

Atomizing Nozzles



Internal Mix Narrow Angle Round Pattern - 1/4 NPT

Model AN1010SS, AN1020SS, AN1030SS, and AN1040SS

1/4 NPT internal mix narrow angle round pattern nozzles are excellent for spraying a concentrated mist of liquid. Because of the versatility of their adjustments, they can apply a heavy coat up close or send a very fine mist over 30 feet away! They are often used for precision application of lubricants during assembly, or marking items as they move through an assembly line. Narrow angle round pattern atomizing nozzles are capable of delivering the most liquid of any of our 1/4 NPT internal mix atomizing nozzles.

For pressure fed applications not requiring independent air and liquid control.



Model: AN1010SS
Material: Type 303 Stainless Steel



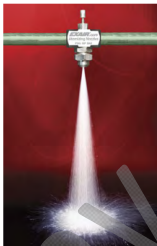
Model: AN1020SS
Material: Type 303 Stainless Steel



Model: AN1030SS
Material: Type 303 Stainless Steel

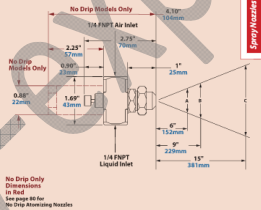


Model: AN1040SS
Material: Type 303 Stainless Steel



The amount of liquid applied can be varied by adjusting the valve or inlet pressures.

Dimensions and Airflow Pattern



For more information about droplet size and spray angle, see page 83.

Model	10 PSI/0.7 BAR Liquid			20 PSI/1.4 BAR Liquid			30 PSI/2.1 BAR Liquid			40 PSI/2.8 BAR Liquid			60 PSI/4.1 BAR Liquid			Spray Dimensions																																
	Air Pressure PSI/BAR	GPH/ LPH	SCFM/ SLPM	Air Pressure PSI/BAR	GPH/ LPH	SCFM/ SLPM	Air Pressure PSI/BAR	GPH/ LPH	SCFM/ SLPM	Air Pressure PSI/BAR	GPH/ LPH	SCFM/ SLPM	Air Pressure PSI/BAR	GPH/ LPH	SCFM/ SLPM	Air Pressure PSI/BAR	Liquid PSI/BAR	A	B	C	Max. Depth feet/cm																											
AN1010SS	10	0.7	1.4	5.3	0.6	17	18	1.2	1.8	6.8	0.9	25	24	1.7	2.3	8.7	1.0	28	30	2.1	2.7	10.2	1.2	34	40	2.8	3.3	12.5	1.5	42	52	3.6	2.8	10.6	1.9	54	12	0.8	1.0	0.7	2.3	6	3.3	8	5.0	13	6	1.8
	12	0.8	1.2	4.5	0.7	20	22	1.5	1.6	6.1	1.0	28	32	2.2	1.9	7.2	1.3	37	38	2.6	2.3	8.7	1.5	42	52	3.6	2.8	10.6	1.9	54	14	2.3	3.0	2.1	2.8	7	3.8	10	6.0	15	8	2.4						
	14	1.0	1.1	4.2	0.8	23	24	1.7	1.5	5.7	1.1	31	36	2.5	1.6	6.1	1.5	42	44	3.0	1.9	7.2	1.7	48	62	4.3	2.3	8.7	2.4	68	40	2.9	4.0	2.8	3.5	9	4.5	11	6.5	17	10	3.0						
AN1020SS	16	1.1	3.7	14.0	2.8	79	28	1.9	5.2	19.7	4.0	113	40	2.8	13.3	49	1.2	34	48	3.3	14.4	6.4	181	65	4.5	3.6	13.6	8.1	229	80	5.5	6.6	37.5	8.0	244	18	2.7	10	7.2	6	3.5	9	5.5	14	11	3.4		
	20	1.4	2.5	9.5	3.4	96	36	2.5	2.7	10.2	5.1	144	48	3.3	18.4	6.4	181	65	4.5	3.6	13.6	8.1	229	80	5.5	6.6	37.5	8.0	244	18	2.7	10	7.2	6	3.5	9	5.5	14	11	3.4								
	24	1.7	1.4	5.3	4.0	113	40	2.8	1.7	6.4	5.7	161	55	3.8	2.1	7.9	7.3	207	75	5.2	1.4	5.3	9.8	277	90	6.2	4.5	17.0	10.1	286	18	2.6	2.0	1.4	2.8	7	4.0	10	6.5	17	12	3.7						
AN1030SS	28	1.9	0.6	2.3	4.6	130	44	3.0	0.8	3.0	6.4	181	60	4.1	1.1	4.2	8.1	229	80	5.5	0.8	3.0	10.2	289	100	6.9	2.4	9.1	11.3	320	65	4.5	4.9	9.2	2.8	79	58	4.0	6.0	4.1	4.0	10	5.5	14	7.0	18	11	3.4
	12	0.8	7.8	29.5	1.9	54	20	1.4	12.9	48	2.5	71	30	2.1	15.1	57.2	3.4	96	38	2.6	18.0	66.8	4.1	116	54	3.7	23.0	87.1	5.3	150	14	1.0	10.7	0.7	2.5	6	3.5	9	5.5	14	11	3.4						
	14	1.0	6.0	22.7	2.2	62	24	1.7	9.9	37.1	3.0	85	38	2.6	9.4	35.6	4.5	127	46	3.2	13.1	49.6	5.1	144	65	4.5	17.1	64.7	6.7	190	20	1.8	2.0	1.3	3.3	8	5.0	13	7.0	18	16	4.9						
AN1040SS	16	1.1	4.4	16.7	2.6	74	28	1.9	7.0	26.5	3.6	102	40	2.9	7.0	26.5	5.1	144	52	3.6	9.6	36.3	6.0	170	75	5.2	12.3	46.6	8.0	227	50	3.4	5.0	20.4	4.3	122	65	4.5	4.0	2.8	3.5	9	4.5	13	7.0	18	14	4.3
	18	1.2	3.1	12.5	2.9	82	33	2.2	4.1	15.5	4.4	125	46	3.2	5.0	18.9	5.9	167	56	3.9	7.3	27.6	6.6	187	85	5.9	7.3	27.6	9.6	272	70	4.8	6.0	4.1	4.0	10	6.0	15	8.0	26	29	7.9						
	14	1.0	6.3	23.8	3.5	99	30	1.4	24.0	99.0	3.0	85	28	1.9	33.0	125	3.4	96	32	2.2	46.5	176	2.8	79	42	2.9	66.0	250	2.7	76	14	1.0	10.7	0.7	2.5	6	3.5	9	5.5	17	12	3.7						



Droplet Size

One of the primary reasons atomizing spray nozzles are used is because of their fine droplet size. Benefits of fine droplet size include even coating and liquid conservation. For reference, a large raindrop is around 6,000 microns (0.236") in diameter. Standard liquid nozzles produce droplet sizes ranging from 4,000 microns (0.157") down to 300 microns (0.012") in diameter. EXAIR's Atomizing Nozzles produce minuscule droplet sizes in the range of 100 microns (0.004") to 20 microns (0.0008")!

Droplet size can be adjusted by varying either the air or liquid pressure. An increase in air pressure or decrease in liquid pressure will generally produce a smaller droplet size. Below is a chart showing various models of atomizing air nozzles and their droplet sizes at selected pressures.

Droplet Size			
Model	Liquid Pressure	Air Pressure	Droplet Size μm^*
AN1020SS	20 PSI	40 PSI	71
	40 PSI	65 PSI	83
ER1020SS	5 PSI	40 PSI	39
	20 PSI	40 PSI	57
SR1020SS	4" Siphon Height	20 PSI	25
	4" Siphon Height	40 PSI	22

* Volume Median Diameter $D_{v(50.0)}$ of liquid droplets.
 $1 \mu\text{m} = 1 \text{ micron} = 0.00004"$. All tests performed with water.

Spray Angle

The Spray Angle is the trigonometric angle created by the width of the spray pattern and the distance at which it is measured. This angle can vary greatly within a given family of atomizing nozzles depending on flow rates and pressures, but will generally fall into the ranges below:

Spray Angle		
Family	Minimum Angle	Maximum Angle
Internal Mix Narrow Angle Round Pattern - AN1010SS, AN2010SS, etc.	20	45
Internal Mix Wide Angle Round Pattern - AW1010SS, AW2010SS, etc.	50	90
Internal Mix Flat Fan Pattern - AF1010SS, AF2010SS, etc.	50	120
External Mix Round Pattern - ER1010SS, ER2010SS, etc.	25	60
External Mix Narrow Angle Flat Fan Pattern - EF1010SS, EF2010SS, etc.	35	70
External Mix Wide Angle Flat Fan Pattern - EB1010SS, EB2010SS, etc.	50	105
Siphon Fed Round Pattern - SR1010SS, SR2010SS, etc.	20	50
Siphon Fed Flat Fan Pattern - SF1010SS, SF2010SS, etc.	50	100