

Length conversion table					
µm	mm	cm	m	inch	ft
1	1x10 ⁻³	1x10 ⁻⁴	1x10 ⁻⁶	3.94x10 ⁻⁵	3.28x10 ⁻⁶
1x10 ³	1	0.1	1x10 ⁻³	3.94x10 ⁻²	3.28x10 ⁻³
1x10 ⁴	10	1	1x10 ⁻²	3.94x10 ⁻¹	3.28x10 ⁻²
1x10 ⁷	1x10 ³	100	1	39.4	3.28
2.54x10 ⁴	25.4	2.54	2.54x10 ⁻²	1	8.33x10 ⁻²
3.05x10 ⁵	3.05x10 ²	30.5	3.05x10 ⁻¹	12	1

Area conversion table			
cm ²	m ²	inch ²	ft ²
1	1x10 ⁻⁴	0.155	1.08x10 ⁻³
1x10 ⁴	1	1.55x10 ³	10.8
6.45	6.45x10 ⁻⁴	1	6.94x10 ⁻³
9.30x10 ²	9.30x10 ⁻²	1.44x10 ²	1

Volume conversion table				
cm ³	Liter	m ³	ft ³	US gallon
1	1x10 ⁻³	1x10 ⁻⁶	3.53x10 ⁻⁵	2.64x10 ⁻⁴
1000	1	1x10 ⁻³	3.53x10 ⁻²	0.264
1x10 ⁶	1000	1	353	264
2.83x10 ⁴	28.3	2.83x10 ⁻²	1	0.749
3.79x10 ³	3.79	3.79x10 ⁻³	1.34	1

Pressure conversion table						
MPa	KPa	Bar	Kg/cm ²	P.S.I	atm	mHg
1	1000	10	10.2	145	9.87	7.5
0.001	1	0.01	0.011	0.145	9.87x10 ⁻³	7.5x10 ⁻¹
0.1	100	1	1.02	14.5	0.987	0.75
0.09807	98.07	0.981	1	14.22	0.968	0.736
0.00689	6.89	0.069	0.07	1	0.068	0.052
0.101	1.01x10 ²	1.013	1.033	14.7	1	0.76
0.133	1.33x10 ²	1.33	1.36	19.3	1.32	1

Flow rate unit conversion table					
l/min	m ³ /min	m ³ /hour	Inch ³ /hour	ft ³ /hour	US gallon/min
1	0.001	0.06	3.66x10 ³	2.12	0.264
1000	1	60	3.66x10 ⁶	2.12x10 ³	264
16.67	0.017	1	6.1x10 ⁴	35.3	4.40
2.73x10 ⁻⁴	2.7x10 ⁻⁷	1.64x10 ⁻⁵	1	5.79x10 ⁻⁴	7.22x10 ⁻⁶
0.472	4.72x10 ⁻⁴	0.028	1.728	1	0.125
3.79	0.004	0.227	1.39x10 ⁴	8.02	1

Air pipe table								
Pipe size	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"
Pressure loss per 10m (bar)	1.25	0.733	0.56	0.44	0.287	0.214	0.138	0.108
Inlet pressure (bar)	Max capacity values (NL/min)							
1.5	163	314	668	1076	1885	3150	4960	6630
2.0	179	344	730	1180	2060	3450	5430	7280
3.0	206	395	840	1360	2375	3900	6300	8400
4.0	230	422	940	1520	2660	4450	7000	9360
5.0	252	485	1030	1660	2920	4875	7700	10250
6.0	272	523	1110	1800	3140	5250	8300	11050
7.0	292	558	1185	1920	3350	5620	8870	11800

Liquid pipe table	
Inlet pressure : 3 bar	
Diameter Inch	Max capacity values l/min
1/8"	11.20
1/4"	44.70
3/8"	100.80
1/2"	179.30
3/4"	402.00
1"	716.30
1 1/4"	1121.84
1 1/2"	1610.75
2"	2865.24

Flow rate and pipe diameter				
Diameter		Steel pipe		Length 10 m Capacity value at 0.1~0.3 kg/cm ² pressure loss
A	B	Inner diameter	Outer diameter	
6A	1/8B	6.5	10.5	1.3 ~ 2.2
8A	1/4B	9.2	13.8	3 ~ 5.2
10A	3/8B	12.7	17.3	7 ~ 12
15A	1/2B	16.1	21.7	12 ~ 21
20A	3/4B	21.6	27.2	22 ~ 38
25A	1B	27.6	34.0	38 ~ 65
32A	1 1/4B	35.7	42.7	70 ~ 120
40A	1 1/2B	41.6	48.6	120 ~ 210
50A	2B	52.9	60.5	215 ~ 370
65A	2 1/2B	67.9	76.3	410 ~ 700
80A	3B	80.7	89.1	680 ~ 1200
100A	4B	105.3	114.3	1200 ~ 2100
125A	5B	130.8	139.8	2100 ~ 3600
150A	6B	155.2	165.2	3300 ~ 5700

Code	Name	Unit	Code	Name	Unit	Code	Name	Unit
CL			DIA			NR		
D			DU			QC		
D1			E			RF		
D2			EF			RG		
D3			FF			SQ		
DE			G			UF		
DF			H,H1,H2			WS		
DN			L,L1			WS1		

Spray angle	SPRAY DISTANCE (mm)													
	50	100	150	200	250	300	400	500	600	700	800	900	1000	1500
	Theoretical coverage at various distances from the nozzle (mm)													
5°	4.4	8.7	13.1	17.5	21.8	26.2	34.9	43.7	52.4	61.1	69.9	78.6	87.3	131.0
10°	8.7	17.5	26.2	35.0	43.7	52.5	70.0	87.5	105.0	122.0	140.0	158.0	175.0	262.0
15°	13.2	26.3	39.5	52.7	65.8	79.0	105.0	132.0	158.0	184.0	211.0	237.0	263.0	395.0
20°	17.6	35.3	52.9	70.5	88.2	106.0	141.0	176.0	212.0	247.0	282.0	317.0	353.0	529.0
25°	22.2	44.3	66.5	88.7	111.0	133.0	177.0	222.0	266.0	310.0	355.0	399.0	443.0	665.0
30°	26.8	53.6	80.4	107.0	134.0	161.0	214.0	268.0	322.0	375.0	429.0	482.0	536.0	804.0
35°	31.5	63.1	94.6	126.0	158.0	189.0	252.0	315.0	378.0	441.0	504.0	568.0	631.0	946.0
40°	36.4	72.8	109.0	146.0	182.0	218.0	291.0	364.0	437.0	510.0	582.0	655.0	728.0	1092.0
45°	41.4	82.8	124.0	166.0	207.0	249.0	331.0	414.0	497.0	580.0	663.0	746.0	828.0	1243.0
50°	46.6	93.3	140.0	187.0	233.0	280.0	373.0	466.0	560.0	653.0	746.0	839.0	933.0	1399.0
55°	52.1	104.0	156.0	208.0	260.0	312.0	416.0	521.0	625.0	729.0	833.0	937.0	1041.0	1562.0
60°	57.7	115.0	173.0	231.0	289.0	346.0	462.0	577.0	693.0	808.0	924.0	1039.0	1155.0	1732.0
65°	63.7	127.0	191.0	255.0	319.0	382.0	510.0	637.0	764.0	892.0	1019.0	1147.0	1274.0	1911.0
70°	70.0	140.0	210.0	280.0	350.0	420.0	560.0	700.0	840.0	980.0	1120.0	1260.0	1400.0	2101.0
75°	76.7	153.0	230.0	307.0	384.0	460.0	614.0	767.0	921.0	1074.0	1228.0	1381.0	1535.0	2302.0
80°	83.9	168.0	252.0	336.0	420.0	503.0	671.0	839.0	1007.0	1175.0	1343.0	1510.0	1678.0	2517.0
85°	91.6	183.0	275.0	367.0	458.0	550.0	733.0	916.0	1100.0	1283.0	1466.0	1649.0	1833.0	2749.0
90°	100.0	200.0	300.0	400.0	500.0	600.0	800.0	1000.0	1200.0	1400.0	1600.0	1800.0	2000.0	3000.0
95°	109.0	218.0	327.0	437.0	546.0	655.0	873.0	1091.0	1310.0	1528.0	1746.0	1964.0	2183.0	3274.0
100°	119.0	238.0	358.0	477.0	596.0	715.0	953.0	1192.0	1430.0	1668.0	1907.0	2145.0	2384.0	3575.0
110°	143.0	286.0	428.0	571.0	714.0	867.0	1143.0	1430.0	1714.0	1999.0	2285.0	2571.0	2856.0	
115°	157.0	314.0	471.0	628.0	785.0	942.0	1256.0	1570.0	1884.0	2197.0	2511.0	2825.0	3139.0	
120°	173.0	346.0	520.0	693.0	866.0	1039.0	1386.0	1732.0	2078.0	2425.0	2771.0	3117.0	3464.0	
130°	214.0	429.0	643.0	858.0	1072.0	1287.0	1716.0	2145.0	2573.0	3002.0	3431.0	3860.0		
140°	275.0	549.0	824.0	1099.0	1374.0	1648.0	2198.0	2747.0	3297.0	3846.0				
150°	373.0	747.0	1120.0	1493.0	1866.0	2240.0	2986.0	3733.0						
160°	567.0	1134.0	1702.0	2269.0	2837.0	3403.0								
170°	1143.0	2285.0	3429.0											

