

# No Drip Atomizing Nozzles



## 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 $\mu\text{m}^*$
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 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

# Atomizing Nozzles

## Siphon Fed Round Pattern - 1/4 NPT



**Model: SR1010SS**  
Material: Type 303 Stainless Steel



**Model: SR1020SS**  
Material: Type 303 Stainless Steel



**Model: SR1030SS**  
Material: Type 303 Stainless Steel



**Model: SR1040SS**  
Material: Type 303 Stainless Steel

### Model SR1010SS, SR1020SS, SR1030SS and SR1040SS

1/4 NPT siphon fed round pattern nozzles are great where no liquid pressure is available and a thin coating is needed at a specific area. Flow rate is adjustable via the adjusting valve. Siphon nozzles work best with a suction height of 36" (914mm) or less. Since these nozzles are siphon fed, the compressed airflow draws the liquid in and mixes it internally. Liquid flow is dependent both on the gravity or suction height and the airflow. Siphon fed round pattern nozzles provide the most liquid flow of any siphon fed nozzle.

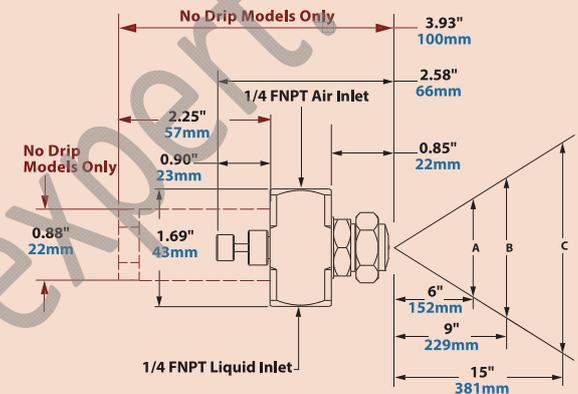
Siphon or gravity fed for non-pressurized applications.



The SR1020SS has a focused, round pattern for precision application of coatings or coolant.

### Dimensions and Airflow Pattern

DOWNLOAD drawings at EXAIR.com



No Drip Only Dimensions in Red See page 80 for No Drip Atomizing Nozzles

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

### Liquid Flow in GPH/LPH

### Spray Dimensions at 8" (20cm) Siphon Height

Model	Air		Gravity Head						Siphon Height						Air		Width						Max. Depth feet/m					
	Pressure PSI/BAR	SCFM/SLPM	18"	46cm	12"	30cm	6"	15cm	4"	10cm	8"	20cm	12"	30cm	24"	61cm	36"	91cm	Pressure PSI/BAR	A in	A cm	B in		B cm	C in	C cm		
SR1010SS	10	0.7	0.5	14.2	0.6	2.3	0.5	1.9	0.4	1.5	0.2	0.8	0.2	0.8	---	---	---	---	10	0.7	2.5	6	4.0	10	5.8	15	7	2.1
	20	1.4	0.7	19.8	0.6	2.3	0.6	2.3	0.5	1.9	0.4	1.5	0.4	1.5	0.3	1.1	---	---	20	1.4	3.3	8	4.3	11	6.0	15	9	2.7
	40	2.8	1.2	34.0	0.7	2.6	0.7	2.6	0.6	2.3	0.5	1.9	0.5	1.9	0.4	1.5	0.3	1.1	40	2.8	3.8	10	5.0	13	6.8	17	10	3.0
	60	4.1	1.6	45.3	0.8	3.0	0.8	3.0	0.7	2.6	0.6	2.3	0.5	1.9	0.5	1.9	0.4	1.5	60	4.1	3.8	10	5.0	13	6.8	17	11	3.4
SR1020SS	10	0.7	0.7	19.8	1.1	4.2	0.9	3.4	0.8	3.0	0.5	1.9	0.4	1.5	0.3	1.1	---	---	10	0.7	3.3	8	4.8	12	6.8	17	9	2.7
	20	1.4	1.1	31.1	1.3	4.9	1.1	4.2	1.0	3.8	0.8	3.0	0.7	2.6	0.6	2.3	0.3	1.1	20	1.4	3.5	9	5.0	13	7.0	18	11	3.4
	40	2.8	1.7	48.1	1.6	6.1	1.5	5.7	1.4	5.3	1.2	4.5	1.0	3.8	1.0	3.8	0.7	2.6	40	2.8	3.8	10	5.5	14	7.5	19	14	4.3
	60	4.1	2.3	65.0	1.9	7.2	1.7	6.4	1.6	6.1	1.4	5.3	1.2	4.5	1.2	4.5	0.9	3.4	60	4.1	4.0	10	5.8	15	8.0	20	16	4.9
SR1030SS	20	1.4	2.0	56.6	4.3	16.3	3.8	14.4	3.3	12.5	2.5	9.5	1.8	6.8	1.3	4.9	0.3	1.1	20	1.4	3.5	9	5.0	13	7.0	18	12	3.7
	40	2.8	3.2	90.6	5.0	18.9	4.4	16.7	4.0	15.1	3.3	12.5	2.9	11.0	2.5	9.5	1.3	4.9	40	2.8	3.8	10	5.3	13	7.5	19	13	4.0
	60	4.1	4.3	122	5.5	20.8	4.9	18.5	4.5	17.0	3.7	14.0	3.4	12.9	3.1	11.7	1.9	7.2	60	4.1	3.8	10	5.5	14	8.0	20	15	4.6
	80	5.5	5.6	158	5.8	22.0	5.3	20.1	4.9	18.5	4.1	15.5	3.9	14.8	3.7	14.0	2.6	9.8	80	5.5	4.0	10	5.8	15	8.3	21	18	5.5
SR1040SS	30	2.1	5.7	161	12.3	46.6	11.0	41.6	9.3	35.2	6.3	23.8	5.3	20.1	4.5	17.0	0.6	2.3	30	2.1	4.8	12	6.5	17	8.8	22	19	5.8
	40	2.8	6.9	195	13.0	49.2	11.8	44.7	10.0	37.9	7.3	27.6	6.5	24.6	5.5	20.8	1.5	5.7	40	2.8	5.2	13	7.0	18	9.3	24	21	6.4
	60	4.1	9.5	269	14.3	54.1	13.0	49.2	11.5	43.5	8.5	32.2	7.5	28.4	6.5	24.6	2.3	8.7	60	4.1	5.5	14	7.5	19	9.8	25	24	7.3
	80	5.5	12.0	340	15.0	56.8	13.5	51.1	12.5	47.3	9.5	36.0	8.5	32.2	7.5	28.4	3.5	13.2	80	5.5	5.8	15	7.8	20	10.0	25	27	8.2