

Spray Coverage

SPRAY ANGLE TERMS

Four terms are commonly used to describe spray coverage:

Spray Angle:

(A) The included angle of the spray as measured close to the nozzle orifice. Since the droplets are immediately acted upon by external forces (gravity and moving gases, for example), this measurement is useful only for determining spray coverage close to the nozzle. The spray angles listed for nozzles in this catalog are angles at the nozzle, measured at the nozzle's design pressure, which is highlighted in each chart of flow rate vs. pressure.

Actual Spray Coverage:

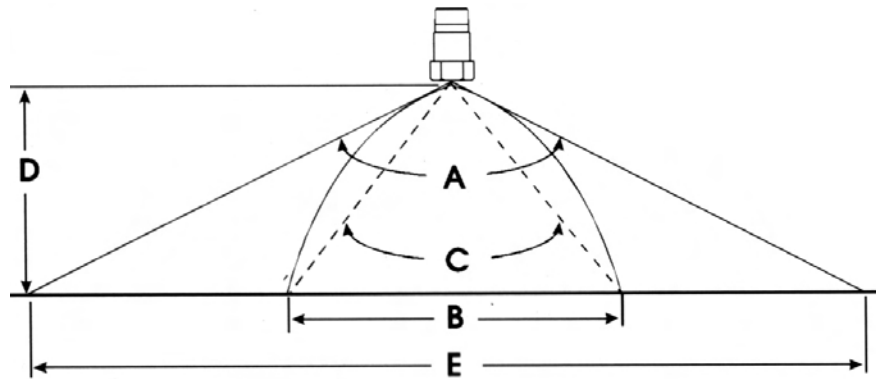
(B) The actual coverage at a specified distance **(D)** from the nozzle.

Effective Spray Angle:

(C) The angle calculated from the actual coverage **(B)** at a distance **(D)**.

Theoretical Spray Coverage:

(E) The coverage at distance **(D)** if the spray moved in a straight line.



THEORETICAL SPRAY COVERAGE (E) IN INCHES

Included Spray Angle (A)	Distance From Nozzle Orifice (D) (inches)										
	2	4	6	8	10	12	15	18	24	30	36
10°	0.4	0.7	1.1	1.4	1.8	2.1	2.6	3.1	4.2	5.2	6.3
20°	0.7	1.4	2.1	2.8	3.5	4.2	5.3	6.4	8.5	10.6	12.7
30°	1.1	2.1	3.2	4.3	5.4	6.4	8.1	9.7	12.8	16.1	19.3
40°	1.5	2.9	4.4	5.8	7.3	8.7	10.9	13.1	17.5	21.8	26.2
50°	1.9	3.7	5.6	7.5	9.3	11.2	14.0	16.8	22.4	28.0	33.6
60°	2.3	4.6	6.9	9.2	11.5	13.8	17.3	20.6	27.7		
70°	2.8	5.6	8.4	11.2	14.0	16.8	21.0	25.2	33.6		
80°	3.4	6.7	10.1	13.4	16.8	20.2	25.2	30.3	40.3		
90°	4.0	8.0	12.0	16.0	20.0	24.0	30.0	36.0	48.0		
100°	4.8	9.5	14.3	19.1	23.8	28.6	35.8	43.0			
110°	5.7	11.4	17.1	22.8	28.5	34.3	42.8	51.4			
120°	6.9	13.9	20.8	27.7	34.6	41.6	52.0	62.4			
130°	8.6	17.2	25.7	34.3	42.9	51.5	64.4				
140°	10.9	21.9	32.9	43.8	54.8	65.7					
150°	14.9	29.8	44.7	59.6	74.5						
170°	45.8	91.6									

NOTE: Data shown is theoretical and does not take into consideration the effects of gravity, gas flow, or high pressure operation.

EXAMPLES:

Problem: To achieve a 10" diameter spray coverage from a nozzle mounted 15" from the target, what spray angle would be required?

Solution: 40° Spray Angle

Problem: How far from the target should a nozzle with a 110° spray angle be mounted in order to achieve a 36" diameter spray?

Solution: Approximately 15".

(Actual coverage will be less than theoretical coverage listed in the table.)

NOTE: For applications where coverage is critical, contact BETE Applications Engineering using the Application Intake Form on page 109.