◈노즐에서의 공기분사량을 구하는 방법

$$V = \frac{237.6}{1.2} \times \frac{acp_1}{\sqrt{T}}$$

a : 노즐단면적 $\pi d^2/4\,(mm^2)$

p_1 : 절대압 $(p+1.033)\ (kgf/cm^2)$

c : 유량계수 $100\% = 1$

T : 절대온도 $(t+273)\,(°C)$

V : 공기분사량 (l/min)

※ 공기의 비중량 1.2kg/㎥

Ex) 노즐 ø1 게이지압 7kgf/㎠ (온도 20℃)

$$\text{sol)}\ V = \frac{237.6}{1.2} \times \frac{\pi/4 \times 1^2 \times 1 \times (7+1.033)}{\sqrt{20+273}} = 72.91 \cong 73\ l/min$$

< 노즐에서의 분사량>

노즐 구멍 (㎜)	게 이 지 압 력 (kgf/㎠)									
	1	2	3	4	5	6	7	8	9	10
0.2	0.7	1.1	1.5	1.9	2.2	2.6	2.9	3.3.	3.6	4.0
0.4	3.0	4.4	5.9	7.3	8.8	10.2	11.7	13.1	14.6	16.0
0.6	6.4	10.0	13.2	16.4	19.7	23.0	26.2	29.5	32.8	36.0
0.8	11.8	17.6	23.4	29.2	35.0	40.8	46.6	52.4	58.3	64.1
1.0	18.4	27.5	36.6	45.7	54.9	63.8	72.9	81.9	91.0	100.1
1.3	31.2	46.5	61.8	77.1	92.5	107.8	123.2	138.5	153.8	169.2
1.5	41.5	61.9	82.3	102.7	123.1	143.6	164.0	184.4	204.8	255.2
2.0	73.8	110.1	146.3	182.6	219.0	255.2	291.5	327.8	364.1	400.4
3.0	166.0	247.6	329.3	410.9	492.6	574.2	655.9	737.5	819.1	900.8
3.4	213.2	318.1	422.9	527.8	632.7	737.5	842.4	947.3	1052.1	1157.0
3.8	266.3	397.3	528.3	659.3	790.3	921.3	1052.3	1183.3	1314.3	1445.3
4.0	295.1	440.2	585.4	730.5	857.7	1020.8	1166.0	1311.4	1456.2	1601.4
4.7	407.4	607.8	808.2	1008.6	1208.9	1409.4	1609.7	1810.1	2010.5	2210.9
5.0	461.1	687.9	914.6	1141.4	1368.2	1595.0	1821.8	2048.6	2275.4	2502.2
6.0	663.9	990.5	1317.1	1643.7	1970.2	2296.8	2623.4	2950.0	3276.5	3603.1
7.0	903.7	1348.2	1792.7	2233.2	2681.7	3126.2	3570.7	4015.2	4459.7	4904.2
8.0	1180.3	1760.9	2341.5	2920.6	3502.6	4083.8	4663.8	5244.4	5825.0	6405.5
9.0	1493.8	2228.6	2963.4	3698.2	4430.0	5167.8	5902.6	6637.4	7373.2	8107.0
10.0	1844.3	2751.4	3658.6	4565.7	5472.9	6380.0	7287.2	8194.3	9101.5	10008.7
12.0	2655.7	3962.0	5268.3	6574.6	7880.9	9187.2	10493.5	11799.8	13106.2	14412.5
18.0	5975.4	8914.5	11853.7	14792.9	17732.1	20671.3	23610.5	26549.7	29488.8	32428.0
35.0	22592.0	33704.1	44817.3	55930.0	67042.7	78155.3	89268.0	100380.6	111493.3	122605.9