

BJ

Low Flow

DESIGN FEATURES

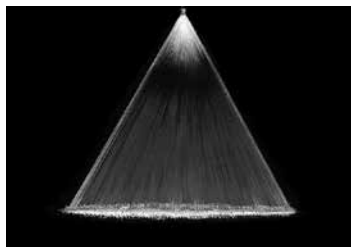
- Three-piece construction
- Interchangeable spray tips
- Integral strainer available (refer to page 119 for more information)
- Male and female connections

SPRAY CHARACTERISTICS

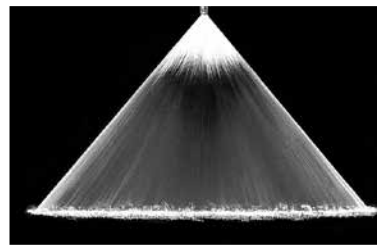
- Relatively coarse atomization
 - Uniform distribution with tapered edges for use in overlapping sprays
- Spray pattern: Flat Fan
 Spray angles: 0° to 110°
 Flow rate: 0.011 to 101 l/min



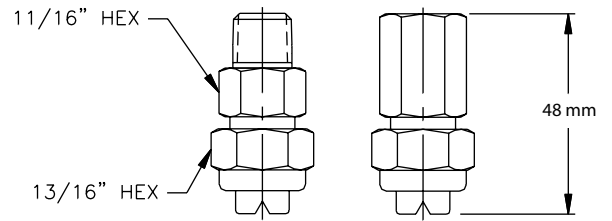
Metal



Fan 50°



Fan 80°



Dimensions are approximate. Check with BETE for critical dimension applications.

BJ Dimensions

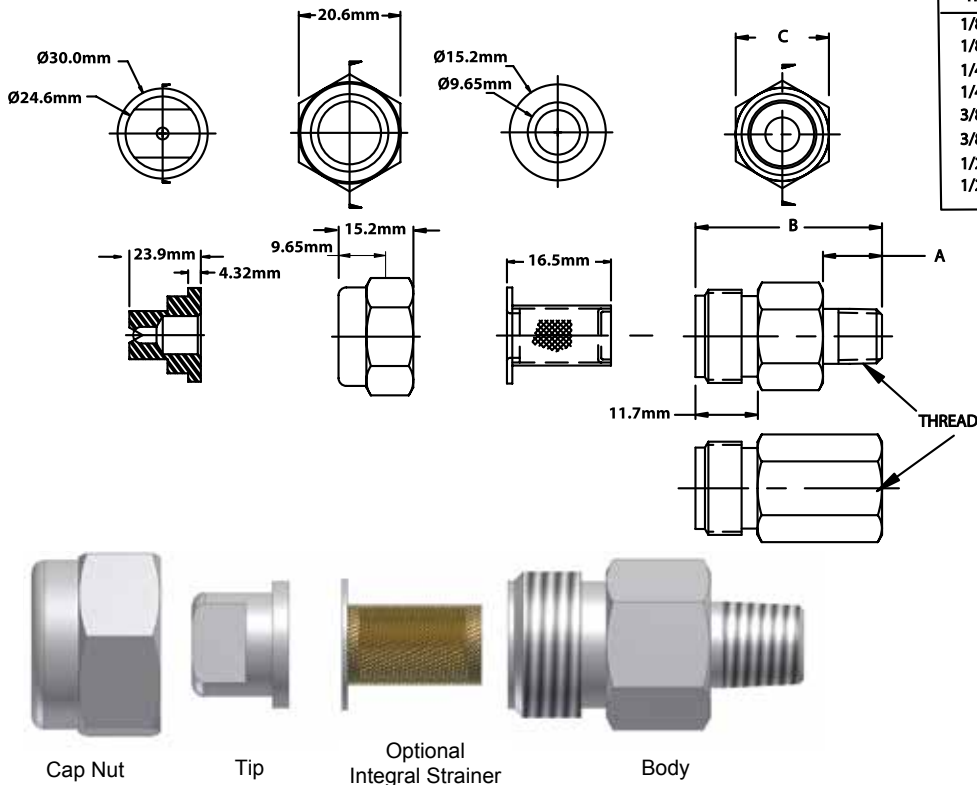
Fan, 0° to 110° Spray Angles, 1/8", 1/4" and 3/8" Pipe Size, Male and Female

Pipe Size	Nozzle Number	Flow Rate @ 3 bar	Available Spray Angle									Optional Strainer Mesh Size	Wt. (g)	
			0°	15°	25°	40°	50°	65°	73°	80°	95°			110°
1/8"	BJ 0009	0.04	0°										200	28
	BJ 0012	0.05	0°											
	BJ 0017	0.07		15°	25°	40°	50°	65°						
	BJ 0019	0.07	0°											
	BJ 0021	0.08	0°											
	BJ 0023	0.09							73°					
	BJ 0025	0.1		15°	25°	40°	50°	65°						
OR	BJ 0033	0.13		15°	25°	40°	50°	65°						
	BJ 0039	0.15							73°					
1/4"	BJ 005	0.2	0°	15°	25°	40°	50°	65°		80°			100	28
	BJ 0067	0.26	0°	15°	25°	40°	50°	65°						
	BJ 0077	0.3							73°					
	BJ 01	0.39	0°	15°	25°	40°	50°	65°		80°	95°	110°		
	BJ 0116	0.46							73°					
OR	BJ 015	0.59	0°	15°	25°	40°	50°	65°		80°	95°	110°	50	28
	BJ 0154	0.61							73°					
	BJ 02	0.79	0°	15°	25°	40°	50°	65°		80°	95°	110°		
	BJ 0231	0.91							73°					
	BJ 03	1.81	0°	15°	25°	40°	50°	65°		80°	95°	110°		
	BJ 0308	1.22							73°					
	BJ 0385	1.52							73°					
	BJ 04	1.58	0°	15°	25°	40°	50°	65°		80°	95°	110°		
	BJ 0462	1.82							73°					
	BJ 05	1.97	0°	15°	25°	40°	50°	65°		80°	95°	110°		
OR	BJ 06	2.37	0°	15°	25°	40°	50°	65°		80°	95°	110°		
	BJ 0616	2.43							73°					
	BJ 077	3.04							73°					
	BJ 08	3.16	0°	15°	25°	40°	50°	65°		80°	95°	110°		
	BJ 0924	3.65							73°					
	BJ 10	3.95	0°	15°	25°	40°	50°	65°		80°	95°	110°		
	BJ 15	5.92	0°	15°	25°	40°	50°	65°		80°	95°	110°		
3/8"	BJ 20	7.89	0°	15°	25°	40°	50°	65°		80°	95°	110°	50	
	BJ 30	11.8	0°	15°	25°	40°	50°	65°		80°	95°	110°		
	BJ 40	15.8	0°	15°	25°	40°	50°	65°		80°	95°	110°		
	BJ 50	19.7		15°	25°	40°	50°	65°		80°	95°	110°		
1/2"	BJ 60	23.7		15°	25°	40°	50°	65°		80°	95°	110°		
	BJ 70	27.6		15°	25°	40°	50°	65°		80°	95°	110°		

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.

FAN

TO ORDER: specify pipe size, connection type, nozzle number, spray angle, and material.



Dimensions are approximate. Check with BETE for critical dimension applications.

BJ Flow Rates

Fan, 0°, 15°, 25°, 40°, 50°, 65°, 73°, 80°, 95°, 110° Spray Angles, 1/8", 1/4" and 3/8" Pipe Size, Male and Female
LITERS PER MINUTE @ BAR

Pipe Size	Nozzle Number	Equiv. Orifice Dia. (mm)	K Factor	0.3 bar	0.5 bar	0.7 bar	2 bar	4 bar	5 bar	10 bar	20 bar	30 bar	40 bar	
	BJ 0009	0.20	0.021	0.011	0.015	0.017	0.029	0.041	0.046	0.065	0.092	0.11	0.13	
	BJ 0012	0.25	0.027	0.015	0.019	0.023	0.039	0.055	0.061	0.086	0.12	0.15	0.17	
	BJ 0017	0.28	0.039	0.021	0.027	0.032	0.055	0.077	0.087	0.12	0.17	0.21	0.25	
1/8"	BJ 0019	0.30	0.043	0.024	0.031	0.036	0.061	0.087	0.097	0.14	0.19	0.24	0.27	
	BJ 0021	0.33	0.048	0.026	0.034	0.04	0.068	0.096	0.11	0.15	0.21	0.26	0.30	
	BJ 0023	0.33	0.052	0.029	0.037	0.044	0.074	0.10	0.12	0.17	0.23	0.29	0.33	
	BJ 0025	0.33	0.057	0.031	0.04	0.048	0.081	0.11	0.13	0.18	0.25	0.31	0.36	
	BJ 0033	0.38	0.075	0.041	0.053	0.063	0.11	0.15	0.17	0.24	0.34	0.41	0.48	
	BJ 0039	0.41	0.089	0.049	0.063	0.074	0.13	0.18	0.20	0.28	0.40	0.49	0.56	
	OR	BJ 005	0.50	0.114	0.062	0.081	0.095	0.16	0.23	0.25	0.36	0.51	0.62	0.72
1/4"	BJ 0067	0.58	0.153	0.084	0.11	0.13	0.22	0.31	0.34	0.48	0.68	0.84	0.97	
	BJ 0077	0.58	0.175	0.096	0.12	0.15	0.25	0.35	0.39	0.55	0.78	0.96	1.11	
	BJ 01	0.71	0.228	0.12	0.16	0.19	0.32	0.46	0.51	0.72	1.02	1.25	1.44	
	BJ 0116	0.91	0.264	0.14	0.19	0.22	0.37	0.53	0.59	0.84	1.18	1.45	1.67	
	BJ 015	0.97	0.342	0.19	0.24	0.29	0.48	0.68	0.76	1.08	1.53	1.87	2.16	
	BJ 0154	0.84	0.351	0.19	0.25	0.29	0.50	0.70	0.78	1.11	1.57	1.92	2.22	
	OR	BJ 02	0.99	0.456	0.25	0.32	0.38	0.64	0.91	1.02	1.44	2.04	2.50	2.88
3/8"	BJ 0231	1.02	0.526	0.29	0.37	0.44	0.74	1.05	1.18	1.66	2.35	2.88	3.33	
	BJ 03	1.19	0.684	0.37	0.48	0.57	0.97	1.37	1.53	2.16	3.06	3.74	4.32	
	OR	BJ 0308	1.19	0.702	0.38	0.50	0.59	0.99	1.40	1.57	2.22	3.14	3.84	4.44
	BJ 0385	1.30	0.877	0.48	0.62	0.73	1.24	1.75	1.96	2.77	3.92	4.81	5.55	
	BJ 04	1.40	0.912	0.50	0.64	0.76	1.29	1.82	2.04	2.88	4.08	4.99	5.77	
	BJ 0462	1.42	1.053	0.58	0.74	0.88	1.49	2.11	2.35	3.33	4.71	5.77	6.66	
	OR	BJ 05	1.55	1.139	0.62	0.81	0.95	1.61	2.28	2.55	3.60	5.10	6.24	7.21
1/2"	BJ 06	1.70	1.367	0.75	0.97	1.14	1.93	2.73	3.06	4.32	6.11	7.49	8.65	
	BJ 0616	1.70	1.404	0.77	0.99	1.17	1.99	2.81	3.14	4.44	6.28	7.69	8.88	
	OR	BJ 077	1.83	1.755	0.96	1.24	1.47	2.48	3.51	3.92	5.55	7.85	9.61	11.1
	BJ 08	1.88	1.823	1.00	1.29	1.53	2.58	3.65	4.08	5.77	8.15	9.99	11.5	
	BJ 0924	1.98	2.106	1.15	1.49	1.76	2.98	4.21	4.71	6.66	9.42	11.5	13.3	
	BJ 10	2.18	2.279	1.25	1.61	1.91	3.22	4.56	5.10	7.21	10.2	12.5	14.4	
	OR	BJ 15	2.72	3.418	1.87	2.42	2.86	4.83	6.84	7.64	10.8	15.3	18.7	21.6
3/8"	BJ 20	3.18	4.558	2.50	3.22	3.81	6.45	9.12	10.2	14.4	20.4	25.0	28.8	
	OR	BJ 30	3.67	6.837	3.74	4.83	5.72	9.67	13.7	15.3	21.6	37.4	43.2	
	BJ 40	3.97	9.116	4.99	6.45	7.63	12.9	18.2	20.4	28.8	40.8	49.9	57.7	
1/2"	BJ 50	4.37	11.394	6.24	8.06	9.53	16.1	22.8	25.5	36.0	51.0	62.4	72.1	
	OR	BJ 60	4.76	13.673	7.49	9.67	11.4	19.3	27.3	30.6	43.2	61.1	74.9	86.5
	BJ 70	5.16	15.952	8.74	11.3	13.3	22.6	31.9	35.7	50.4	71.3	87.4	101	

$$\text{Flow Rate (l/min)} = K\sqrt{\text{bar}}$$

Standard Materials: Brass, 303 Stainless Steel and 316 Stainless Steel (for nozzle number BJ01 and higher).

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.

HydroPulse

Pneumatically Actuated - Flat Fan

DESIGN FEATURES

- Interchangeable flat fan spray tips
- Pneumatically actuated for crisp on/off spray
- Straight through porting for fluid recirculation
- 303 SS assembly contains all food-grade materials
- Variety of mounting brackets available

SPRAY CHARACTERISTICS

- Relatively coarse atomization
 - Uniform distribution with tapered edges for use in overlapping sprays
- Spray pattern: Flat Fan
Spray angles: 0° to 110°
Flow rate: 0.011 to 101 l/min



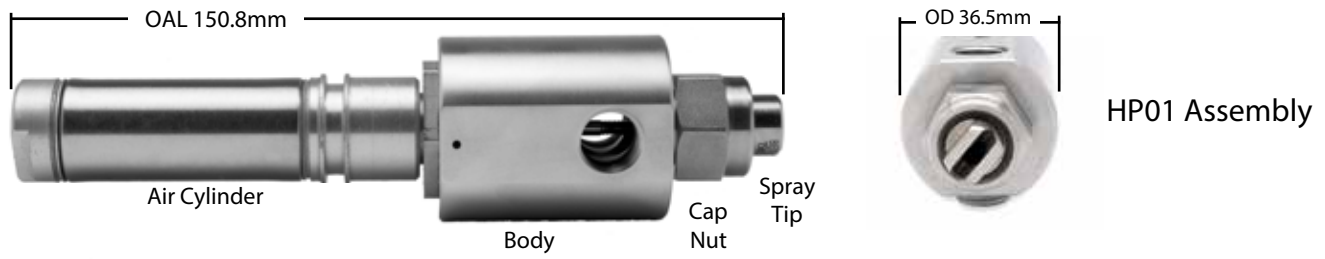
HP01 Assembly



HP02 Assembly

- Fluid Connection Size: 1/8, 1/4, Female, NPT/BSP
Two fluid ports are standard; a plug to seal the recirculation port is included.
- Maximum Fluid Pressure: 41.3 bar
- Air Connection Size: 1/8 Female NPT; 1/8 Female BSP Adapter automatically included when fluid connection is BSP
- Air Cylinder Pressure: Minimum: 2 bar; Maximum: 17.2 bar. For larger BJ tips, more pressure may be required to break seal.
- Operating Temperature Range: -26° to 204°C. Nylon Mounting Hardware: 121°C MAX
- Standard Materials:
 - Body: Nickel-plated Brass or 303 Stainless Steel
 - Internals: PTFE, Viton, 303SS
 - Air Cylinder: Stainless Steel, Anodized Aluminum, PTFE, and Viton®
- Fluid Seals: FDA-compliant Viton®
- Air Cylinder: Single-acting spring extend type. Air pressure retracts the rod and allows flow through the nozzle. Removing air pressure extends the rod and seals the nozzle. Double-acting cylinder available upon request.
- Frequency Rating: Up to 180 cycles/minute, with an appropriate solenoid valve (Cv=0.08 minimum).

TO ORDER: specify pipe size, connection type, nozzle number, spray angle, and material.



Dimensions are approximate. Check with BETE for critical dimension applications.

Flat Fan (BJ) - Fan Tip Dimensions

Nozzle Tip Number	Equiv. Orifice Diameter (mm)	K Factor	LITERS PER MINUTE @ BAR							Standard Available Spray Angles*	
			0.3 bar	1 bar	2 bar	5 bar	10 bar	20 bar	40 bar		
BJ 0009	0.200	0.021	0.011	0.021	0.029	0.046	0.065	0.092	0.130	0	
BJ 0012	0.250	0.027	0.015	0.027	0.039	0.061	0.086	0.120	0.170	0	
BJ 0017	0.280	0.039	0.021	0.039	0.055	0.087	0.120	0.170	0.250	15, 25, 40, 50, 65	
BJ 0019	0.300	0.043	0.024	0.043	0.061	0.097	0.140	0.190	0.270	0	
BJ 0021	0.330	0.048	0.026	0.048	0.068	0.110	0.150	0.210	0.300	0	
BJ0023	0.330	0.052	0.029	0.052	0.074	0.120	0.170	0.230	0.330	73	
BJ 0025	0.330	0.057	0.031	0.057	0.081	0.130	0.180	0.250	0.360	15, 25, 40, 50, 65	
BJ 0033	0.380	0.075	0.041	0.075	0.110	0.170	0.240	0.340	0.480	15, 25, 40, 50, 65	
BJ 0039	0.410	0.089	0.049	0.089	0.130	0.200	0.280	0.400	0.560	73	
BJ 005	0.500	0.114	0.062	0.114	0.160	0.250	0.360	0.510	0.720	0, 15, 25, 40, 50, 65, 80	
BJ 0067	0.580	0.153	0.084	0.153	0.220	0.340	0.480	0.680	0.970	0, 15, 25, 40, 50, 65, 80	
BJ 0077	0.580	0.175	0.096	0.175	0.250	0.390	0.550	0.780	1.11	73	
BJ 01	0.710	0.228	0.120	0.228	0.320	0.510	0.720	1.02	1.44	0, 15, 25, 40, 50, 65, 80, 95, 110	
BJ 0116	0.910	0.264	0.140	0.264	0.370	0.590	0.840	1.18	1.67	73	
BJ 015	0.970	0.342	0.190	0.342	0.480	0.760	1.08	1.53	2.16	0, 15, 25, 40, 50, 65, 80, 95, 110	
BJ 02	0.990	0.456	0.250	0.456	0.640	1.02	1.44	2.04	2.88	0, 15, 25, 40, 50, 65, 80, 95, 110	
BJ 03	1.19	0.684	0.370	0.684	0.970	1.53	2.16	3.06	4.32	0, 15, 25, 40, 50, 65, 80, 95, 110	
BJ 04	1.40	0.912	0.500	0.912	1.29	2.04	2.88	4.08	5.77	0, 15, 25, 40, 50, 65, 80, 95, 110	
BJ 05	1.55	1.14	0.620	1.14	1.61	2.55	3.60	5.10	7.21	0, 15, 25, 40, 50, 65, 80, 95, 110	
BJ 06	1.70	1.37	0.750	1.37	1.93	3.06	4.32	6.11	8.65	0, 15, 25, 40, 50, 65, 80, 95, 110	
BJ 08	1.88	1.82	1.00	1.82	2.58	4.08	5.77	8.15	11.5	0, 15, 25, 40, 50, 65, 80, 95, 110	
BJ 10	2.18	2.28	1.25	2.28	3.22	5.10	7.21	10.2	14.4	0, 15, 25, 40, 50, 65, 80, 95, 110	
BJ 15	2.72	3.42	1.87	3.42	4.83	7.64	10.8	15.3	21.6	0, 15, 25, 40, 50, 65, 80, 95, 110	
*HP 02 ONLY	BJ 20	3.18	4.56	2.5	4.56	6.45	10.2	14.4	20.4	28.8	0, 15, 25, 40, 50, 65, 80, 95, 110
	BJ 30	3.67	6.84	3.74	6.84	9.67	15.3	21.6	30.6	43.2	0, 15, 25, 40, 50, 65, 80, 95, 110
	BJ 40	3.97	9.12	4.99	9.12	12.9	20.4	28.8	40.8	57.7	0, 15, 25, 40, 50, 65, 80, 95, 110
	BJ 50	4.37	11.4	6.24	11.4	16.1	25.5	36	51	72.1	15, 25, 40, 50, 65, 80, 95, 110
	BJ 60	4.76	13.7	7.49	13.7	19.3	30.6	43.2	61.1	86.5	15, 25, 40, 50, 65, 80, 95, 110
	BJ 70	5.16	16.0	8.74	16.0	22.6	35.7	50.4	71.3	101	15, 25, 40, 50, 65, 80, 95, 110

Flow Rate (L/min) = $K\sqrt{V}$ bar

BJ tip materials: Brass, 303SS, and 316SS

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.

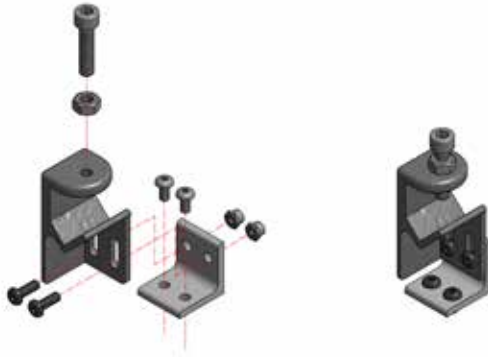
HydroPulse

Optional Mounting Bracket Kits

Kit 01
Angle Bracket



Kit 02
V-Block Bracket



Kit 03
Clamp Bracket



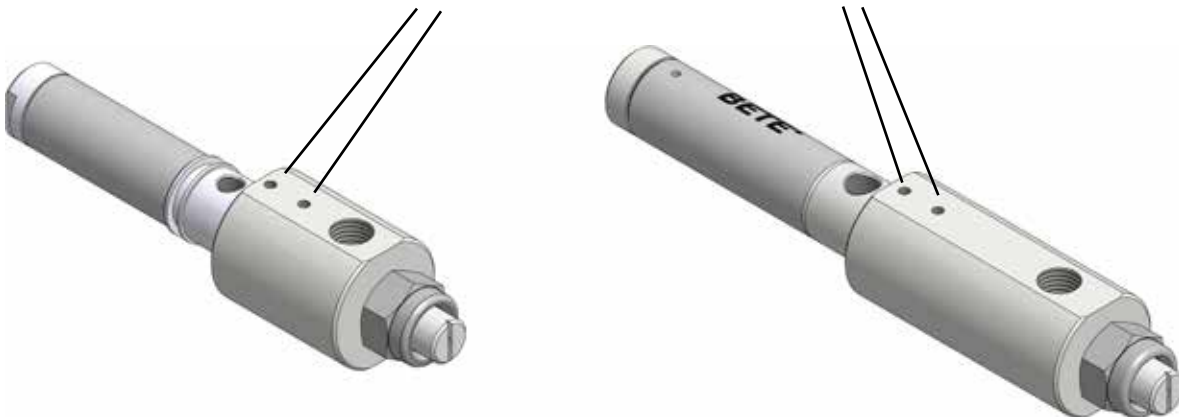
Kit 04
Direct Mount
V-Block Bracket



Brackets: 316 Stainless Steel; Hardware: 18-8SS



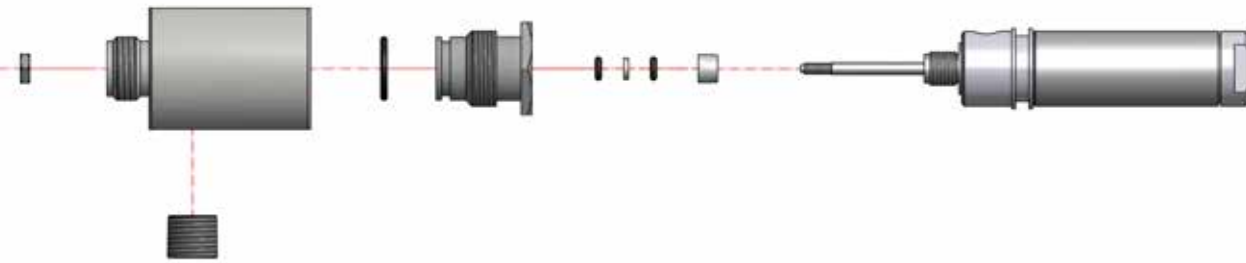
Mounting Bracket Attachment Threads



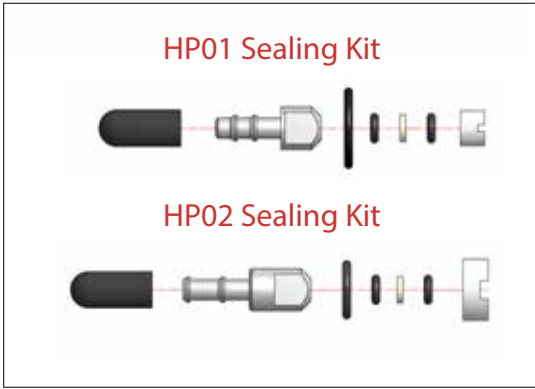
TO ORDER: specify pipe size, connection type, nozzle number, spray angle, and material.

Pneumatically Actuated - Low Flow Flat Fan

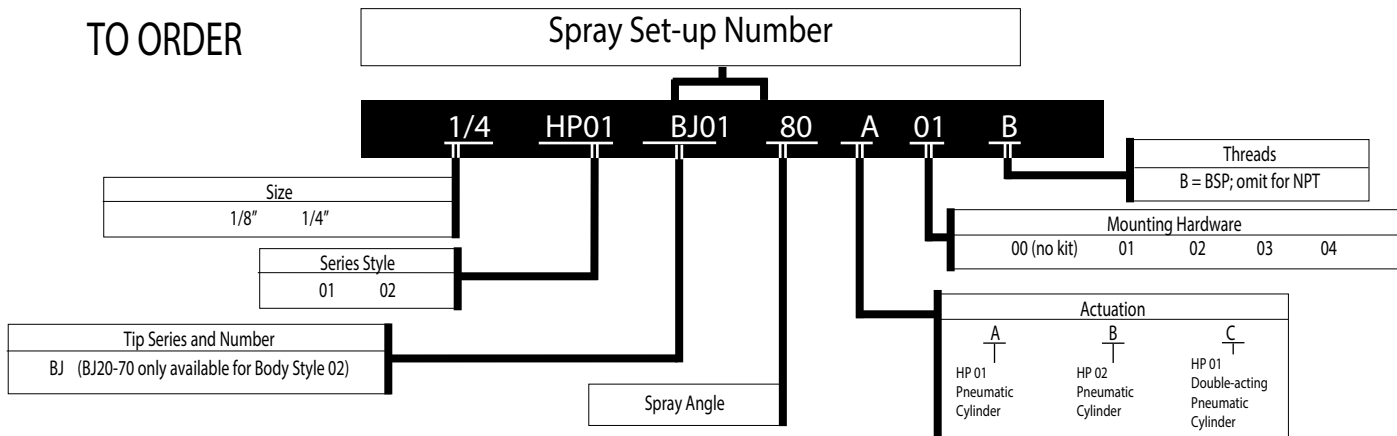
HydroPulse 01



HydroPulse 02



TO ORDER



NFV

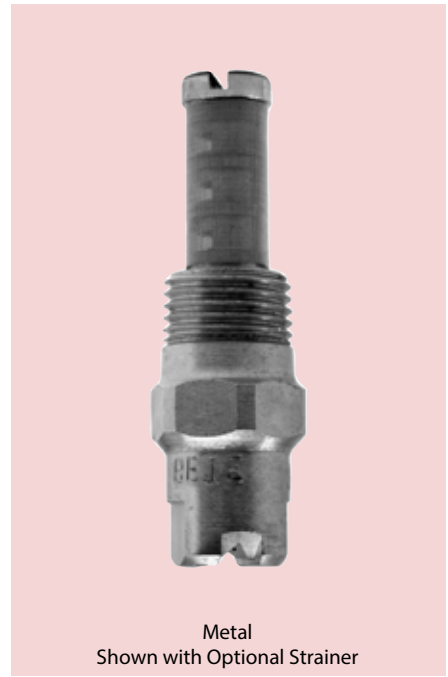
Fan Nozzle with Integral Strainer Option

DESIGN FEATURES

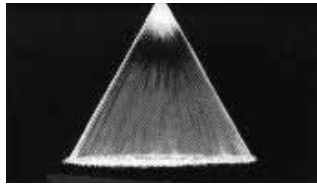
- One-piece construction
 - No internal parts
 - Male connection
 - Low nozzle maintenance
 - Optional removable strainer for easy cleaning
- Connections: Male NPT and BSP
Optional Strainer: 50, 100, 200 mesh

SPRAY CHARACTERISTICS

- High impact
 - Uniform distribution
- Spray pattern: Flat Fan and Straight Jet
Spray angles: 0°, 15°, 25°, 40°, 50°, 65°, 80°, 95° and 110°
Flow rates: 0.039 to 49.85 l/min



Metal
Shown with Optional Strainer



Fan 50°

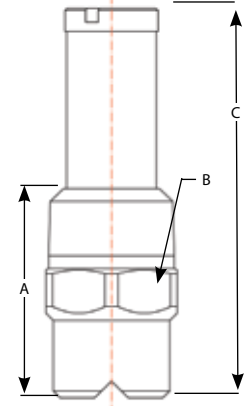
Call BETE to verify spray angle performance at operating pressures above 30 bar.

To Order: Spray Set-up Number

1/4 NFV 0067 95 -L -B 303

pipe size — series — nozzle number — spray angle — optional strainer, also specify mesh size — BSP thread — specify material

Pipe Size	Dimensions (mm)			Wt. (g)
	A	B	C	
1/8	22.4	11.2	37.9	28.4
1/4	26.9	14.2	42.9	42.5



1/8" - 1/4" Metal

NFV Flow Rates

Fan and Straight Jet, 0°, 15°, 25°, 40°, 50°, 65°, 80°, 95°, and 110°, 1/8" and 1/4" Pipe Sizes

Male Pipe Size	Nozzle Number	K Factor	LITERS PER MINUTE @ BAR						Equiv. Orifice Dia. (mm)	Screen Mesh Selection Guide
			1 bar	2 bar	3 bar	5 bar	10 bar	30 bar		
1/8"	NFV0017	0.039	0.039	0.055	0.067	0.087	0.12	0.21	0.28	200
	NFV0025	0.057	0.057	0.081	0.099	0.13	0.18	0.31	0.36	200
	NFV0033	0.075	0.075	0.11	0.13	0.17	0.24	0.41	0.38	200
	NFV005	0.114	0.11	0.16	0.20	0.25	0.36	0.62	0.51	100
	NFV0067	0.153	0.15	0.22	0.26	0.34	0.48	0.84	0.58	100
	NFV01	0.228	0.23	0.32	0.39	0.51	0.72	1.25	0.66	100
	NFV015	0.342	0.34	0.48	0.59	0.76	1.08	1.87	0.79	100
	NFV02	0.456	0.46	0.64	0.79	1.02	1.44	2.50	0.91	100
	NFV025	0.569	0.57	0.80	0.99	1.27	1.80	3.12	1.02	50
	NFV03	0.684	0.68	0.97	1.18	1.53	2.16	3.75	1.09	50
1/4"	NFV04	0.912	0.91	1.29	1.58	2.04	2.88	5.00	1.32	50
	NFV05	1.139	1.14	1.61	1.97	2.55	3.60	6.24	1.45	50
	NFV06	1.367	1.37	1.93	2.37	3.06	4.32	7.48	1.57	50
	NFV07	1.598	1.60	2.26	2.77	3.57	5.05	8.75	2.08	50
	NFV08	1.823	1.82	2.58	3.16	4.08	5.76	9.98	1.83	50
	NFV10	2.279	2.28	3.22	3.95	5.10	7.21	12.48	2.03	50
	NFV15	3.418	3.42	4.83	5.92	7.64	10.81	18.72	2.39	50
	NFV20	4.550	4.55	6.44	7.88	10.18	14.39	24.92	2.77	50
	NFV30	6.826	6.83	9.65	11.82	15.26	21.58	37.39	3.58	50
	NFV40	9.101	9.10	12.87	15.76	20.35	28.78	49.85	3.96	50

Flow Rate (L/min) = $K\sqrt{\text{bar}}$ Standard Materials: Brass and 303 Stainless Steel. Highlighted NFVs available in 316 Stainless Steel.

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.

NF

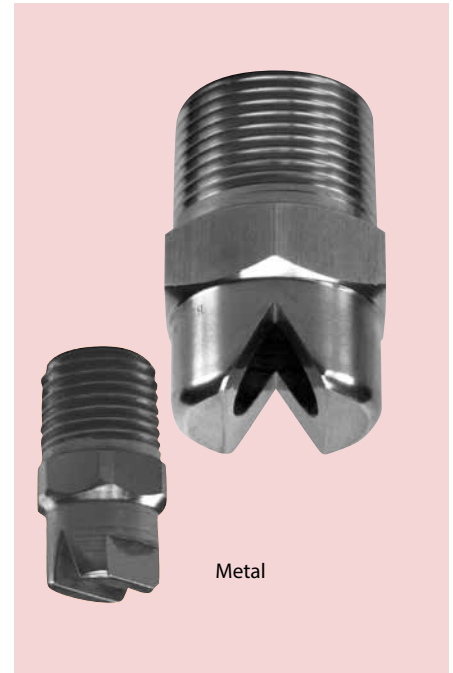
Standard Fan Nozzle

DESIGN FEATURES

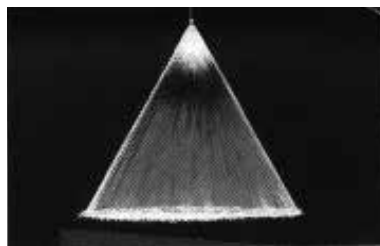
- One-piece construction
- No internal parts
- Sizes for all applications
- Male connection

SPRAY CHARACTERISTICS

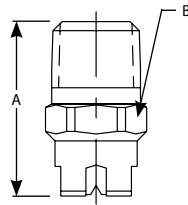
- High impact
 - Uniform distribution with tapered edges for overlapping sprays
 - Extra-wide angles available
- Spray pattern: Fan and Straight Jet
 Spray angles: 0° to 120°
 Flow rates: 0.161 to 3430 l/min



Metal



Fan 50°



3/8" - 2" Metal

Call BETE to verify spray angle performance at operating pressures above 5 bar.

Dimensions are approximate. Check with BETE for critical dimension applications.

NF Flow Rates

Call BETE to verify spray angle performance at operating pressures above 5 bar.

Fan and Straight Jet, 0°, 15°, 30°, 50°, 65°, 80°, 90°, 110°, and 120° Spray Angles, 1/8" to 2" Pipe Sizes

NF Dimensions BSP or NPT

Male Pipe Size	Nozzle Number	K Factor	LITERS PER MINUTE @ BAR								Equivalent Orifice Dia. (mm)	Dim. for Metal Only (mm)		Wt. (g)		
			0.5 bar	0.7 bar	1 bar	2 bar	3 bar	5 bar	10 bar	30 bar		Pipe Size	A	B	Metal	Plas.
1/8 or 1/4	NF01	0.228	0.16	0.19	0.23	0.32	0.39	0.51	0.72	1.25	0.66	1/8	22.2	11.1	28.4	7.09
	NF015	0.342	0.24	0.29	0.34	0.48	0.59	0.76	1.08	1.87	0.79					
	NF02	0.455	0.32	0.38	0.46	0.64	0.79	1.02	1.44	2.49	0.91					
	NF025	0.569	0.40	0.48	0.57	0.81	0.99	1.27	1.80	3.12	1.02					
	NF03	0.683	0.48	0.57	0.68	0.97	1.18	1.53	2.16	3.74	1.09					
	NF04	0.911	0.64	0.76	0.91	1.29	1.58	2.04	2.88	4.99	1.32					
	NF05	1.14	0.81	0.95	1.14	1.61	1.97	2.55	3.60	6.24	1.45					
	NF06	1.37	0.97	1.14	1.37	1.93	2.37	3.06	4.33	7.49	1.57					
NF08	1.82	1.28	1.52	1.82	2.57	3.15	4.06	5.74	9.95	1.83	1/4	27.0	14.3	42.5	10.6	
1/8	NF10	2.28	1.61	1.91	2.28	3.22	3.95	5.10	7.21	12.5						2.03
1/4	NF15	3.42	2.42	2.86	3.42	4.83	5.92	7.64	10.8	18.7						2.38
or	NF20	4.56	3.22	3.81	4.56	6.45	7.89	10.2	14.4	25.0						2.78
or	NF30	6.84	4.83	5.72	6.84	9.67	11.8	15.3	21.6	37.4						3.57
3/8	NF40	9.12	6.45	7.63	9.12	12.9	15.8	20.4	28.8	49.9						3.97
1/4 or 3/8	NF50	11.4	8.06	9.53	11.4	16.1	19.7	25.5	36.0	62.4						4.37
or	NF60	13.7	9.67	11.4	13.7	19.3	23.7	30.6	43.2	74.9						4.76
3/8	NF70	16.0	11.3	13.3	16.0	22.6	27.6	35.7	50.4	87.4	5.16	1/2	38.1	22.2	85.1	28.4
3/8 or 1/2	NF60	13.7	9.67	11.4	13.7	19.3	23.7	30.6	43.2	74.9	4.76					
or	NF70	16.0	11.3	13.3	16.0	22.6	27.6	35.7	50.4	87.4	5.16					
or	NF80	18.2	12.9	15.3	18.2	25.8	31.6	40.8	57.7	99.9	5.56					
or	NF90	20.5	14.5	17.2	20.5	29.0	35.5	45.9	64.9	112	5.95					
or	NF100	22.8	16.1	19.1	22.8	32.2	39.5	51.0	72.1	125	6.35					
or	NF120	27.3	19.3	22.9	27.3	38.7	47.4	61.1	86.5	150	6.75					
1/2	NF150	34.2	24.2	28.6	34.2	48.3	59.2	76.4	108	187	7.54					
or	NF200	45.6	32.2	38.1	45.6	64.5	78.9	102	144	250	8.73	3/4	44.5	28.6	170	42.5
3/4	NF300	68.4	48.3	57.2	68.4	96.7	118	153	216	374	10.7					
or	NF400	91.2	64.5	76.3	91.2	129	158	204	288	499	12.7					
or	NF400	91.2	64.5	76.3	91.2	129	158	204	288	499	12.7					
or	NF750	171	121	143	171	242	296	382	540	936	17.5					
1	NF400	91.2	64.5	76.3	91.2	129	158	204	288	499	12.7					
or	NF750	171	121	143	171	242	296	382	540	936	17.5					
1 1/4	NF800	182	129	153	182	258	316	408	577	999	18.3					
or	NF1150	262	185	219	262	371	454	586	829	1440	21.8	1 1/2	76.2	50.8	567	142
1 1/2	NF1500	342	242	286	342	483	592	764	1080	1870	24.6					
2	NF2250	513	362	429	513	725	890	1150	1620	2810	30.2					

Flow Rate (l/min) = $K \sqrt{\text{bar}}$ Standard Materials: Brass, 303 Stainless Steel, 316 Stainless Steel, PVC, and PTFE (PTFE not available in nozzle numbers NF025 and under)

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.

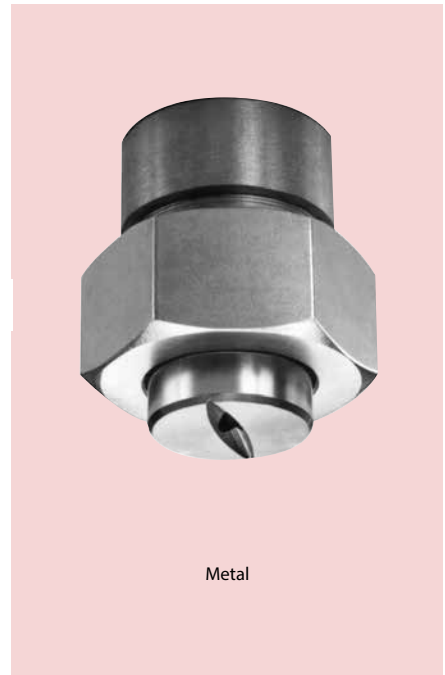


FAN

CALL 01273 400092
Call for expert advice on all flat fan nozzles

NFD

Dovetail Flat Fan



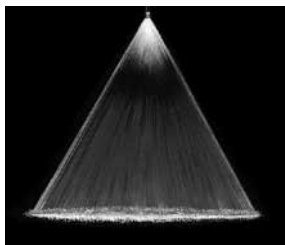
Metal

DESIGN FEATURES

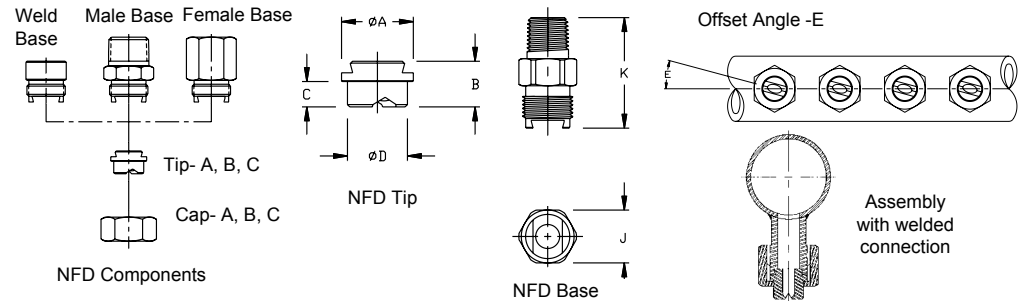
- Dovetail joint guarantees alignment of interchangeable tips
- Dimensionally compatible with other dovetail systems
- Tips offset 5° or 15° for overlapping spray patterns
- Tapered overlapping spray provides uniform coverage
- Male, female and welded connections
- Other sizes available upon request

SPRAY CHARACTERISTICS

- Spray pattern: Flat Fan
- Spray angles: 20°, 30°, 45°, 60°, 90°, and 120°. Special angles are available on request
- Flow rates: 0.159 to 358 l/min



Fan 45°



Dimensions are approximate. Check with BETE for critical dimension applications.

NFD Flow Rates and Dimensions

Fan, 20°, 30°, 45°, 60°, 90°, 120° Spray Angles, 1/4", 3/8", 1/2", 3/4" and 1-1/4" Pipe Size, BSP or NPT, or Welded Connections

Cap & Tip Size	Nozzle Number	Base Sizes* Available	K Factor	LITERS PER MINUTE @ BAR							Equiv. Orifice Dia. (mm)	Approximate Tip Dimensions (mm)				Wt. (g)	BSP NPT Pipe	Approx. Base Dim. (mm)		
				0.5 bar	1 bar	2 bar	3 bar	5 bar	7 bar	10 bar		A	B	C	D			E	J	K
A	NFD 010	1/4 3/8 1/2	0.225	0.159	0.225	0.318	0.390	0.503	0.596	0.712	0.700	14.8	5°	42	1-1/4"	17.5	36.5			
	NFD 014	1/4 3/8 1/2	0.318	0.225	0.318	0.449	0.550	0.710	0.840	1.00										
	NFD 019	1/4 3/8 1/2	0.445	0.314	0.445	0.629	0.770	0.994	1.18	1.41										
	NFD 031	1/4 3/8 1/2	0.704	0.498	0.704	0.996	1.22	1.58	1.86	2.23										
	NFD 039	1/4 3/8 1/2	0.883	0.625	0.883	1.25	1.53	1.98	2.34	2.79	1.35	12	5°	42		3/8"	17.5	36.5		
	NFD 050	1/4 3/8 1/2	1.13	0.800	1.13	1.60	1.96	2.53	2.99	3.58										
	NFD 059	1/4 3/8 1/2	1.34	0.947	1.34	1.89	2.32	3.00	3.54	4.24	1.65	7	5°	42			3/8"	17.5	36.5	
	NFD 077	1/4 3/8 1/2	1.77	1.25	1.77	2.50	3.06	3.95	4.67	5.59										
	NFD 097	1/4 3/8 1/2	2.22	1.57	2.22	3.14	3.85	4.97	5.88	7.03	2.00	12	5°	42				3/8"	17.5	36.5
	NFD 12	1/4 3/8 1/2	2.82	2.00	2.82	3.99	4.89	6.31	7.47	8.93										
NFD 15	1/4 3/8 1/2	3.35	2.37	3.35	4.74	5.81	7.50	8.87	10.6	2.70	24	15°	168	1-1/4"	22				44.5	
NFD 20	3/4	4.45	3.15	4.45	6.30	7.71	10.0	11.8	14.1	3.00										
NFD 25	3/4	5.65	4.00	5.65	7.99	9.79	12.6	15.0	17.9	3.50										
NFD 31	3/4	7.04	4.98	7.04	9.96	12.2	15.8	18.6	22.3	4.00										
NFD 39	3/4	8.83	6.25	8.83	12.5	15.3	19.8	23.4	27.9	4.50										
NFD 50	3/4	11.3	8.00	11.3	16.0	19.6	25.3	29.9	35.8	5.00										
NFD 62	3/4	14.1	10.0	14.1	20.0	24.5	31.6	37.4	44.7	5.50										
NFD 77	3/4	17.7	12.5	17.7	25.0	30.6	39.5	46.7	55.9	6.00										
NFD 87	3/4	19.8	14.0	19.8	28.0	34.3	44.3	52.4	62.6	6.40										
NFD 104	3/4	23.7	16.7	23.7	33.5	41.0	52.9	62.6	74.9	7.20										
NFD 124	3/4	28.3	20.0	28.3	40.0	49.0	63.3	74.8	89.5	8.00	9	15°	224	1-1/4"	28.5	51				
NFD 155	3/4	35.3	25.0	35.3	50.0	61.2	79.0	93.5	112											
NFD 195	3/4	44.5	31.4	44.5	62.9	77.0	99.4	118	141	10.0	20	15°	224		1-1/4"	44.5	63.5			
NFD 124	1-1/4	28.3	20.0	28.3	40.0	49.0	63.2	74.8	89.5	8.00										
NFD 195	1-1/4	44.5	31.4	44.5	62.9	77.0	99.4	118	141	10.0										
NFD 309	1-1/4	70.4	49.8	70.4	100	122	158	186	223	12.0										
NFD 496	1-1/4	113	80.0	113	160	196	253	299	358	15.0										

Flow Rate (l/min) = $K \sqrt{\text{bar}}$ * NPT, BSP, male or female or weldable connections. Dimensions are for male base, female and weldable vary.

Standard Materials: Brass, 303 Stainless Steel, and 316 Stainless Steel Weldable adapters also available in mild steel.

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.

NFS

Stubby Flat Fan

DESIGN FEATURES

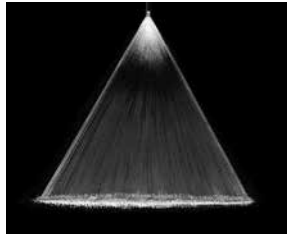
- Extremely short length for minimum projection and maximum clearance
- Produces a flat fan spray pattern available in a variety of spray angles
- Available in straight (parallel) threads only, NPS and G
- Requires gasket to seal connection

SPRAY CHARACTERISTICS

Spray pattern: Fan
 Spray angles: 20°, 30°, 45°, 60°, 90° and 120° standard
 Flow rates: 0.20 to 951 l/min



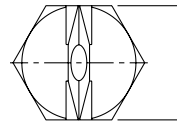
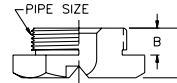
Metal



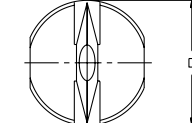
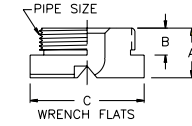
Fan 45°



Fan 90°



Metal



Plastic

Dimensions are approximate. Check with BETE for critical dimension applications.

NFS Flow Rates and Dimensions

Flat Fan, 20°, 30°, 45°, 60°, 90° & 120° Spray Angles, 1/4" to 2" Pipe Sizes

** Male Pipe Size	Nozzle Number	K Factor	LITERS PER MINUTE @ BAR							Equiv. Orifice Dia. (mm)
			0.5 bar	1 bar	2 bar	3 bar	5 bar	7 bar	10 bar	
1/4"	NFS 012	0.28	0.20	0.28	0.40	0.49	0.63	0.75	0.89	0.800
	NFS 019	0.44	0.31	0.44	0.63	0.77	0.99	1.18	1.41	1.00
	NFS 031	0.71	0.50	0.71	1.00	1.23	1.59	1.88	2.25	1.20
	NFS 039	0.88	0.62	0.88	1.25	1.53	1.98	2.34	2.79	1.35
	NFS 050	1.13	0.80	1.13	1.60	1.96	2.53	2.99	3.58	1.50
	NFS 059	1.35	0.95	1.35	1.90	2.33	3.01	3.56	4.25	1.65
	NFS 077	1.77	1.25	1.77	2.50	3.06	3.95	4.67	5.59	2.00
	NFS 098	2.23	1.58	2.23	3.15	3.86	4.98	5.90	7.05	2.20
	NFS 12	2.83	2.00	2.83	4.00	4.90	6.33	7.48	8.95	2.50
	NFS 15	3.36	2.38	3.36	4.75	5.82	7.51	8.89	10.6	2.70
1/4" or 3/4"	NFS 25	5.66	4.00	5.66	8.00	9.80	12.7	15.0	17.9	3.50
	NFS 31	7.10	5.02	7.10	10.0	12.3	15.9	18.8	22.5	4.00
	NFS 39	8.83	6.25	8.83	12.5	15.3	19.8	23.4	27.9	4.50
	NFS 50	11.3	8.00	11.3	16.0	19.6	25.3	29.9	35.8	5.00
	NFS 62	14.1	10.0	14.1	20.0	24.5	31.6	37.4	44.7	5.50
3/4"	NFS 77	17.7	12.5	17.7	25.0	30.6	39.5	46.7	55.9	6.00
	NFS 93	21.2	15.0	21.2	30.0	36.7	47.4	56.1	67.0	6.90
3/4" or 1-1/4"	NFS 124	28.3	20.0	28.3	40.0	49.0	63.3	74.8	89.5	8.00
	NFS 155	35.3	25.0	35.3	50.0	61.2	79.0	93.5	112	9.00
	NFS 185	42.1	29.8	42.1	59.6	73.0	94.2	112	133	9.50
1-1/4"	NFS 195	44.6	31.5	44.6	63.0	77.2	100	118	141	10.0
	NFS 309	70.4	49.8	70.4	100	122	158	186	223	12.0
2"	NFS 496	113	80.0	113	160	196	253	299	358	15.0
	NFS 557	127	89.8	127	180	220	284	336	402	16.0
2"	NFS 620	141	100	141	200	245	316	374	447	17.0
	NFS 775	177	125	177	250	306	395	467	559	19.0
	NFS 977	223	158	223	315	386	498	590	705	21.0
	NFS 1130	258	182	258	365	447	577	683	816	22.5
	NFS 1320	301	213	301	425	521	673	796	951	24.5

NFS Dimensions and Spray Angles

Pipe Size	Nozzle Number	Spray Angles Available	Dimensions (mm) A B C D
1/4"	NFS 012 To NFS 39	20° 30° 45° 60° 90° 120°	11.9 7.11
	NFS 50	20° 30° 45° 60° 90°	17.5
	NFS 62	45° 60° 90°	
	NFS 77	45°	19.1
	NFS 25 To NFS 77	20° 30° 45° 60° 90° 120°	15.0
3/4"	NFS 93*	120°	7.87
	NFS 124	20° 30° 45° 60° 90° 120°	
	NFS 155	20° 30° 45° 60° 90° 120°	31.8
	NFS 185	120°	
	NFS 195	20° 30° 45° 60° 90° 120°	35.1
1 1/4"	NFS 309	20° 30° 45° 60° 90° 120°	22.1 11.9 50.8
	NFS 496	20° 30° 45° 60° 90° 120°	55.4
2"	NFS 557 To NFS 1320	20° 30° 45° 60° 90° 120°	31.8 20.1 69.9 76.2

Flow Rate (l/min) = $K\sqrt{\bar{p}}$

**Available in straight (parallel) threads only, NPS and G

Standard Materials: Brass, 316 Stainless Steel, 303 Stainless Steel and PVC

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.

FF

Extra-Wide Angle

DESIGN FEATURES

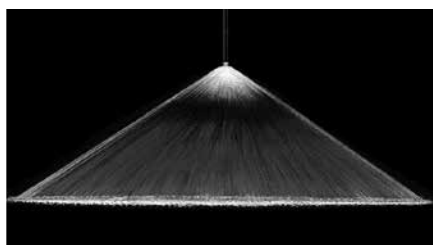
- One-piece construction
- Clog resistant
- Durable
- All 3/8" FFs in Brass are available with UL approval
- Male connection

SPRAY CHARACTERISTICS

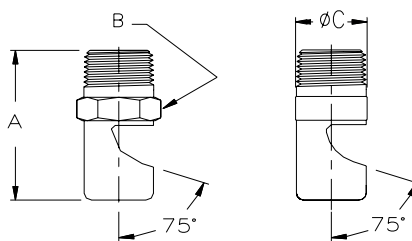
- Extra-wide 145° spray angle
 - Medium-impact spray
 - Spray discharge deflected 75° from inlet axis
 - Coarse atomization
- Spray pattern: Flat Fan
 Spray angle: 105° and 145°
 Flow rates: 0.510 to 757 l/min



Plastic



Fan 145°



Metal

Plastic

Dimensions are approximate. Check with BETE for critical dimension applications.

FF Flow Rates

Fan, 105° and 145° Spray Angle, 1/8" to 1" Pipe Sizes, BSP or NPT

Male Pipe Size	Nozzle Number	Spray Angle	K Factor	LITERS PER MINUTE @ BAR								Approx. Orifice Dia. (mm)
				0.2 bar	0.5 bar	0.7 bar	1 bar	2 bar	3 bar	5 bar	10 bar	
1/8	FF016	105°	0.114	0.0510	0.0806	0.0953	0.114	0.161	0.197	0.255	0.360	0.406
	FF024	105°	0.228	0.102	0.161	0.191	0.228	0.322	0.395	0.510	0.721	0.610
	FF028	105°	0.342	0.153	0.242	0.286	0.342	0.483	0.592	0.764	1.08	0.711
	FF033	105°	0.456	0.204	0.322	0.381	0.456	0.645	0.789	1.02	1.44	0.838
	FF041	145°	0.684	0.306	0.483	0.572	0.684	0.967	1.18	1.53	2.16	1.04
	FF046	145°	0.912	0.408	0.645	0.763	0.912	1.29	1.58	2.04	2.88	1.17
	FF052	145°	1.14	0.510	0.806	0.953	1.14	1.61	1.97	2.55	3.60	1.32
	FF057	145°	1.37	0.611	0.967	1.14	1.37	1.93	2.37	3.06	4.32	1.45
	FF065	145°	1.82	0.815	1.29	1.53	1.82	2.58	3.16	4.08	5.77	1.65
1/8 or 1/4	FF073	145°	2.28	1.02	1.61	1.91	2.28	3.22	3.95	5.10	7.21	1.85
	FF093	145°	3.42	1.53	2.42	2.86	3.42	4.83	5.92	7.64	10.8	2.36
	FF104	145°	4.56	2.04	3.22	3.81	4.56	6.45	7.89	10.2	14.4	2.64
	FF116	145°	5.47	2.45	3.87	4.58	5.47	7.73	9.47	12.2	17.3	2.95
	FF125	145°	5.70	2.55	4.03	4.77	5.70	8.06	9.87	12.7	18.0	3.18
	FF129	145°	6.84	3.06	4.83	5.72	6.84	9.67	11.8	15.3	21.6	3.28
	FF141	145°	8.20	3.67	5.80	6.86	8.20	11.6	14.2	18.3	25.9	3.58
	FF148	145°	9.12	4.08	6.45	7.63	9.12	12.9	15.8	20.4	28.8	3.76
1/4	FF156	145°	10.0	4.48	7.09	8.39	10.0	14.2	17.4	22.4	31.7	3.96
	FF161	145°	10.9	4.89	7.73	9.15	10.9	15.5	18.9	24.5	34.6	4.09
	FF173	145°	12.3	5.50	8.70	10.3	12.3	17.4	21.3	27.5	38.9	4.39

$$\text{Flow Rate (l/min)} = K \sqrt{\text{bar}}$$

FF Dimensions

Pipe Size	Dim. (mm)			Wt. (g)	
	A	B	C	M	P
1/8	25.4	11.2	12.7	14	3
1/4	35.1	14.2	16.0	35	7.5

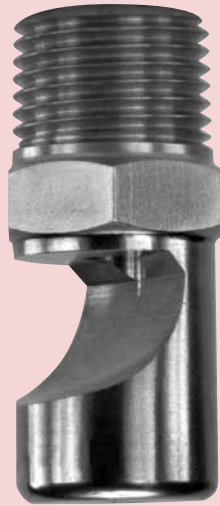
Standard Materials: Brass, 303 Stainless Steel, 316 Stainless Steel, PVC, and PTFE

(PTFE and PVC not available in nozzles FF016 to FF028; PTFE not available in nozzles FF033 to FF065).

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.

FAN

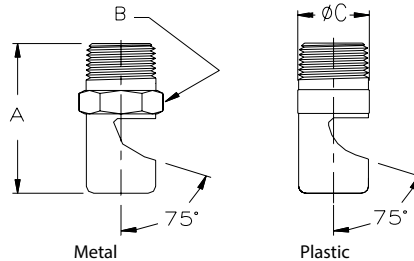
TO ORDER: specify pipe size, connection type, nozzle number, spray angle, and material.



Metal



All 3/8" FFs in Brass have UL approval



Dimensions are approximate. Check with BETE for critical dimension applications.

FF Flow Rates

Fan, 105° and 145° Spray Angle, 1/8" to 1" Pipe Sizes, BSP or NPT

FF Dimensions

Male Pipe Size	Nozzle Number	Spray Angle	K Factor	LITERS PER MINUTE @ BAR								Approx. Orifice Dia (mm)	Pipe Size	Dim. (mm)			Wt. (g)	
				0.2 bar	0.5 bar	0.7 bar	1 bar	2 bar	3 bar	5 bar	10 bar			A	B	C	M	P
3/8	FF187	145°	13.7	6.11	9.67	11.4	13.7	19.3	23.7	30.6	43.2	4.75	3/8	44.5	17.5	19.1	72	15
	FF196	145°	16.0	7.1	11.3	13.3	16.0	22.6	27.6	35.7	50.4	4.98						
	FF209	145°	17.0	7.6	12.0	14.2	17.0	24.0	29.4	38.0	53.8	5.31						
	FF218	145°	18.2	8.2	12.9	15.3	18.2	25.8	31.6	40.8	57.7	5.54						
	FF221	145°	20.5	9.2	14.5	17.2	20.5	29.0	35.5	45.9	64.9	5.61						
1/2	FF209	145°	17.0	7.6	12.0	14.2	17.0	24.0	29.4	38.0	53.8	5.31	1/2	50.8	22.4	22.4	117	25
	FF218	145°	18.2	8.2	12.9	15.3	18.2	25.8	31.6	40.8	57.7	5.54						
	FF250	145°	23.9	10.7	16.9	20.0	23.9	33.8	41.4	53.5	75.7	6.35						
	FF256	145°	27.3	12.2	19.3	22.9	27.3	38.7	47.4	61.1	86.5	6.55						
	FF281	145°	31.9	14.3	22.6	26.7	31.9	45.1	55.3	71.3	101	7.14						
	FF312	145°	36.5	16.3	25.8	30.5	36.5	51.6	63.2	81.5	115	7.92						
	FF375	145°	54.7	24.5	38.7	45.8	54.7	77.3	94.7	122	173	9.53						
3/4	FF316	145°	41.0	18.3	29.0	34.3	41.0	58.0	71.0	92	130	8.03	3/4	66.8	38.1	38.1	345	73
	FF332	145°	45.6	20.4	32.2	38.1	45.6	64.5	78.9	102	144	8.43						
	FF348	145°	50.1	22.4	35.5	41.9	50.1	70.9	86.8	112	159	8.84						
	FF368	145°	54.7	24.5	38.7	45.8	54.7	77.3	94.7	122	173	9.35						
	FF375	145°	54.7	24.5	38.7	45.8	54.7	77.3	94.7	122	173	9.53						
	FF406	145°	63.8	28.5	45.1	53.4	63.8	90.2	111	143	202	10.3						
	FF437	145°	72.9	32.6	51.6	61.0	72.9	103	126	163	231	11.1						
	FF453	145°	82.0	36.7	58.0	68.6	82.0	116	142	183	259	11.5						
	FF484	145°	95.7	42.8	67.7	80.1	95.7	135	166	214	303	12.3						
	FF500	145°	109	48.9	77.3	91.5	109	155	189	245	346	12.7						
1	FF578	145°	137	61.1	96.7	114	137	193	237	306	432	14.7	1	85.9	50.8	50.8	908	192
	FF625	145°	166	74.4	118	139	166	235	288	372	526	15.9						
	FF703	145°	205	91.7	145	172	205	290	355	459	649	17.9						
	FF750	145°	239	107	169	200	239	338	414	535	757	19.1						

Flow Rate (l/min) = K √bar

Standard Materials: Brass, 303 Stainless Steel, 316 Stainless Steel, PVC, and PTFE.

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.

EZ FF NF SPN

EZ Change Quick Connection System

DESIGN FEATURES

- Nozzles can be changed in seconds without tools
- Three part nozzle, base, gasket and interchangeable tip
- Exclusive ramped engagement for efficient automatic alignment
- Threaded adapters will accommodate other standard BETE nozzles. Shut-off plugs are also available.
- Sanitary EZs are available with weld connection and no knurling

SPRAY CHARACTERISTICS

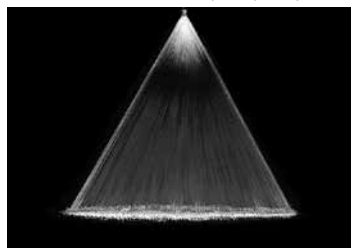
- Available in six standard tips: EZFF; EZNF; EZSPN; EZWL; EZTF, and EZWT
- More EZ tips:
Full Cone: page 28
Hollow Cone: page 46
- Flow rates: 0.051 to 125 l/min
- Spray Angle:
EZFF: 105° and 145°
EZNF: 0°, 15°, 30°, 50°, 65°, 80°, 90°, 110°, 120°
EZSPN: 15°, 25°, 35°, 40° and 50°



EZNF



145° Fan



50° Fan



Base

Gasket

Tip

EZNF exploded

Dimensions are approximate. Check with BETE for critical dimension applications.

EZFF Flow Rates and Dimensions

Deflected Flat Fan 105° and 145° Spray Angles 1/8" to 1/2" BSP or NPT

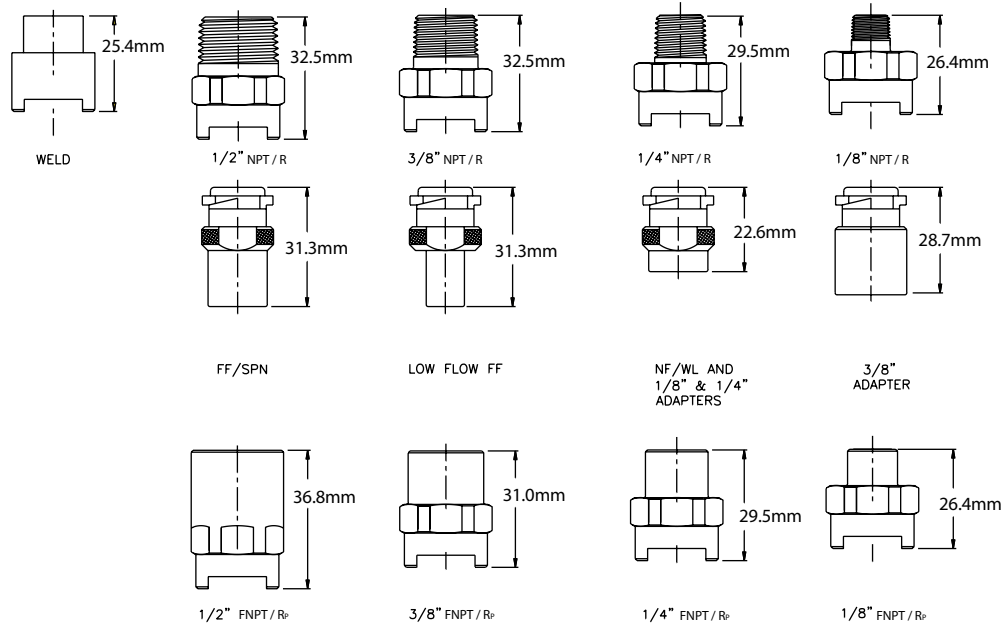
Pipe Size	Nozzle Number	K Factor	LITERS PER MINUTE @ BAR							Approx. Orifice Dia. (mm)	Pipe Size	Approx. Assembly Dim. (mm)		Wt. (g)
			0.2 bar	0.5 bar	0.7 bar	1 bar	2 bar	3 bar	5 bar			Hex Length	Hex Length	
1/8"	EZFF016*	0.114	0.051	0.081	0.095	0.114	0.161	0.197	0.255	0.406	1/8"	22.4	41.4	62
	EZFF024*	0.228	0.102	0.161	0.191	0.228	0.322	0.395	0.510	0.610				
	EZFF028*	0.342	0.153	0.242	0.286	0.342	0.483	0.592	0.764	0.711				
	EZFF033*	0.456	0.204	0.322	0.381	0.456	0.645	0.789	1.02	0.838				
	EZFF041	0.684	0.306	0.483	0.572	0.684	0.967	1.18	1.53	1.04				
	EZFF046	0.912	0.408	0.645	0.763	0.912	1.29	1.58	2.04	1.17				
	EZFF052	1.14	0.510	0.806	0.953	1.14	1.61	1.97	2.55	1.32				
	EZFF057	1.37	0.611	0.967	1.14	1.37	1.93	2.37	3.06	1.45				
	EZFF065	1.82	0.815	1.29	1.53	1.82	2.58	3.16	4.08	1.65				
	EZFF073	2.28	1.02	1.61	1.91	2.28	3.22	3.95	5.10	1.85				
TO	EZFF093	3.42	1.53	2.42	2.86	3.42	4.83	5.92	7.64	2.36	1/4"	22.4	44.5	62
	EZFF104	4.56	2.04	3.22	3.81	4.56	6.45	7.89	10.2	2.64				
	EZFF116	5.47	2.45	3.87	4.58	5.47	7.73	9.47	12.2	2.95				
	EZFF125	5.70	2.55	4.03	4.77	5.70	8.06	9.87	12.7	3.18				
	EZFF129	6.84	3.06	4.83	5.72	6.84	9.67	11.8	15.3	3.28				
	EZFF141	8.20	3.67	5.80	6.86	8.20	11.6	14.2	18.3	3.58				
1/2"	EZFF148	9.12	4.08	6.45	7.63	9.12	12.9	15.8	20.4	3.76	3/8"	22.4	46.0	74
	EZFF156	10.0	4.48	7.09	8.39	10.0	14.2	17.4	22.4	3.96				
	EZFF161	10.9	4.89	7.73	9.15	10.9	15.5	18.9	24.5	4.09				
	EZFF173	12.3	5.50	8.70	10.3	12.3	17.4	21.3	27.5	4.39				
	EZFF187	13.7	6.11	9.67	11.4	13.7	19.3	23.7	30.6	4.75				
	EZFF196	16.0	7.13	11.3	13.3	16.0	22.6	27.6	35.7	4.98				
1/4"	EZFF218	18.2	8.15	12.9	15.3	18.2	25.8	31.6	40.8	5.31	1/2"	22.4	47.5	82
TO	EZFF221	20.5	9.17	14.5	17.2	20.5	29.0	35.5	45.9	5.61				
1/2"	EZFF250	23.9	10.7	16.9	20.0	23.9	33.8	41.4	53.5	6.35				
	EZFF256	27.3	12.2	19.3	22.9	27.3	38.7	47.4	61.1	6.55				

$$\text{Flow Rate (l/min)} = K\sqrt{\text{bar}}$$

*Available in 105° only; all others 145°

Standard Materials: 303 Stainless Steel, 316 Stainless Steel, and Brass; Viton gaskets standard.

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.



Dimensions are approximate. Check with BETE for critical dimension applications.

EZNF Flow Rates and Dimensions

Fan and Straight Jet 0°, 15°, 30°, 50°, 65°, 80°, 90°, 110° and 120° Spray Angles 1/8" to 1/2" BSP or NPT

Pipe Nozzle Size Number	K Factor	LITERS PER MINUTE @ BAR											Equivalent Orifice Dia. (mm)	Approx. Assembly Dim. (mm)		Wt. (g)		
		0.2 bar	0.5 bar	0.7 bar	1 bar	2 bar	3 bar	5 bar	10 bar	15 bar	20 bar	30 bar		35 bar	Hex		Length	
1/8"	EZNF01	0.228	0.161	0.191	0.228	0.322	0.394	0.509	0.720	0.882	1.02	1.25	1.35	0.660	1/8"	22.4	41.4	62
	EZNF015	0.342	0.242	0.286	0.342	0.483	0.592	0.764	1.08	1.32	1.53	1.87	2.02	0.787				
	EZNF02	0.455	0.322	0.381	0.455	0.644	0.789	1.02	1.44	1.76	2.04	2.49	2.69	0.914				
	EZNF025	0.569	0.403	0.476	0.569	0.805	0.986	1.27	1.80	2.20	2.55	3.12	3.37	1.02				
	EZNF03	0.683	0.483	0.572	0.683	0.966	1.18	1.53	2.16	2.65	3.06	3.74	4.04	1.09				
	EZNF04	0.911	0.644	0.762	0.911	1.29	1.58	2.04	2.88	3.53	4.07	4.99	5.39	1.32				
	EZNF05	1.14	0.806	0.953	1.14	1.61	1.97	2.55	3.60	4.41	5.10	6.24	6.74	1.45				
TO	EZNF06	1.37	0.612	0.967	1.14	1.37	1.93	2.37	3.06	4.33	5.30	6.12	7.49	1.57	1/4"	22.4	44.5	62
	EZNF08	1.82	0.812	1.28	1.52	1.82	2.57	3.15	4.06	5.74	7.03	8.12	9.95	1.83				
1/2"	EZNF10	2.28	1.02	1.61	1.91	2.28	3.22	3.95	5.10	7.21	8.83	10.2	12.5	2.03	3/8"	22.4	46.0	74
	EZNF15	3.42	1.53	2.42	2.86	3.42	4.83	5.92	7.64	10.8	13.2	15.3	18.7	2.38				
	EZNF20	4.56	2.04	3.22	3.81	4.56	6.45	7.89	10.2	14.4	17.7	20.4	25.0	2.78				
	EZNF30	6.84	3.06	4.83	5.72	6.84	9.67	11.8	15.3	21.6	26.5	30.6	37.4	3.57				
	EZNF40	9.12	4.08	6.45	7.63	9.12	12.9	15.8	20.4	28.8	35.3	40.8	49.9	3.97				
	EZNF50	11.4	5.10	8.06	9.53	11.4	16.1	19.7	25.5	36.0	44.1	51.0	62.4	4.37				
	EZNF60	13.7	6.11	9.67	11.4	13.7	19.3	23.7	30.6	43.2	53.0	61.1	74.9	4.76				
1/4"	EZNF80	18.2	8.15	12.9	15.3	18.2	25.8	31.6	40.8	57.7	70.6	81.5	99.9	5.56	1/2"	22.4	47.5	82
	-1/2" EZNF90	20.5	9.17	14.5	17.2	20.5	29.0	35.5	45.9	64.9	79.4	91.7	112	5.95				

$$\text{Flow Rate (l/min)} = K\sqrt{\text{bar}}$$

Standard Materials: 303 Stainless Steel, 316 Stainless Steel, and Brass; Viton gaskets standard.

EZSPN Flow Rates and Dimensions

Fan 15°, 25°, 35°, 40° and 50° Spray Angles 1/8" to 1/2" BSP or NPT

Pipe Nozzle Size	Available Spray Angle	K Factor	LITERS PER MINUTE @ BAR												Equiv. Orifice Dia (mm)	Approx. Deflection Angle @ Spray Angle		Assembly Dim. (mm)	Wt. (g)		
			0.3 bar	0.5 bar	0.7 bar	1 bar	2 bar	3 bar	5 bar	7 bar	10 bar	15 bar	20 bar	30 bar		15° 25° 35° 40° 50°	Hex			Length	
1/8"	EZSPN10	15° 35° 50°	2.28	1.25	1.61	1.91	2.28	3.22	3.95	4.56	5.10	7.21	8.83	10.2	12	1.98	5° 35° 55°	1/8"	22.4	41.4	82
	EZSPN20	15° 35° 50°	4.56	2.50	3.22	3.81	4.56	6.45	7.89	9.12	10.2	14.4	17.7	20.4	25.0	2.77	5° 35° 45°				
	EZSPN25	50°	5.70	3.12	4.03	4.77	5.70	8.06	9.87	11.4	12.7	18.0	22.1	25.5	31.2	3.05	50°				
TO	EZSPN30	15° 35°	6.84	3.74	4.83	5.72	6.84	9.67	11.8	13.7	15.3	21.6	26.5	30.6	37.4	3.18	5° 28°	1/4"	22.4	44.5	82
	EZSPN40	15° 25° 35° 40° 50°	9.12	4.99	6.45	7.63	9.12	12.9	15.8	18.2	20.4	28.8	35.3	40.8	49.9	3.96	5° 20° 35° 35° 55°				
1/2"	EZSPN50	35° 40°	11.4	6.24	8.06	9.53	11.4	16.1	19.7	22.8	25.5	36.0	44.1	51.0	62.4	4.34	23° 33°	3/8"	22.4	46.0	98
	EZSPN60	15° 35° 40° 50°	13.7	7.49	9.67	11.4	13.7	19.3	23.7	27.3	30.6	43.2	53.0	61.1	74.9	4.75	5° 20° 33° 35°				
	EZSPN70	40°	16.0	8.74	11.3	13.3	16.0	22.6	27.6	31.9	35.7	50.4	61.8	71.3	87.4	5.05	29°				
1/4"	EZSPN80	15° 35° 40° 50°	18.2	9.99	12.9	15.3	18.2	25.8	31.6	36.5	40.8	57.7	70.6	81.5	99.9	5.31	5° 25° 26° 35°	1/2"	22.4	47.5	109
	EZSPN90	40°	20.5	11.2	14.5	17.2	20.5	29.0	35.5	41.0	45.9	64.9	79.4	91.7	112	5.54	28°				
1/2"	EZSPN100	15° 35° 40° 50°	22.8	12.5	16.1	19.1	22.8	32.2	39.5	45.6	51.0	72.1	88.3	102	125	5.94	5° 25° 28° 40°				

$$\text{Flow Rate (l/min)} = K\sqrt{\text{bar}}$$

Standard Materials: 303 Stainless Steel, 316 Stainless Steel, and Brass; Viton gaskets standard.

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.



CALL 01273 400092
Call for expert advice on all flat fan nozzles

SF

Snap Release Nozzle System

DESIGN FEATURES

- Nozzles can be quickly changed and aligned by hand without tools
- Clamp-on adapter fits any style nozzle
- Quick set-up system features special "Snap-in" tips
- Polypropylene, resistant to most acids and alkalis
- Double clamp base or adapter available for higher pressure operation

SPRAY CHARACTERISTICS

- Quick Set-up System can be provided with fan, hollow or full cone spray tips
- Full 45° alignment of spray without tools

More SF Nozzle Systems:

Full Cone: page 31

Hollow Cone: page 48

Flow rates: 1.61 to 75.6 l/min

Spray angles:

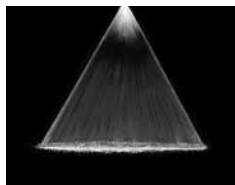
Fan: 40°, 50°, 65°, 80°, 95°

Hollow Cone: 50°, 65°, 90°

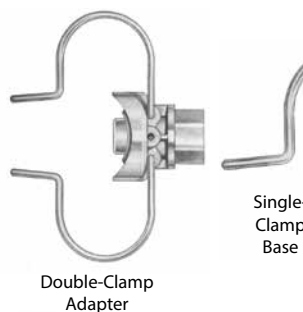
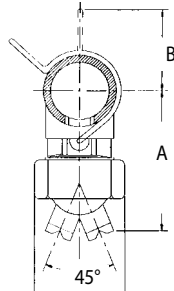
Full Cone: 35°, 65°, 80°



Snap-In Fan Tip

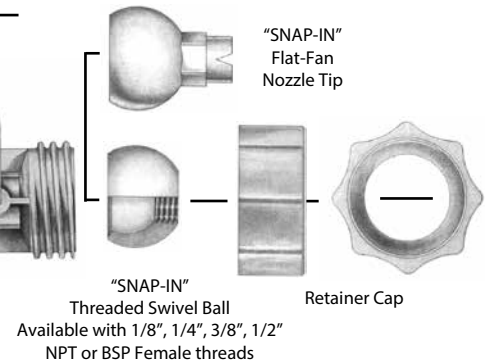


50° Fan



Double-Clamp Adapter

Single-Clamp Base



"SNAP-IN" Flat-Fan Nozzle Tip

"SNAP-IN" Threaded Swivel Ball

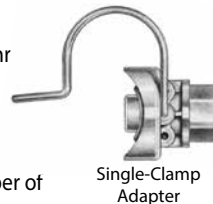
Available with 1/8", 1/4", 3/8", 1/2" NPT or BSP Female threads

Retainer Cap

CLAMP-ON ADAPTER

- Available for 1", 1-1/4", 1-1/2" and 2" pipe.
- Available with 1/8", 1/4", 3/8", 1/2" NPT female thr or 1/8" BSP female threads
- Available with single or double clamp.
- TO ORDER ADAPTER

Specify: Pipe Size, thread size, thread type, number of clamps, materials.



Single-Clamp Adapter

SF Flow Rates and Dimensions

SF Fan 40°, 50°, 65°, 80° and 90° Spray Angles 1", 1-1/4", 1-1/2" and 2"

Nozzle Number	Available Spray Angles	K Factor	LITERS PER MINUTE @ BAR										Orifice Dia. (mm)	Pipe Size	Approx. Body Color	Pipe O.D. (mm)	Approx. Dim. (mm)		Wt. (g)
			0.5 bar	0.7 bar	1 bar	2 bar	3 bar	5 bar	7 bar	10 bar	A	B							
SF10	80°	2.277	1.61	1.91	2.28	3.22	3.94	5.09	6.03	7.20	2.0	1"	blue	33.40	83.8	43.2	62.4		
SF20	65°	4.556	3.22	3.81	4.55	6.44	7.89	10.2	12.1	14.4	2.8								
SF30	65°	6.832	4.83	5.72	6.83	9.66	11.8	15.3	18.1	21.6	3.6	1-1/4"	red	42.16	86.4	48.3	62.4		
SF40	65°	9.109	6.44	7.62	9.11	12.9	15.8	20.4	24.1	28.8	4.0	1-1/2"	purple	48.26	91.4	50.8	62.4		
SF50	40° 50° 65°	11.40	8.06	9.54	11.4	16.1	19.7	25.5	30.2	36.1	4.4								
SF60	50° 65° 80° 95°	13.68	9.67	11.4	13.7	19.3	23.7	30.6	36.2	43.3	4.8	2"	green	60.33	94.0	55.9	62.4		
SF70	50° 80°	16.00	11.3	13.4	16.0	22.6	27.7	35.8	42.3	50.6	5.2								
SF100	50°	22.7	16.1	19.1	22.8	32.2	39.4	50.9	60.3	72.0	6.4								

$$\text{Flow Rate (l/min)} = K \sqrt{\text{bar}}$$

Standard Materials: Polypropylene, 302 Stainless Steel clamp, EPDM seal.

Optional Materials: Viton seal.

NOTE: Drill 16.7mm (21/32") hole in pipe to install SF.

NOTE: Maximum recommended pressures for SF assemblies: With single clamp 5 bar for 1" pipe; 3.5 bar for 1-1/4" and 1-1/2" pipe; and 2 bar for 2" pipe; with double clamp up to 10 bar.

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.

SPN

High Impact/Narrow Fan Spray

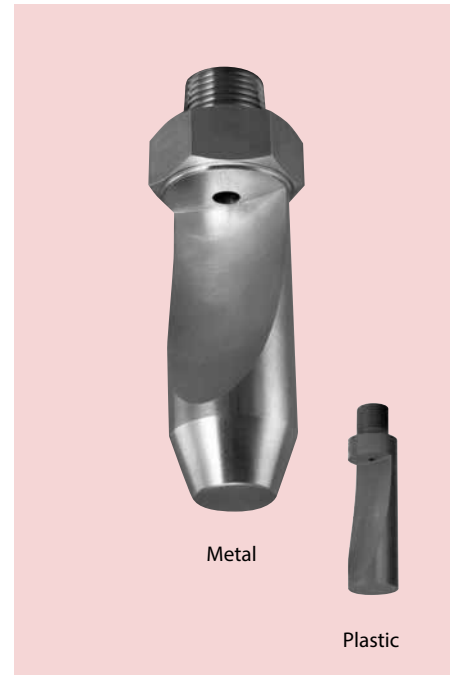
DESIGN FEATURES

- One-piece/heavy construction
- Straight-through orifice minimizes clogging
- Machined from bar stock to exacting standards
- Male connection

SPRAY CHARACTERISTICS

- Yields highest impact, narrow, flat spray with least atomization
- Spoon-shaped deflector surface efficiently forms a hard driving spray

Spray pattern: Fan
 Spray angles: 15°, 25°, 35°, 40°, 50°
 Flow rates: 0.76 to 177 l/min



Metal

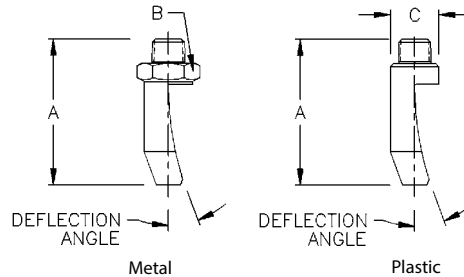
Plastic



FAN



Fan 50°



Dimensions are approximate. Check with BETE for critical dimension applications.

SPN Flow Rates and Dimensions

Fan, 15°, 25°, 35°, 40° and 50° Spray Angles, 1/4" to 3/4" Pipe Sizes, BSP or NPT

Male Pipe Size	Nozzle Number	Available Spray Angles	K Factor	LITERS PER MINUTE @ BAR								Approx. Orifice Dia. (mm)	Deflection Angle @ Spray Angle	Dimensions (mm)		
				0.7 bar	1 bar	2 bar	3 bar	4 bar	5 bar	10 bar	15 bar			Metals Only	A	B
1/8	SPN 04	35°	0.91	0.76	0.91	1.29	1.58	1.82	2.04	2.88	3.53	1.24	15°	17.8	12.7	14.2
1/4	SPN 10	15° 35° 50°	2.28	1.91	2.28	3.22	3.95	4.56	5.10	7.21	8.83	1.98	5° 35° 55°	50.8	22.4	19.1
	SPN 20	15° 35° 50°	4.56	3.81	4.56	6.45	7.89	9.12	10.2	14.4	17.7	2.77	5° 35° 45°			
	SPN 25	50°	5.70	4.77	5.70	8.06	9.87	11.4	12.7	18.0	22.1	3.05	50°			
	SPN 40	25° 50°	9.12	7.63	9.12	12.9	15.8	18.2	20.4	28.8	35.3	3.96	20° 45°			
3/8	SPN 20	35°	4.56	3.81	4.56	6.45	7.89	9.12	10.2	14.4	17.7	2.77	30°	76.2	28.7	25.4
	SPN 25	35°	5.70	4.77	5.70	8.06	9.87	11.4	12.7	18.0	22.1	3.05	28° 45°			
	SPN 30	15° 35°	6.84	5.72	6.84	9.67	11.8	13.7	15.3	21.6	26.5	3.18	5° 28°			
	SPN 40	15° 35° 40° 50°	9.12	7.63	9.12	12.9	15.8	18.2	20.4	28.8	35.3	3.96	5° 35° 35° 50°			
	SPN 50	35° 40°	11.4	9.53	11.4	16.1	19.7	22.8	25.5	36.0	44.1	4.34	23° 33°			
	SPN 60	15° 35° 40° 50°	13.7	11.4	13.7	19.3	23.7	27.3	30.6	43.2	53.0	4.75	5° 20° 33° 35°			
	SPN 70	40°	16.0	13.3	16.0	22.6	27.6	31.9	35.7	50.4	61.8	5.16	29°			
	SPN 80	15° 35° 40° 50°	18.2	15.3	18.2	25.8	31.6	36.5	40.8	57.7	70.6	5.31	5° 25° 26° 35°			
	SPN 90	40°	20.5	17.2	20.5	29.0	35.5	41.0	45.9	64.9	79.4	5.54	28°			
	SPN 100	15° 35° 40° 50°	22.8	19.1	22.8	32.2	39.5	45.6	51.0	72.1	88.3	5.94	5° 25° 28° 40°			
	SPN 120	15° 35° 50°	27.3	22.9	27.3	38.7	47.4	54.7	61.1	86.5	106	7.14	5° 25° 40°			
	SPN 125	50°	28.5	23.8	28.5	40.3	49.3	57.0	63.7	90.1	110	6.76	38°			
SPN 160	50°	36.5	30.5	36.5	51.6	63.2	72.9	81.5	115	141	7.54	25° 37°				
SPN 200	50°	45.6	38.1	45.6	64.5	78.9	91.2	102	144	177	8.33	32°				
1/2	SPN 60	15° 35°	13.7	11.4	13.7	19.3	23.7	27.3	30.6	43.2	53.0	4.75	5° 27°	114	35.1	31.8
	SPN 80	15° 35° 50°	18.2	15.3	18.2	25.8	31.6	36.5	40.8	57.7	70.6	5.31	5° 25°			
	SPN 100	15° 35°	22.8	19.1	22.8	32.2	39.5	45.6	51.0	72.1	88.3	5.94	5° 19°			
	SPN 140	15° 35° 50°	31.9	26.7	31.9	45.1	55.3	63.8	71.3	101	124	7.52	5° 25° 40°			
	SPN 160	15° 35° 50°	36.5	30.5	36.5	51.6	63.2	72.9	81.5	115	141	7.92	5° 25° 40°			
3/4	SPN 160	35°	36.5	30.5	36.5	51.6	63.2	72.9	81.5	115	141	7.92	23°	124	44.5	42.9
	SPN 200	15° 35°	45.6	38.1	45.6	64.5	78.9	91.2	102	144	177	8.33	5° 22°			

$$\text{Flow Rate (l/min)} = K \sqrt{\text{bar}}$$

Standard Materials: Brass, 303 Stainless Steel, 316 Stainless Steel, PVC, and PTFE

Spray angle performance varies with pressure. Contact BETE for specific data on critical applications.