

Diameters, Circumferences and Areas for Ductile Iron Standard Cement-Lined Pipe

Table No. 1

NOMINAL SIZE (inches)	OUTSIDE DIAMETER (inches)	INSIDE DIAMETER* (inches)	O.D. AREA (sq. in.)	I.D. AREA* (sq. in.)	O.D. CIRCUMFERENCE (inches)	I.D. CIRCUMFERENCE (inches)
3"	3.96	3.33	12.32	8.71	12.44	10.46
4"	4.80	4.15	18.10	13.53	15.08	13.04
6"	6.90	6.27	37.39	30.88	21.68	19.80
8"	9.05	8.38	64.33	55.15	28.43	26.33
10"	11.10	10.39	96.77	84.79	34.87	32.64
12"	13.20	12.45	136.85	121.74	41.47	39.11
14"	15.30	14.45	183.85	163.99	48.07	45.40
16"	17.40	16.53	237.79	214.60	54.66	51.93
18"	19.50	18.61	298.65	272.01	61.26	58.47
20"	21.60	20.69	366.44	336.21	67.86	65.00
24"	25.80	24.85	522.79	485.00	81.05	78.07
30"	32.00	30.97	804.25	753.31	100.53	97.30
36"	38.30	37.19	1152.10	1086.28	120.32	116.84
42"	44.50	43.31	1555.29	1473.22	139.80	136.06
48"	50.80	49.53	2026.83	1926.76	159.59	155.60
54"	57.56	56.17	2602.14	2477.99	180.83	176.46

* Based on Ductile Iron Pipe Class 50 nominal thickness for all sizes — except Class 51 nominal thickness for 3" and 4" — as specified in AWWA C151, and on standard cement lining minimum thickness specified in AWWA C104. The value of Pi (π) used in calculations = 3.1416.

Weights for Pipeline Design Weight of Ductile Iron Pipe and Contained Water

Table No. 2

THICKNESS CLASS	NOM. SIZE (inches)	GALS. HELD (per foot)	WEIGHT – LBS. PER FOOT			THICKNESS CLASS	NOM. SIZE (inches)	GALS. HELD (per foot)	WEIGHT – LBS. PER FOOT		
			PIPE	WATER	TOTAL				PIPE	WATER	TOTAL
51	3"	0.45	10.1	3.8	13.9	50	18"	14.12	74.5	117.9	192.4
51	4"	0.70	12.7	5.9	18.6	50	20"	17.45	84.8	145.7	230.5
50	6"	1.60	18.2	13.4	31.6	50	24"	25.17	106.6	210.1	316.7
50	8"	2.86	25.8	23.9	49.7	50	30"	39.10	139.3	326.4	465.7
50	10"	4.40	33.9	36.7	70.6	50	36"	56.38	182.6	470.7	653.3
50	12"	6.32	43.2	52.7	95.9	50	42"	76.46	229.8	638.3	868.1
50	14"	8.51	55.1	71.1	126.2	50	48"	100.00	282.7	834.8	1117.5
50	16"	11.14	64.7	93.0	157.7	50	54"	128.61	351.1	1056.2	1407.3

These weights are based on minimum class (Thickness Class 51 for 3" and 4" and Class 50 for 6" through 54") Ductile Iron Pipe with minimum thickness standard cement lining as specified in AWWA C104 and on weight of water of 62.4 pounds per cubic foot. The inside diameters are as given in Table No. 1.

Pounds of water per foot = 0.4333 X (I.D. in inches)²

Gallons of water per foot = 0.0519 X (I.D. in inches)²

Ductile Iron/Gray Iron Weights

POUNDS PER CUBIC FOOT	
DUCTILE IRON	GRAY IRON
440.64	449.28

Conversion Factors

TO CHANGE	TO	MULTIPLY BY
Gray Iron	Ductile Iron	0.9808
Ductile Iron	Gray Iron	1.0196