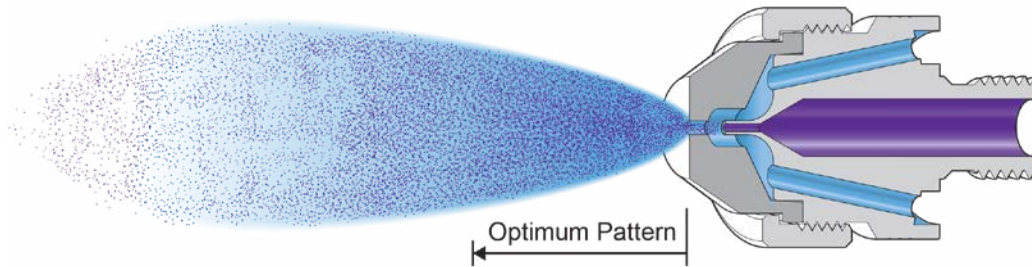
B2JSPL F2CT 6

A single airline automatic JSPL assembly consisting of 1/4" x 1/4" BSPT fitting single airline automatic JSPL body; retaining ring; Teflon gasket; JPK40 air cap and JL40100 liquid nozzle in 316SS

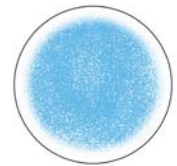
JPE Series Round Spray

Set-ups with BEX JPE series air caps produce a wide-angle round spray pattern. The liquid is pressure fed and internally mixed. Nozzle selection is not limited for other parameters.

■ Liquid ■ Air



JPE Air Cap



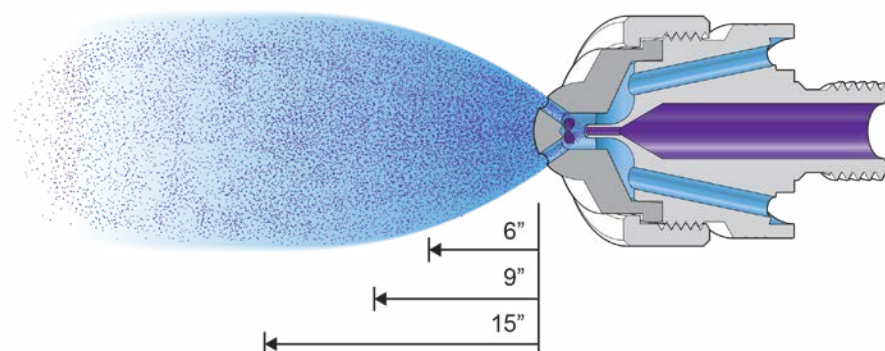
Spray Pattern

Model #	Spray Set-up consists of Liquid and Air Cap Combination	Liquid Capacity in GPH and Air Capacity in SCFM															Spray Dimensions		
		Liquid Pressure in psi															Optimum Pattern		Maximum
		10 psi			20 psi			30 psi			40 psi			60 psi			Spray Angle degrees	Spray Range inches	
11	Liquid Cap JL2050 + Air Cap JPE20	10	.55	.55	14	1.50	.40	24	1.68	.56	32	1.86	.68	50	2.28	.98	13-15	12-17	9-14
		12	.67	.67	18	1.23	.50	28	1.44	.63	36	1.62	.80	54	2.05	1.07			
		14	.78	.78	22	.99	.63	32	1.08	.82	40	1.32	.93	58	1.80	1.19			
		--	--	--	24	.86	.70	36	.84	.96	44	1.08	1.07	62	1.56	1.36			
		--	--	--	26	.72	.76	38	.72	1.03	48	.85	1.23	66	1.32	1.52			
		--	--	--	28	.60	.82	40	.66	1.11	50	.72	1.33	68	1.23	1.58			
12A	Liquid Cap JL2050 + Air Cap JPE40	10	.66	.66	18	1.44	.87	1	1.98	1.00	30	2.40	1.14	40	3.30	1.36	12-15	17-22	12-17
		12	.77	.77	20	1.32	.98	28	1.68	1.17	34	2.16	1.29	46	2.94	1.54			
		14	.90	.90	22	1.20	1.06	32	1.44	1.35	38	1.92	1.47	52	2.58	1.83			
		--	--	--	24	1.01	1.16	34	1.32	1.46	42	1.62	1.68	58	2.28	2.09			
		--	--	--	26	.90	1.26	36	1.20	1.57	44	1.50	1.78	62	2.10	2.26			
		--	--	--	--	--	--	38	1.11	4.66	46	1.38	1.88	66	1.86	2.46			
12	Liquid Cap JL2850 + Air Cap JPE40	12	1.26	.73	22	2.16	1.05	30	2.90	1.24	36	4.32	1.26	48	5.82	1.50	12-15	19-23	13-17
		16	1.08	.94	26	1.74	1.23	34	2.46	1.42	40	3.85	1.36	52	5.28	1.65			
		20	.90	1.15	30	1.44	1.47	38	2.10	1.65	44	3.55	1.56	56	4.92	1.73			
		22	.81	1.25	34	1.26	1.67	42	1.74	1.87	48	2.80	1.78	60	4.56	1.88			
		24	.78	1.36	38	1.08	1.87	46	1.50	2.03	52	2.46	2.01	64	4.08	2.08			
		26	.77	1.43	40	1.02	1.96	50	1.24	2.25	56	2.16	2.20	68	3.72	2.25			
22B	Liquid Cap JL40100 + Air Cap JPE60	16	3.44	2.68	28	5.03	3.71	40	6.10	4.72	48	7.75	5.30	65	10.7	6.74	18-21	26-38	16-30
		20	2.35	3.20	32	3.70	4.17	44	5.03	5.17	55	5.95	6.07	75	8.7	7.73			
		22	1.90	3.46	36	2.64	4.65	48	3.95	5.65	65	3.55	7.28	80	7.65	8.25			
		24	1.54	3.70	40	1.85	5.13	55	2.30	6.50	75	1.95	8.50	85	6.65	8.80			
		26	1.23	3.97	44	1.30	5.63	60	1.56	7.12	80	1.40	9.10	90	5.64	9.40			
		28	.96	4.22	48	.90	6.10	65	1.08	7.75	85	1.00	9.70	95	4.63	10.0			
22	Liquid Cap JL60100 + Air Cap JPE60	30	.72	4.48	50	.76	6.36	70	.73	8.35	90	.72	10.3	100	3.62	10.6	17-21	24-36	16-28
		12	8.1	2.00	20	13.6	2.55	30	16.3	3.25	38	19.5	3.74	54	25.7	4.66			
		14	6.60	2.32	22	12.0	2.85	34	13.1	3.75	42	16.5	4.20	60	21.8	5.34			
		16	4.90	2.66	24	10.2	3.15	38	9.9	4.32	46	13.6	4.71	65	18.5	5.98			
		18	3.40	3.00	26	8.6	3.45	40	8.0	4.61	50	10.8	5.30	70	15.2	6.68			
		--	--	--	28	7.20	3.75	42	7.60	4.90	52	9.6	5.80	75	12.2	7.80			
42	Liquid Cap JL100150 + Air Cap JPE80	--	--	--	30	5.90	4.05	44	6.60	5.20	54	8.6	5.85	80	10.0	8.14	19-22	35-46	20-30
		--	--	--	32	4.60	4.35	46	5.60	5.50	56	7.60	6.14	85	8.0	8.90			
		14	11.7	3.05	20	27.5	3.04	28	36.6	3.55	32	49.4	3.31	42	70.6	3.17			
		16	8.5	3.60	22	23.0	3.49	30	32.6	3.96	36	42.2	4.10	46	65.0	3.85			
		--	--	--	24	18.0	3.95	32	28.7	4.36	40	35.1	4.90	50	59.0	4.63			
		--	--	--	26	14.4	4.40	34	24.8	4.78	44	28.0	5.66	54	53.2	5.40			
		--	--	--	28	11.3	4.85	36	20.9	5.20	46	24.5	6.05	58	47.4	6.16	19-22	35-46	20-30
		--	--	--	--	--	--	38	17.5	5.60	48	21.3	6.45	65	37.8	7.54			
		--	--	--	--	--	--	40	14.6	6.03	50	18.4	6.86	70	30.0	8.55			
		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			

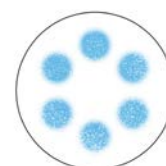
JPG Series Wide Angle Round Spray

Set-ups with BEX JPG series air caps produce a wide angle round spray pattern. The liquid is pressure fed and internally mixed. Nozzle selection is not limited for other parameters.

■ Liquid ■ Air



JPG Air Cap



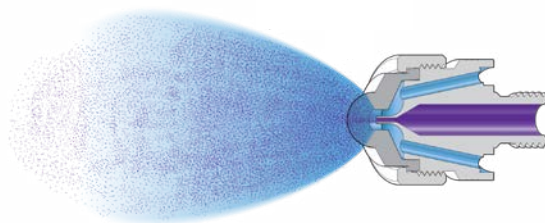
Spray Pattern

Model #	Spray Set-up consists of Liquid and Air Cap Combination	Liquid Capacity in GPH and Air Capacity in SCFM															Spray Dimensions			
		Liquid Pressure in psi															Pattern Width in Inches			Maximum Spray Range Feet
		10 psi			20 psi			30 psi			40 psi			60 psi			6" from tip	9" from tip	15" from tip	
		Air Press psi	GPH	SCFM	Air Press psi	GPH	SCFM	Air Press psi	GPH	SCFM	Air Press psi	GPH	SCFM	Air Press psi	GPH	SCFM				
16	Liquid Cap JL2050 + Air Cap JPG15	8	1.41	.36	14	2.10	.42	22	2.36	.56	30	2.53	.68	44	2.95	.81	5-7	7-9	9-12	5-13
		10	1.14	.43	16	1.90	.50	26	2.02	.69	34	2.23	.81	48	2.72	.94				
		12	.79	.50	18	1.68	.56	30	1.61	.83	38	1.90	.94	55	2.30	1.20				
		14	.45	.60	20	1.44	.64	34	1.15	1.00	42	1.50	1.10	60	1.92	1.40				
		--	--	--	22	1.17	.71	36	.91	1.07	46	1.10	1.26	65	1.50	1.60				
		--	--	--	24	.91	.80	38	.68	1.16	48	.90	1.35	70	1.07	1.80				
26B	Liquid Cap JL40100 + Air Cap JPG60	--	--	--	26	.55	.90	40	.43	1.25	50	.69	1.45	75	.65	2.05	7-8	9-11	12-14	6-19
		12	1.85	1.78	22	3.30	2.30	30	5.10	2.54	38	6.40	2.84	54	8.8	3.44				
		14	.55	2.20	24	2.20	2.67	32	4.25	2.85	42	4.70	3.42	56	8.1	3.74				
		--	--	--	26	1.20	3.05	34	3.35	3.18	44	3.90	3.72	58	7.44	4.03				
		--	--	--	--	--	--	36	2.50	3.50	46	3.06	4.05	60	6.76	4.32				
		--	--	--	--	--	--	38	1.60	3.85	48	2.25	4.42	65	5.10	5.10				
26	Liquid Cap JL60100 + Air Cap JPG60	--	--	--	--	--	--	40	.70	4.30	50	1.40	4.84	70	3.50	6.00	7-8	10-11	14-15	7-22
		--	--	--	--	--	--	--	--	--	52	.60	5.34	75	1.85	6.95				
		10	6.30	1.14	20	9.0	1.60	30	11.2	2.04	40	12.4	2.54	56	16.2	2.75				
		12	3.60	1.54	22	6.90	2.00	32	9.3	2.44	42	10.6	2.92	58	14.8	3.11				
		14	2.00	2.00	24	5.10	2.40	34	7.40	2.80	44	8.8	3.33	60	13.8	3.50				
		--	--	--	26	3.30	2.80	36	5.40	3.20	46	7.10	3.72	65	9.8	4.42				
29	Liquid Cap JL60100 + Air Cap JPG45	--	--	--	--	--	--	38	3.60	3.60	48	5.40	4.14	70	6.50	5.36	8-9	10-12	13-16	18-34
		--	--	--	--	--	--	40	2.30	3.98	50	3.60	4.51	75	4.00	6.31				
		--	--	--	--	--	--	--	--	--	52	2.20	4.91	80	2.40	6.51				
		18	9.4	3.00	30	13.4	4.15	44	15.3	5.45	60	15.6	7.05	80	21.4	8.55				
		22	7.70	3.60	34	11.9	4.65	48	13.8	5.90	70	12.5	8.25	85	19.5	9.15				
		26	6.00	4.13	38	10.3	5.10	55	11.3	6.75	80	9.3	9.45	90	17.9	9.75				
30	Liquid Cap JL40100 + Air Cap JPG30	28	5.20	4.40	42	8.9	5.60	65	7.80	8.00	85	7.80	10.1	95	16.5	10.4	6-7	7-9	9-11	9-31
		30	4.40	4.70	46	7.30	6.10	70	6.10	8.60	90	6.20	10.7	100	15.1	11.0				
		32	3.70	5.00	50	5.80	6.65	75	4.50	9.25	95	4.80	11.3	--	--	--				
		34	3.00	5.25	60	2.40	7.95	80	3.30	9.85	100	3.70	11.9	--	--	--				
		16	3.24	1.43	28	4.60	1.96	42	5.27	2.67	55	5.69	3.30	80	7.10	4.50				
		18	2.61	1.59	32	3.37	2.27	46	4.00	2.96	60	4.24	3.68	85	5.80	4.88				
46	Liquid Cap JL100150 + Air Cap JPG75	20	2.08	1.75	36	2.45	2.55	48	3.45	3.11	65	3.15	4.06	90	4.65	5.27	9-13	13-16	18-23	18-32
		22	1.62	1.90	40	1.75	2.85	50	3.03	3.26	70	2.31	4.44	95	3.75	5.65				
		24	1.30	2.06	42	1.45	3.00	55	2.11	3.63	75	1.72	4.82	100	3.00	6.03				
		26	1.04	2.20	44	1.21	3.14	60	1.47	3.98	80	1.32	5.20	--	--	--				
		28	.82	2.35	46	1.00	3.28	65	1.03	4.36	85	1.05	5.58	--	--	--				
		24	6.70	5.50	38	10.7	7.40	48	16.5	8.80	60	18.6	10.4	85	29.2	13.7				
46	Liquid Cap JL100150 + Air Cap JPG75	26	5.20	5.90	42	7.60	8.30	52	12.5	9.60	65	13.7	11.4	90	24.6	14.7	9-13	13-16	18-23	18-32
		28	4.00	6.30	44	6.20	8.70	56	9.2	10.4	70	10.0	12.4	95	20.7	15.8				
		30	3.00	6.80	46	5.00	9.10	60	6.60	11.3	75	7.40	13.5	100	17.5	16.9				
		32	2.00	7.20	48	4.00	9.50	62	5.60	11.7	80	5.50	14.5	--	--	--				
		--	--	--	50	3.00	9.90	65	4.40	12.3	85	4.00	15.5	--	--	--				
		--	--	--	52	2.40	10.3	70	2.60	13.3	90	2.50	16.6	--	--	--				

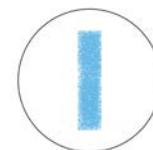
JPD Series Flat Spray

Set-ups with BEX JPD series air caps produce a flat spray pattern. The liquid is pressure fed and internally mixed. Nozzle selection is not limited for other parameters.

■ Liquid ■ Air



JPD Air Cap



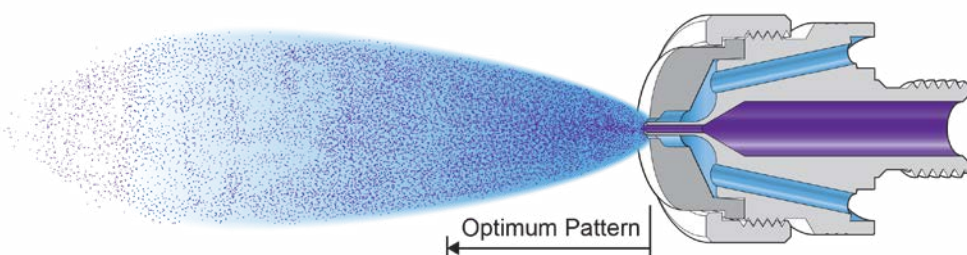
Spray Pattern

Model #	Spray Set-up consists of Liquid and Air Cap Combination	Liquid Capacity in GPH and Air Capacity in SCFM															Spray Dimension			
		Liquid Pressure in psi															Pattern Width in Inches			Maximum Sprav Range feet
		10 psi			20 psi			30 psi			40 psi			60 psi			6" from tip	9" from tip	15" from tip	
		Air Press psi	GPH	SCFM	Air Press psi	GPH	SCFM	Air Press psi	GPH	SCFM	Air Press psi	GPH	SCFM	Air Press psi	GPH	SCFM				
13A	Liquid Cap JL2050 + Air Cap JPD30	10	1.44	.84	18	2.17	1.12	28	2.49	1.47	38	2.77	1.84	55	3.41	2.43	10-22	14-29	18-37	8-13
		12	1.25	.96	22	1.82	1.31	32	2.19	1.64	42	2.49	2.01	65	2.83	2.85				
		14	1.09	1.08	26	1.50	1.50	36	1.89	1.82	46	2.20	2.19	75	2.26	3.26				
		16	.93	1.20	30	1.20	1.68	40	1.58	2.00	50	1.93	2.37	85	1.69	3.67				
		18	.79	1.32	34	.93	1.87	44	1.30	2.18	60	1.25	2.81	90	1.40	3.88				
		20	.65	1.43	38	.68	2.07	48	1.03	2.36	65	.93	3.02	95	1.13	4.09				
13	Liquid Cap JL2850 + Air Cap JPD30	22	.53	1.55	40	.57	2.16	55	.65	2.68	70	.65	3.25	100	.88	4.29	14-23	18-30	28-38	7-10
		12	2.17	.70	20	3.35	.96	30	3.98	1.27	38	4.66	1.49	65	4.80	2.38				
		14	1.80	.82	24	2.71	1.14	34	3.41	1.45	42	4.14	1.65	70	4.21	2.62				
		16	1.45	.95	28	2.06	1.34	38	2.85	1.64	46	3.60	1.85	75	3.63	2.86				
		18	1.08	1.07	30	1.76	1.45	42	2.29	1.85	50	3.08	2.05	80	3.05	3.10				
		20	.77	1.20	32	1.44	1.56	46	1.72	2.07	60	1.76	2.58	85	2.48	3.35				
N13	Liquid Cap JL2850 + Air Cap JPD45	--	--	--	34	1.18	1.67	48	1.43	2.18	65	1.20	2.84	90	1.98	3.60	4-8	5-10	7-13	10-16
		--	--	--	36	.94	1.78	50	1.20	2.28	70	.76	3.09	95	1.57	3.85				
		14	2.40	.89	22	3.20	1.13	34	3.40	1.63	40	4.40	1.77	60	5.00	2.53				
		16	2.10	1.05	26	2.80	1.38	38	2.90	1.86	44	3.80	1.99	65	4.40	2.73				
		18	1.70	1.14	30	2.10	1.62	42	2.30	2.07	48	3.30	2.22	70	3.90	3.00				
		20	1.40	1.26	34	1.50	1.87	46	1.80	2.36	54	2.60	2.55	75	3.40	3.25				
14	Liquid Cap JL2850 + Air Cap JPD15	24	.81	1.54	38	1.20	2.10	50	1.40	2.58	60	1.90	2.98	80	3.00	3.57	10-25	13-30	18-38	6-7
		28	.54	1.76	42	.72	2.38	60	.60	3.16	70	1.10	3.53	90	2.30	4.12				
		32	.30	1.96	48	.39	2.69	70	.33	3.65	85	.40	4.27	100	2.00	4.65				
		18	1.04	1.05	30	1.56	1.43	42	2.06	1.75	55	2.16	2.15	75	3.20	2.66				
		20	.80	1.15	34	1.10	1.61	44	1.80	1.85	60	1.60	2.38	80	2.66	2.90				
		22	.62	1.25	36	.90	1.70	46	1.57	1.94	65	1.15	2.62	85	2.19	3.13				
N23	Liquid Cap JL60100 + Air Cap JPD75	24	.47	1.35	38	.74	1.79	48	1.35	2.04	70	.76	2.85	90	1.75	3.36	4-8	5-10	6-14	8-13
		26	.35	1.45	40	.60	1.88	50	1.13	2.13	--	--	--	--	--	--				
		28	.25	1.55	42	.47	1.97	55	.70	2.36	--	--	--	--	--	--				
		--	--	--	44	.35	2.07	--	--	--	--	--	--	--	--	--				
		14	4.50	.80	24	7.50	1.24	34	9.5	1.74	44	11.1	2.20	56	19.8	2.56				
		16	2.90	.97	26	6.00	1.44	36	7.80	1.96	46	9.7	2.46	60	16.7	2.97				
23B	Liquid Cap JL40100 + Air Cap JPD60	18	2.00	1.17	28	4.50	1.68	38	6.50	2.20	48	8.4	2.69	65	13.5	3.50	6-13	7-16	8-19	10-13
		20	.84	1.42	30	3.40	1.82	40	5.20	2.53	52	5.70	3.30	70	9.7	4.33				
		--	--	--	32	2.40	2.06	42	4.10	2.65	56	3.90	3.84	80	4.80	5.73				
		--	--	--	34	1.30	2.32	46	2.60	3.25	60	2.40	4.36	90	1.80	7.40				
		--	--	--	36	.80	2.61	50	1.10	3.72	65	1.10	5.04	95	.70	8.38				
		16	2.95	1.92	28	4.45	2.66	38	5.94	3.22	46	7.50	3.66	65	9.7	4.80				
23	Liquid Cap JL60100 + Air Cap JPD60	18	2.25	2.10	30	3.87	2.84	40	5.40	3.40	50	6.45	3.97	70	8.6	5.20	7-13	9-16	12-20	11-14
		20	1.72	2.30	32	3.30	3.04	42	4.86	3.55	52	5.90	4.15	75	7.50	5.60				
		22	1.32	2.50	34	2.78	3.22	44	4.32	3.74	54	5.40	4.32	80	6.40	6.00				
		24	1.00	2.70	36	2.28	3.40	46	3.78	3.93	56	4.87	4.50	85	5.30	6.48				
		--	--	--	--	--	--	48	3.25	4.12	58	4.34	4.70	90	4.25	6.96				
		--	--	--	--	--	--	--	--	--	60	3.84	4.90	--	--	--				
43	Liquid Cap JL100150 + Air Cap JPD90	12	7.00	1.15	22	11.5	1.65	34	12.4	2.20	46	13.7	2.75	65	18.3	3.56	7-14	8-17	10-23	11-17
		14	5.40	1.35	26	8.3	2.02	38	9.8	2.57	50	10.9	3.14	75	12.6	4.47				
		16	4.20	1.57	30	6.00	2.40	42	7.80	2.95	54	8.7	3.51	80	10.6	4.95				
		18	3.30	1.69	32	5.10	2.60	46	5.90	3.34	56	7.80	3.70	85	8.7	5.40				
		20	2.70	1.97	34	4.30	2.78	48	5.00	3.52	60	6.40	4.06	90	6.90	5.85				
		22	2.00	2.20	36	3.60	2.97	50	4.30	3.71	65	4.60	4.53	95	5.50	6.30				
43	Liquid Cap JL100150 + Air Cap JPD90	--	--	--	38	3.00	3.16	52	3.70	3.90	70	3.30	5.00	100	4.50	6.76	7-14	8-17	10-23	11-17
		14	7.70	3.17	26	10.5	4.55	34	20.8	4.75	42	29.4	5.15	58	44.7	6.05				
		16	5.00	3.83	28	7.00	5.15	36	16.6	5.25	44	25.1	5.60	60	41.0	6.42				
		--	--	--	--	--	--	38	12.8	5.80	46	20.8	6.05	65	31.4	7.45				
		--	--	--	--	--	--	40	9.5	6.35	48	16.7	6.60	70	22.5	8.75				
		--	--	--	--	--	--	42	6.70	6.85	50	13.1	7.15	75	15.0	10.1				
43	Liquid Cap JL100150 + Air Cap JPD90	--	--	--	--	--	--	--	--	--	52	10.0	7.75	80	8.7	11.5				
		--	--	--	--	--	--	--	--	--	54	7.30	8.30	--	--	--				

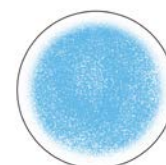
JPV Spray

Set-ups with BEX JPV series air caps produce a round spray pattern. The liquid is gravity or siphon fed into the air stream. Nozzle selection is not limited for other parameters. If you do not find the product for your application, please contact BEX.

■ Liquid ■ Air



JPV Air Cap



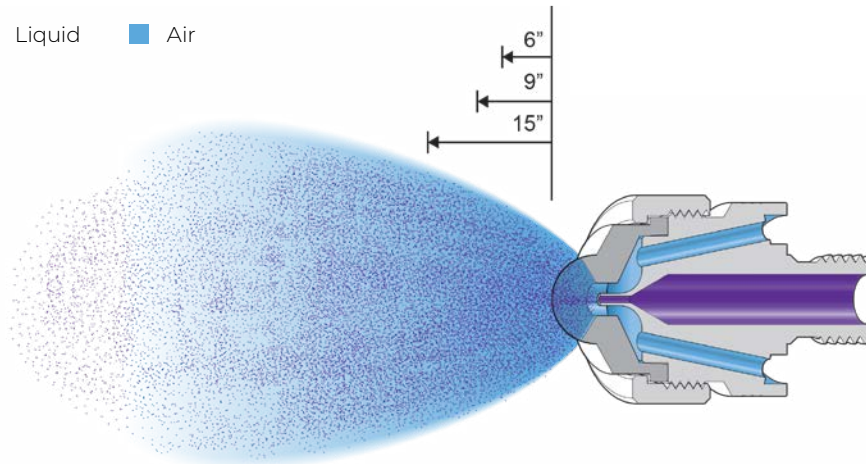
Spray Pattern

Model #	Spray Set-up consists of Liquid and Air Cap Combination	Atomizing Air		Liquid Capacity in GPH								Spray Dimensions (at 8" siphon height)		
		Air Pressure (psi)	Air Capacity (SCFM)	Gravity Head			Siphon Height				Optimum Pattern		Max. Spray Range (feet)	
				18"	12"	6"	4"	12"	24"	36"	Spray Angle (degrees)	Spray Range (inches)		
1A	Liquid Cap JL1650 + Air Cap JPV20	10	.40	0.39	0.35	0.30	0.23	0.14	--	--	18	11-14	6-8	
		20	.59	0.46	0.43	0.39	0.34	0.28	0.14	--				
		40	.95	0.54	0.50	0.47	0.41	0.36	0.28	0.19				
		60	1.32	0.59	0.54	0.49	0.44	0.39	0.31	0.24				
1	Liquid Cap JL2050 + Air Cap JPV20	10	.47	0.63	0.55	0.46	0.40	0.21	--	--	18-19	12-17	7-10	
		20	.66	0.73	0.66	0.60	0.54	0.4	0.21	0.07				
		40	1.06	0.87	0.81	0.76	0.71	0.61	0.43	0.28				
		60	1.48	0.98	0.92	0.88	0.83	0.73	0.57	0.40				
2A	Liquid Cap JL2050 + Air Cap JPV40	10	.81	0.67	0.61	0.53	0.43	0.29	--	--	18-20	12-17	8-13	
		20	1.2	0.76	0.72	0.64	0.56	0.44	0.21	--				
		40	1.94	0.89	0.86	0.82	0.76	0.65	0.46	0.30				
		60	2.7	0.98	0.96	0.94	0.91	0.81	0.68	0.56				
2	Liquid Cap JL2850 + Air Cap JPV40	10	.68	1.19	1.05	0.91	0.56	0.38	--	--	21-22	15-20	10-15	
		20	1.03	1.37	1.27	1.13	0.88	0.68	0.46	--				
		40	1.7	1.57	1.47	1.32	1.15	0.91	0.63	0.28				
		60	2.39	1.48	1.41	1.30	1.08	0.9	0.74	0.52				
4	Liquid Cap JL60100 + Air Cap JPV60	20	1.9	5.8	5.2	4.20	3.10	1.9	0.6	--	17-19	18-23	12-18	
		40	3.	6.5	6.0	5.10	4.30	3	1.6	0.70				
		60	4.1	6.8	6.4	5.60	4.90	3.45	2.2	1.30				
		80	5.2	6.8	6.4	5.80	5.20	3.85	2.6	1.60				
5	Liquid Cap JL100150 + Air Cap JPV80	30	5.3	--	--	--	7.20	4.6	--	--	20-22	20-25	22-27	
		40	6.5	--	--	--	7.80	5.3	--	--				
		60	8.8	--	11.4	10.6	8.3	6.2	3.2	--				
		80	11.1	11.6	11	10.3	8.3	6.4	4.4	2.2				

JPK Spray Flat Spray

Set-ups with JPK series air caps produce a flat spray pattern. The liquid is gravity or siphon fed into the air stream. Nozzle selection is not limited for other parameters. If you do not find the product for your application, please contact BEX.

■ Liquid ■ Air



JPK Air Cap



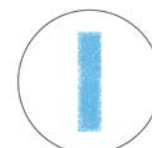
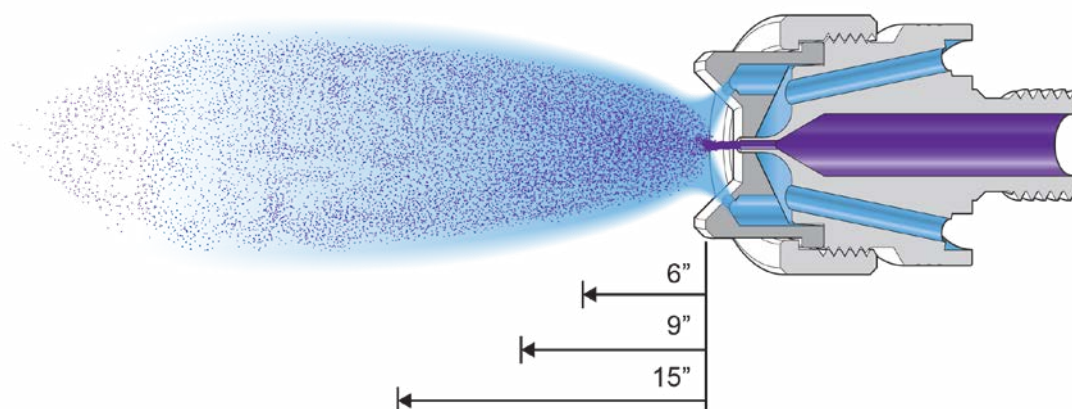
Spray Pattern

Model #	Spray Set-up consists of Liquid and Air Cap Combination	Atomizing Air		Liquid Capacity in GPH								Spray Dimensions (at 8" siphon height)			
		Air Pressure (psi)	Air Capacity (SCFM)	Gravity Head			Siphon Height					Optimum Pattern			Max. Spray Range Feet
				18"	12"	6"	4"	8"	12"	24"	36"	6" from tip	9" from tip	15" from tip	
F1	Liquid Cap JL2850 + Air Cap JPK20	10	.99	0.35	0.33	0.30	0.27	0.25	0.22	0.17	0.13	8-9	10-12	15	6-7
		20	1.42	0.31	0.30	0.29	0.26	0.25	0.23	0.19	0.16				
		30	1.83	0.18	0.16	0.15	0.11	0.09	--	--	--				
F2C	Liquid Cap JL35100 + Air Cap JPK40	20	1.86	1.01	0.95	0.90	0.77	0.72	0.67	0.62	0.56	9-11	12-15	15-19	9-10
		30	2.42	0.88	0.84	0.81	0.75	0.71	0.67	0.63	0.57				
		40	2.96	0.76	0.73	0.69	0.65	0.61	0.58	0.53	0.48				
		60	4.05	0.44	0.41	0.37	0.33	0.30	0.27	--	--				
F3B	Liquid Cap JL40100 + Air Cap JPK60	20	2.26	1.35	1.28	1.20	1.01	0.96	0.92	0.78	0.62	7-8	9-10	10-12	10-11
		30	2.88	1.26	1.21	1.14	0.92	0.87	0.82	0.74	0.59				
		40	3.52	0.98	0.92	0.87	0.66	0.59	0.52	0.44	--				
		50	4.13	0.58	0.52	0.44	--	--	--	--	--				
F4B	Liquid Cap JL40100 + Air Cap JPK80	20	2.1	2.01	1.90	1.71	1.47	1.40	1.32	1.17	0.92	6-8	8-10	10-13	11
		30	2.7	2	1.94	1.81	1.58	1.52	1.45	1.34	1.11				
		40	3.28	1.82	1.74	1.63	1.42	1.34	1.22	1.03	--				
		50	3.87	1.1	0.97	0.85	0.69	--	--	--	--				

JPT Series Flat Spray

BEX JPT series air caps produce a flat spray pattern. Liquid is pressure fed and externally mixed. Nozzle selection is not limited for other parameters. If you do not find the product for your application range, please contact BEX.

■ Liquid ■ Air



Spray Pattern

Model #	Spray Set-up consists of Liquid and Air Cap Combination	Liquid Capacity in GPH and Air Capacity in SCFM															Spray Dimensions (in)			
		Liquid Pressure in psi															Optimum Pattern		Maximum Spray Range Feet	
		3 psi			5 psi			10 psi			20 psi			40 psi						
		Air Press psi	SCFM	GPH	Air Press psi	SCFM	GPH	Air Press psi	SCFM	GPH	Air Press psi	SCFM	GPH	Air Press psi	SCFM	GPH	6" from tip	9" from tip	15" from tip	
E15B	Liquid Cap JL1650 Air Cap JPT15	3	.89	.80	5	.93	1.0	10	1.1	1.4	20	1.6	2.0	40	2.6	2.8	3-6	6-7	9-11	3-8
		5	.93	.80	10	1.1	1.0	15	1.4	1.4	25	1.9	2.0	50	3.0	2.8				
		10	1.1	.80	15	1.4	1.0	20	1.6	1.4	30	2.1	2.0	60	3.6	2.8				
		15	1.4	.80	20	1.6	1.0	25	1.9	1.4	40	2.6	2.0	70	4.2	2.8				
		20	1.6	.80	25	1.9	1.0	30	2.1	1.4	50	3.0	2.0	75	4.5	2.8				
		25	1.9	.80	30	2.1	1.0	40	2.6	1.4	60	3.6	2.0	80	4.9	2.8				
E18B	Liquid Cap JL1650 Air Cap JPT30	30	2.1	.80	40	2.6	1.0	50	3.0	1.4	80	4.9	2.0	90	5.6	2.8	8-12	11-15	13-20	4-9
		5	.78	.80	5	.78	1.0	6	.88	1.4	8	1.0	2.0	10	1.2	2.8				
		6	.88	.80	6	.88	1.0	8	1.0	1.4	10	1.2	2.0	15	1.6	2.8				
		7	.97	.80	8	1.0	1.0	10	1.2	1.4	15	1.6	2.0	25	2.2	2.8				
E15A	Liquid Cap JL2050 Air Cap JPT15	8	1.0	.80	10	1.2	1.0	12	1.4	1.4	20	1.9	2.0	35	2.8	2.8	3-6	5-8	8-12	3-10
		5	.93	1.2	10	1.1	1.6	15	1.4	2.2	25	1.9	3.1	45	2.9	4.4				
		10	1.1	1.2	15	1.4	1.6	20	1.6	2.2	30	2.1	3.1	50	3.0	4.4				
		15	1.4	1.2	20	1.6	1.6	25	1.9	2.2	40	2.6	3.1	60	3.6	4.4				
		20	1.6	1.2	25	1.9	1.6	30	2.1	2.2	50	3.0	3.1	70	4.2	4.4				
		25	1.9	1.2	30	2.1	1.6	40	2.6	2.2	60	3.6	3.1	75	4.5	4.4				
E18A	Liquid Cap JL2050 Air Cap JPT30	30	2.1	1.2	40	2.6	1.6	50	3.0	2.2	70	4.2	3.1	90	5.6	4.4	11-16	13-19	16-26	5-10
		40	2.6	1.2	50	3.0	1.6	60	3.6	2.2	90	5.6	3.1	95	5.8	4.4				
		5	.78	1.2	5	.78	1.6	8	1.0	2.2	10	1.2	3.1	15	1.6	4.4				
		8	1.0	1.2	10	1.2	1.6	10	1.2	2.2	20	1.9	3.1	20	1.9	4.4				
E15	Liquid Cap JL2850 Air Cap JPT15	10	1.2	1.2	15	1.6	1.6	20	1.9	2.2	30	2.5	3.1	30	2.5	4.4	5-6	6-8	9-14	4-13
		15	1.6	1.2	20	1.9	1.6	30	2.5	2.2	35	2.8	3.1	35	2.8	4.4				
		10	1.1	2.3	15	1.4	3.0	20	1.6	4.2	35	2.4	6.0	50	3.0	8.4				
		15	1.4	2.3	20	1.6	3.0	25	1.9	4.2	40	2.6	6.0	60	3.6	8.4				
		20	1.6	2.3	25	1.9	3.0	30	2.1	4.2	50	3.0	6.0	70	4.2	8.4				
		25	1.9	2.3	30	2.1	3.0	40	2.6	4.2	60	3.6	6.0	75	4.5	8.4				
E18	Liquid Cap JL2850 Air Cap JPT30	30	2.1	2.3	40	2.6	3.0	50	3.0	4.2	70	4.2	6.0	80	4.9	8.4	14-17	19-21	24-27	6-9
		40	2.6	2.3	50	3.0	3.0	60	3.6	4.2	80	4.9	6.0	90	5.6	8.4				
		50	3.0	2.3	60	3.6	3.0	70	4.2	4.2	90	5.6	6.0	100	6.2	8.4				
		6	.88	2.3	6	.88	3.0	6	.88	4.2	10	1.2	6.0	20	1.9	8.4				
E25B	Liquid Cap JL35100 Air Cap JPT45	7	.97	2.3	8	1.0	3.0	8	1.0	4.2	12	1.4	6.0	25	2.2	8.4	5-6	7-9	10-14	5-16
		8	1.0	2.3	9	1.1	3.0	10	1.2	4.2	15	1.6	6.0	30	2.5	8.4				
		10	1.2	2.3	10	1.2	3.0	12	1.4	4.2	20	1.9	6.0	35	2.8	8.4				
		10	3.0	3.6	15	3.6	4.7	20	4.1	6.6	35	6.3	9.4	45	7.5	13.2				
		15	3.6	3.6	20	4.1	4.7	25	4.9	6.6	40	6.9	9.4	50	8.2	13.2				
		20	4.1	3.6	25	4.9	4.7	30	5.5	6.6	50	8.0	9.4	55	9.0	13.2				
		25	4.9	3.6	30	5.5	4.7	35	6.3	6.6	60	9.4	9.4	60	9.7	13.2				
30	5.5	3.6	40	6.9	4.7	40	6.9	6.6	70	11.0	9.4	70	11.1	13.2						
40	6.9	3.6	50	8.0	4.7	50	8.0	6.6	80	12.7	9.4	80	12.7	13.2						
50	8.0	3.6	60	9.4	4.7	60	9.4	6.6	90	14.5	9.4	90	14.5	13.2						

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JPT Flat Spray (Continued)

Model #	Spray Set-up consists of Liquid and Air Cap Combination	Liquid Capacity in GPH and Air Capacity in SCFM															Spray Dimensions (in)			
		Liquid Pressure in psi															Optimum Pattern			Maximum Spray Range Feet
		3 psi			5 psi			10 psi			20 psi			40 psi			6" from tip	9" from tip	15" from tip	
		Air Press psi	SCFM	GPH	Air Press psi	SCFM	GPH	Air Press psi	SCFM	GPH	Air Press psi	SCFM	GPH	Air Press psi	SCFM	GPH				
E28B	Liquid Cap JL35100 Air Cap JPT60	8	3.2	3.6	10	3.6	4.7	20	5.5	6.6	30	7.4	9.4	45	10.0	13.2	13-16	15-20	19-28	12-17
		10	3.6	3.6	15	4.6	4.7	30	7.4	6.6	40	9.1	9.4	60	12.6	13.2				
		15	4.6	3.6	25	6.5	4.7	35	8.3	6.6	50	10.9	9.4	75	15.2	13.2				
		20	5.5	3.6	30	7.4	4.7	40	9.1	6.6	60	12.6	9.4	80	16.0	13.2				
E25A	Liquid Cap JL40100 Air Cap JPT45	10	3.0	4.8	20	4.1	6.1	25	4.9	8.7	40	6.9	12.3	50	8.2	17.4	6-7	7-10	10-14	7-19
		15	3.6	4.8	25	4.9	6.1	30	5.5	8.7	45	7.5	12.3	60	9.7	17.4				
		20	4.1	4.8	30	5.5	6.1	35	6.3	8.7	50	8.0	12.3	70	11.1	17.4				
		25	4.9	4.8	35	6.3	6.1	40	6.9	8.7	60	9.4	12.3	75	12.0	17.4				
		30	5.5	4.8	40	6.9	6.1	50	8.0	8.7	70	11.0	12.3	80	12.7	17.4				
		40	6.9	4.8	50	8.0	6.1	60	9.4	8.7	80	12.7	12.3	90	14.5	17.4				
E28A	Liquid Cap JL40100 Air Cap JPT60	8	3.2	4.8	10	3.6	6.1	15	4.6	8.7	35	8.3	12.3	50	10.9	17.4	12-15	15-19	20-25	10-17
		15	4.6	4.8	20	5.5	6.1	25	6.5	8.7	45	10.0	12.3	65	13.5	17.4				
		20	5.5	4.8	25	6.5	6.1	35	8.3	8.7	55	11.7	12.3	85	16.8	17.4				
		25	6.5	4.8	30	7.4	6.1	40	9.1	8.7	60	12.6	12.3	95	18.5	17.4				
E28	Liquid Cap JL60100 Air Cap JPT60	10	3.6	9.9	15	4.6	6.1	25	6.5	18.0	45	10.0	25.5	75	15.2	36.0	15-19	20-25	26-33	12-19
		15	4.6	9.9	20	5.5	6.1	30	7.4	18.0	50	10.9	25.5	85	16.8	36.0				
		20	5.5	9.9	30	7.4	6.1	40	9.1	18.0	70	14.3	25.5	95	18.5	36.0				
		25	6.5	9.9	35	8.3	6.1	45	10.0	18.0	80	16.0	25.5	100	19.4	36.0				
E25	Liquid Cap JL60100 Air Cap JPT45	15	3.6	9.9	25	4.9	12.7	35	6.3	18.0	45	7.5	25.5	55	9.0	36.0	6-8	8-11	10-15	9-19
		20	4.1	9.9	30	5.5	12.7	40	6.9	18.0	50	8.0	25.5	60	9.7	36.0				
		25	4.9	9.9	35	6.3	12.7	45	7.5	18.0	55	8.7	25.5	65	10.5	36.0				
		30	5.5	9.9	40	6.9	12.7	50	8.0	18.0	60	9.4	25.5	70	11.1	36.0				
		35	6.3	9.9	45	7.5	12.7	60	9.4	18.0	70	11.0	25.5	80	12.7	36.0				
		40	6.9	9.9	50	8.0	12.7	70	11.0	18.0	80	12.7	25.5	90	14.5	36.0				
E45B	Liquid Cap JL60150 Air Cap JPT75	50	8.0	9.9	60	9.4	12.7	80	12.7	18.0	90	14.5	25.5	100	16.1	36.0	6-7	8-9	11-13	10-18
		25	8.3	10.0	25	8.3	12.9	35	10.5	18.0	55	14.5	25.5	--	--	--				
		30	9.2	10.0	30	9.2	12.9	40	11.6	18.0	60	15.7	25.5	--	--	--				
		35	10.5	10.0	35	10.5	12.9	45	12.5	18.0	65	17.0	25.5	--	--	--				
		40	11.6	10.0	40	11.6	12.9	50	13.4	18.0	70	18.4	25.5	--	--	--				
		45	12.5	10.0	45	12.5	12.9	55	14.5	18.0	75	20.0	25.5	--	--	--				
E45A	Liquid Cap JL80150 Air Cap JPT75	50	13.4	10.0	50	13.4	12.9	60	15.7	18.0	80	21.2	25.5	--	--	--	6-8	9-10	13-15	11-20
		60	15.7	10.0	60	15.7	12.9	70	18.4	18.0	90	24.2	25.5	--	--	--				
		30	9.2	17.4	40	11.6	22.5	55	14.5	31.5	70	18.4	44.7	--	--	--				
		35	10.5	17.4	45	12.5	22.5	60	15.7	31.5	75	20.0	44.7	--	--	--				
		40	11.6	17.4	50	13.4	22.5	65	17.0	31.5	80	21.2	44.7	--	--	--				
		45	12.5	17.4	55	14.5	22.5	70	18.4	31.5	85	22.5	44.7	--	--	--				
E45	Liquid Cap JL100150 Air Cap JPT75	50	13.4	17.4	60	15.7	22.5	75	20.0	31.5	90	24.2	44.7	--	--	--	7-8	10-11	14-16	15-20
		60	15.7	17.4	70	18.4	22.5	80	21.2	31.5	--	--	--	--	--	--				
		70	18.4	17.4	80	21.2	22.5	90	24.2	31.5	--	--	--	--	--	--				
		40	11.6	27.9	50	13.4	36.0	65	17.0	50.6	80	21.2	72.0	--	--	--				
		45	12.5	27.9	55	14.5	36.0	70	18.4	50.6	85	22.5	72.0	--	--	--				
		50	13.4	27.9	60	15.7	36.0	75	20.0	50.6	90	24.2	72.0	--	--	--				
E45	Liquid Cap JL100150 Air Cap JPT75	55	14.5	27.9	65	17.0	36.0	80	21.2	50.6	--	--	--	--	--	--	7-8	10-11	14-16	15-20
		60	15.7	27.9	70	18.4	36.0	85	22.5	50.6	--	--	--	--	--	--				
		65	17.0	27.9	75	20.0	36.0	90	24.2	50.6	--	--	--	--	--	--				
		70	18.4	27.9	80	21.2	36.0	--	--	--	--	--	--	--	--	--				
		70	18.4	27.9	80	21.2	36.0	--	--	--	--	--	--	--	--	--				

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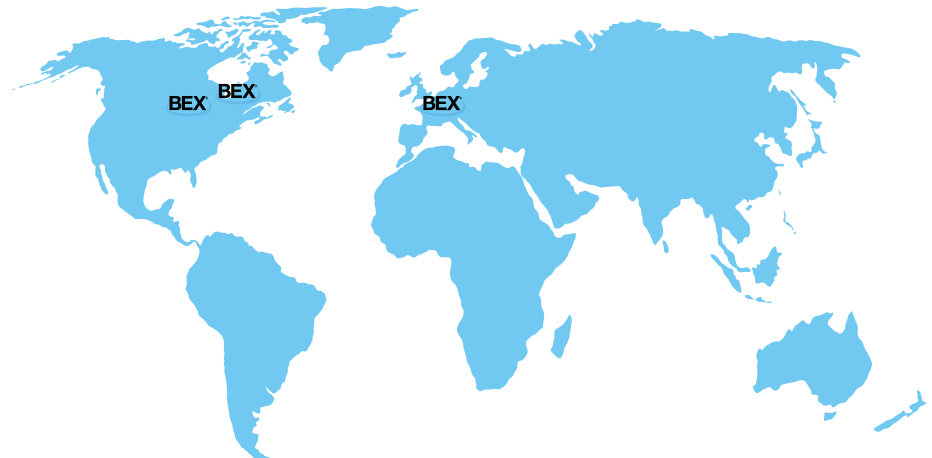
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