

TABULADOR QUE MUESTRA VELOCIDAD Y
 GASTO DE CONCRETO SIMPLE ($n = 0.013$)

FORMULAS UTILIZADAS Y TABULADOR DE VALORES DE CALCULO

RADIO INTERIOR (r)	RADIO INT. AL CUADRADO r^2	AREA $\pi \times r^2$	PERIMETRO MOJADO $\pi \times d$	RADIO HIDRAULICO A/P	RADIO HIDRAULICO $\frac{2}{3} \sqrt[3]{\frac{r^2}{n}}$	$Q = a \cdot v$
8"	0.1016	0.0103225	0.032429Z	0.6383716	0.0507998	0.1371645
10"	0.1270	0.016129	0.0506707	0.7979645	0.0634999	0.1591654
12"	0.1524	0.02322576	0.0729658	0.9575596	0.0761998	0.1797363
15"	0.1905	0.03629025	0.11400918	1.1969496	0.09524978	0.2085656
18"	0.2286	0.05225796	0.16417322	1.4336339	0.114299734	0.23552127

14/08/84

Hoja 1 a 3

S	TUBO DE 8"		TUBO DE 10"		TUBO DE 12"		TUBO DE 15"		TUBO DE 18"	
	V	Q	V	Q	V	Q	V	Q	V	Q
0/00	m/seg	lps	m/seg	lps	m/seg	lps	m/seg	lps	m/seg	lps
1	0.33	10.80	0.39	19.60	0.44	31.90	0.51	57.80	0.57	94.00
1.2	0.365	11.85	0.424	22.49	0.478	34.87	0.55	63.36	0.627	103.03
1.5	0.408	13.25	0.474	24.02	0.535	39.07	0.62	70.84	0.701	115.19
2.0	0.47	15.30	0.55	27.70	0.62	45.10	0.72	81.80	0.81	133.00
2.5	0.53	17.10	0.61	31.00	0.62	50.44	0.802	91.45	0.905	148.71
3	0.58	18.70	0.67	34.00	0.76	55.20	0.88	100.20	0.99	162.90
4	0.67	29.60	0.77	39.23	0.87	63.80	1.01	115.68	1.14	189.11
5	0.75	24.20	0.87	43.90	0.98	71.30	1.13	129.30	1.28	210.30
6	0.82	26.30	0.95	48.10	1.07	78.10	1.24	141.60	1.40	230.50
7	0.88	28.60	1.02	51.90	1.16	84.80	1.34	153.00	1.51	248.80
8	0.94	30.60	1.10	55.50	1.24	90.70	1.43	163.60	1.62	256.00
9	1.00	32.50	1.16	58.90	1.31	95.70	1.52	173.50	1.72	282.20
10	1.06	34.20	1.22	62.00	1.36	100.80	1.60	182.90	1.81	297.40
11	1.11	35.90	1.28	65.10	1.45	105.80	1.68	191.80	1.90	311.90
12	1.16	37.50	1.34	68.00	1.51	110.50	1.76	200.50	1.98	325.80
13	1.20	39.00	1.40	70.70	1.58	115.00	1.83	208.50	2.06	339.10
14	1.25	40.50	1.45	73.40	1.63	119.30	1.90	216.40	2.14	351.90
15	1.29	41.90	1.50	76.00	1.69	123.50	1.96	224.00	2.22	364.30
16	1.33	43.30	1.55	78.50	1.74	127.60	2.029	231.30	2.29	376.20
17	1.38	44.60	1.60	80.90	1.80	131.50	2.072	235.40	2.36	387.80
18	1.42	45.90	1.64	83.20	1.85	135.30	2.152	245.40	2.43	399.00
19	1.45	47.20	1.69	85.50	1.90	139.00	2.211	252.40	2.50	410.00
20	1.49	48.40	1.73	87.70	1.95	142.60	2.27	258.60	2.56	420.60
21	1.53	49.60	1.77	89.90	2.00	146.10	2.329	265.00	2.62	431.00
22	1.56	50.80	1.82	92.00	2.05	149.60	2.379	271.30	2.69	441.10
23	1.60	51.90	1.86	94.10	2.10	152.90	2.433	277.30	2.74	451.10
24	1.63	53.00	1.90	96.10	2.14	156.20	2.485	283.30	2.81	460.80
25	1.67	54.10	1.94	98.10	2.19	159.50	2.536	289.20	2.86	470.30
26	1.70	55.20	1.97	100.00	2.23	162.60	2.586	294.90	2.92	479.50
27	1.73	56.20	2.01	101.90	2.29	165.70	2.636	300.50	2.98	488.70
28	1.77	57.30	2.05	103.80	2.31	168.90	2.684	306.00	3.03	497.70
29	1.80	58.30	2.08	105.60	2.35	171.80	2.732	311.40	3.08	506.50
30	1.83	59.30	2.29	107.50	2.39	174.70	2.7764	316.90	3.14	515.20

S	TUBO DE 8"		TUBO DE 10"		TUBO DE 12"		TUBO DE 15"		TUBO DE 18"	
	V	Q	V	Q	V	Q	V	Q	V	Q
	m	seq	m	seq	m	seq	m	seq	m	seq
3/00										
31	1.86	60.20	2.16	109.20	2.43	177.00	2.82	322.00	3.19	523.70
32	1.89	61.20	2.19	111.00	2.47	180.40	2.869	327.20	3.24	532.10
33	1.92	62.20	2.22	112.70	2.51	183.20	2.914	332.20	3.29	540.30
34	1.95	63.10	2.26	114.40	2.55	186.00	2.958	337.30	3.34	548.40
35	1.97	64.00	2.29	116.10	2.59	188.70	3.001	342.10	3.39	556.40
36	2.00	64.90	2.32	117.70	2.62	191.40	3.044	347.00	3.44	564.30
37	2.03	65.80	2.36	119.30	2.66	194.00	3.086	351.80	3.48	572.10
38	2.06	66.70	2.39	120.90	2.69	196.60	3.127	356.50	3.53	579.80
39	2.08	67.60	2.42	122.50	2.73	199.20	3.168	361.20	3.58	587.40
40	2.11	68.40	2.45	124.10	2.76	201.70	3.209	365.80	3.62	594.90
41	2.14	69.30	2.48	125.60	2.80	204.20	3.248	370.30	3.67	602.20
42	2.16	70.10	2.51	127.10	2.83	206.70	3.288	374.80	3.71	609.50
43	2.19	71.00	2.54	128.60	2.87	209.20	3.326	379.20	3.76	616.80
44	2.21	71.80	2.57	130.10	2.90	211.60	3.365	383.60	3.80	623.50
45	2.24	72.60	2.60	131.60	2.93	214.00	3.403	388.00	3.84	630.90
46	2.26	73.40	2.63	133.10	2.96	216.30	3.440	392.20	3.88	637.90
47	2.29	74.20	2.65	134.50	3.00	218.70	3.478	396.50	3.93	644.80
48	2.31	75.00	2.68	135.90	3.03	221.00	3.514	400.70	3.97	651.60
49	2.34	75.70	2.71	137.30	3.06	223.30	3.551	404.80	4.01	658.40
50	2.36	76.60	2.74	138.70	3.09	225.00	3.59	408.90	4.05	665.10
51	2.38	77.30	2.76	140.10	3.12	228.00	3.62	413.10	4.09	671.70
52	2.41	78.00	2.79	141.50	3.15	230.00	3.66	417.10	4.13	678.20
53	2.43	78.80	2.82	142.80	3.18	232.00	3.69	421.10	4.17	684.70
54	2.45	79.50	2.85	144.20	3.21	234.00	3.73	425.00	4.21	691.20
55	2.47	80.20	2.87	145.50	3.24	236.00	3.76	428.90	4.25	697.50
56	2.50	81.00	2.90	146.80	3.27	238.00	3.80	432.80	4.29	703.80
57	2.52	81.70	2.92	148.10	3.30	240.00	3.83	436.60	4.32	710.10
58	2.54	82.40	2.95	149.40	3.33	243.00	3.86	440.50	4.36	716.30
59	2.56	83.10	2.97	150.70	3.36	245.00	3.90	444.20	4.40	722.50
60	2.58	83.80	3.00	152.00	3.39	247.00	3.93	448.00	4.44	728.50
61	2.61	84.50	3.02	153.20						
62	2.63	85.20	3.05	154.50						
63	2.65	85.90	3.07	155.70						
64	2.67	86.60	3.10	156.90						
65	2.69	87.20	3.12	158.20						
66	2.71	87.90	3.15	159.40						
67	2.73	88.60	3.17	160.60						
68	2.75	89.26	3.19	161.80						
69	2.77	89.90	3.22	163.00						
70	2.79	90.50	3.24	164.10						
71	2.81	91.20	3.26	165.30						
72	2.83	91.80	3.28	166.50						
73	2.85	92.40	3.31	167.60						
74	2.87	93.10	3.33	168.80						
75	2.89	93.70	3.35	169.90						
76	2.91	94.30	3.38	171.00						
77	2.93	95.00	3.40	172.30						
78	2.95	95.60	3.42	173.50						

TUBO DE 8"

TUBO DE 10"

TUBO DE 12"

TUBO DE 15"

TUBO DE 18"

S

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seg

m

seg

m

seg

79	2.97	96.20	3.44	174.40
80	2.98	96.80	3.46	175.50
81	3.00	97.40	3.48	176.60
82	3.02	98.00	3.51	177.70
83	3.04	98.60	3.53	178.70
84	3.06	99.20	3.55	179.80
85	3.08	99.80	3.57	180.90
86	3.09	100.30	3.59	181.90
87	3.11	100.90	3.61	183.00
88	3.13	101.50	3.63	184.00
89	3.15	102.10	3.65	185.10
90	3.17	102.60	3.67	186.10
91	3.18	103.20	3.69	187.10
92	3.20	103.80	3.71	188.20
93	3.22	104.30	3.73	189.20
94	3.23	104.90	3.75	190.20
95	3.25	105.50	3.77	191.20
96	3.27	106.00	3.79	192.20
97	3.29	106.60	3.81	193.20
98	3.30	107.10	3.83	194.20
99	3.32	107.70	3.85	195.20
100	3.34	108.20	3.87	196.20
101	3.35	108.70	3.89	197.20
102	3.37	109.30	3.91	198.10
103	3.39	109.90	3.93	199.10
104	3.40	110.30	3.95	200.10
105	3.42	110.90	3.97	201.00
106	3.44	111.40	3.99	202.00
107	3.45	111.90	4.00	202.90