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## Introduction

This *TechNote* details the critical pipe dimensions required for accurate flow measurement. These tables are useful to set up flowmeters and calculate velocities of fluids using the interior area of the pipe. It lists the outside and inside diameters, wall thickness, and internal cross-sectional area for a wide range of commercial pipe materials and sizes.

These are nominal standard dimensions and because of differing manufacturing methods and tolerances, pipe ID and wall thickness may vary slightly from the values given. These tables are provided for informational purposes only, and we welcome any corrections.

### Table 1 - Standard Pipes: Carbon Steel, Stainless, Alloys, PVC, ABS

IPS = Iron Pipe Size (traditional measurement system)

STD = standard, XS = extra strong wall, XXS = double extra strong wall, S = stainless steel

SIZE NPS	SIZE DIN	O.D. (in.)	Schedules	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft. <sup>2</sup> )
1/8	6	0.405	5, 5S	0.035	0.335	0.00061
			10, 10S	0.049	0.307	0.00051
			30	0.057	0.291	0.00046
			STD, 40, 40S	0.068	0.269	0.00039
			XS, 80, 80S	0.095	0.215	0.00025
1/4	8	0.540	5, 5S	0.049	0.442	0.00107
			10, 10S	0.065	0.410	0.00092
			30	0.073	0.394	0.00085
			STD, 40, 40S	0.088	0.364	0.00072
			XS, 80, 80S	0.119	0.302	0.00050
3/8	10	0.675	5, 5S	0.049	0.577	0.00182
			10, 10S	0.065	0.545	0.00162
			30	0.073	0.529	0.00153
			STD, 40, 40S	0.091	0.493	0.00133
			XS, 80, 80S	0.126	0.423	0.00098



Table 1 – Standard Pipes: Carbon Steel, Stainless, Alloys, PVC, ABS

SIZE NPS	SIZE DIN	O.D. (in.)	Schedules	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
1/2	15	0.840	5, 5S	0.065	0.710	0.00275
			10, 10S	0.083	0.674	0.00248
			30	0.095	0.650	0.00230
			STD, 40, 40S	0.109	0.622	0.00211
			XS, 80, 80S	0.147	0.546	0.00163
			120	0.170	0.500	0.00136
			160	0.187	0.466	0.00118
			XXS	0.294	0.252	0.00035
3/4	20	1.050	5, 5S	0.065	0.920	0.00462
			10, 10S	0.083	0.884	0.00426
			30	0.095	0.860	0.00403
			STD, 40, 40S	0.113	0.824	0.00370
			XS, 80, 80S	0.154	0.742	0.00300
			120	0.170	0.710	0.00275
			160	0.219	0.612	0.00204
			XXS	0.308	0.434	0.00103
1	25	1.315	5, 5S	0.065	1.185	0.00766
			10, 10S	0.109	1.097	0.00656
			30	0.114	1.087	0.00644
			STD, 40, 40S	0.133	1.049	0.00600
			XS, 80, 80S	0.179	0.957	0.00500
			120	0.200	0.915	0.00457
			160	0.250	0.815	0.00362
			XXS	0.358	0.599	0.00196
1 ¼	32	1.660	5, 5S	0.065	1.530	0.01277
			10, 10S	0.109	1.442	0.01134
			30	0.117	1.426	0.01109
			STD, 40, 40S	0.140	1.380	0.01039
			XS, 80, 80S	0.191	1.278	0.00891
			120	0.215	1.230	0.00825
			160	0.250	1.160	0.00734
			XXS	0.382	0.896	0.00438
1 ½	40	1.900	5, 5S	0.065	1.770	0.01709
			10, 10S	0.109	1.682	0.01543
			30	0.125	1.650	0.01485
			STD, 40, 40S	0.145	1.610	0.01414
			XS, 80, 80S	0.200	1.500	0.01227
			120	0.225	1.450	0.01147
			160	0.281	1.338	0.00976
			XXS	0.400	1.100	0.00660



Table 1 - Standard Pipes: Carbon Steel, Stainless, Alloys, PVC, ABS

SIZE NPS	SIZE DIN	O.D. (in.)	Schedules	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
2	50	2.375	5, 5S	0.065	2.245	0.02749
			10, 10S	0.109	2.157	0.02538
			STD, 40, 40S	0.154	2.067	0.02330
			XS, 80, 80S	0.218	1.939	0.02051
			120	0.250	1.875	0.01917
			160	0.344	1.687	0.01552
			XXS	0.436	1.503	0.01232
2 ½	65	2.875	5, 5S	0.083	2.709	0.04003
			10, 10S	0.120	2.635	0.03787
			STD, 40, 40S	0.203	2.469	0.03325
			XS, 80, 80S	0.276	2.323	0.02943
			120	0.300	2.275	0.02823
			160	0.375	2.125	0.02463
			XXS	0.552	1.771	0.01711
3	80	3.500	5, 5S	0.083	3.334	0.06063
			10, 10S	0.120	3.260	0.05796
			STD, 40, 40S	0.216	3.068	0.05134
			XS, 80, 80S	0.300	2.900	0.04587
			120	0.350	2.800	0.04276
			160	0.438	2.624	0.03755
			XXS	0.600	2.300	0.02885
3 ½	90	4.000	5, 5S	0.083	3.834	0.08017
			10, 10S	0.120	3.760	0.07711
			STD, 40, 40S	0.226	3.548	0.06866
			XS, 80, 80S	0.318	3.364	0.06172
			XXS	0.636	2.728	0.04059
4	100	4.500	5, 5S	0.083	4.334	0.10245
			10, 10S	0.120	4.260	0.09898
			STD, 40, 40S	0.237	4.026	0.08840
			60	0.281	3.938	0.08458
			XS, 80, 80S	0.337	3.826	0.07984
			120	0.438	3.624	0.07163
			160	0.531	3.438	0.06447
			XXS	0.674	3.152	0.05419
4 ½	115	5.000	STD, 40, 40S	0.247	4.506	0.11074
			XS, 80, 80S	0.355	4.290	0.10038
			XXS	0.710	3.580	0.06990
5	125	5.563	5, 5S	0.109	5.345	0.15582
			10, 10S	0.134	5.295	0.15292
			STD, 40, 40S	0.258	5.047	0.13893
			XS, 80, 80S	0.375	4.813	0.12635
			120	0.500	4.563	0.11356
			160	0.625	4.313	0.10146
			XXS	0.750	4.063	0.09004



Table 1 - Standard Pipes: Carbon Steel, Stainless, Alloys, PVC, ABS

SIZE NPS	SIZE DIN	O.D. (in.)	Schedules	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)			
6	150	6.625	5, 5S	0.109	6.407	0.22389			
			10, 10S	0.134	6.357	0.22041			
			STD, 40, 40S	0.280	6.065	0.20063			
			XS, 80, 80S	0.432	5.761	0.18102			
			120	0.562	5.501	0.16505			
			160	0.719	5.187	0.14674			
7	175	7.625	XXS	0.864	4.897	0.13079			
			STD, 40, 40S	0.301	7.023	0.26901			
			XS, 80, 80S	0.500	6.625	0.23939			
8	200	8.625	XXS	0.875	5.875	0.18825			
			5S	0.109	8.407	0.38549			
			10, 10S	0.148	8.329	0.37837			
			20	0.250	8.125	0.36006			
			30	0.277	8.071	0.35529			
			STD, 40, 40S	0.322	7.981	0.34741			
			60	0.406	7.813	0.33294			
			XS, 80, 80S	0.500	7.625	0.31711			
			100	0.594	7.437	0.30166			
			120	0.719	7.187	0.28172			
			140	0.812	7.001	0.26733			
			XXS	0.875	6.875	0.25779			
9	225	9.625	160	0.906	6.813	0.25317			
			STD, 40, 40S	0.342	8.941	0.43601			
			XS, 80, 80S	0.500	8.625	0.40574			
10	250	10.750	XXS	0.875	7.875	0.33824			
			5, 5S	0.134	10.482	0.59926			
			10, 10S	0.165	10.420	0.59219			
			20	0.250	10.250	0.57303			
			30	0.307	10.136	0.56035			
			STD, 40, 40S	0.365	10.020	0.54760			
			XS, 60, 80S	0.500	9.750	0.51849			
			80	0.594	9.562	0.49868			
			100	0.719	9.312	0.47295			
			120	0.844	9.062	0.44789			
			XXS, 140	1.000	8.750	0.41758			
			160	1.125	8.500	0.39406			
			11	275	11.750	STD, 40, 40S	0.375	11.000	0.65995
						XS, 80, 80S	0.500	10.750	0.63030
XXS	0.875	10.000				0.54541			



Table 1 - Standard Pipes: Carbon Steel, Stainless, Alloys, PVC, ABS

SIZE NPS	SIZE DIN	O.D. (in.)	Schedules	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
12	300	12.750	5, 5S	0.156	12.438	.84378
			10, 10S	0.180	12.390	.83728
			20	0.250	12.250	.81846
			30	0.330	12.090	.79722
			STD, 40S	0.375	12.000	.78540
			40	0.406	11.938	.77730
			XS, 60, 80S	0.500	11.750	.75301
			80	0.688	11.374	.70559
			100	0.844	11.062	.66741
			XXS, 120	1.000	10.750	.63030
			140	1.125	10.500	.60132
			160	1.312	10.126	.55925
			14	350	14.000	5S
10S	0.188	13.624				1.01236
10	0.250	13.500				.99402
20	0.312	13.376				.97584
STD, 30, 40S	0.375	13.250				.95754
40	0.438	13.124				.93942
XS, 80S	0.500	13.000				.92175
60	0.594	12.812				.89528
80	0.750	12.500				.85221
100	0.938	12.124				.80171
120	1.094	11.812				.76098
140	1.250	11.500				.72131
160	1.406	11.188				.68270
16	400	16.000	5S	0.165	15.670	1.33926
			10S	0.188	15.624	1.33141
			10	0.250	15.500	1.31036
			20	0.312	15.376	1.28948
			STD, 30, 40S	0.375	15.250	1.26843
			XS, 40, 80S	0.500	15.000	1.22718
			60	0.656	14.688	1.17666
			80	0.844	14.312	1.11719
			100	1.031	13.938	1.05957
			120	1.219	13.562	1.00317
			140	1.438	13.124	.93942
			160	1.594	12.812	.89528



Table 1 - Standard Pipes: Carbon Steel, Stainless, Alloys, PVC, ABS

SIZE NPS	SIZE DIN	O.D. (in.)	Schedules	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)			
18	450	18.000	5S	0.165	17.670	1.702943			
			10S	0.188	17.624	1.69409			
			10	0.250	17.500	1.67033			
			20	0.312	17.376	1.64675			
			STD, 40S	0.375	17.250	1.62295			
			30	0.438	17.124	1.59933			
			XS, 80S	0.500	17.000	1.57625			
			40	0.562	16.876	1.55334			
			60	0.750	16.500	1.48489			
			80	0.938	16.124	1.41799			
			100	1.156	15.688	1.34234			
			120	1.375	15.250	1.26843			
			140	1.562	14.876	1.20698			
			160	1.781	14.438	1.13695			
20	500	20.000	5S	0.188	19.624	2.10040			
			10S	0.218	19.564	2.08758			
			10	0.250	19.500	2.07394			
			STD, 20, 40S	0.375	19.250	2.02110			
			XS, 30, 80S	0.500	19.000	1.96895			
			40	0.594	18.812	1.93018			
			60	0.812	18.376	1.84174			
			80	1.031	17.938	1.75499			
			100	1.281	17.438	1.65852			
			120	1.500	17.000	1.57625			
			140	1.750	16.500	1.48489			
			160	1.969	16.062	1.40710			
			22	550	22.000	10, 10S	0.250	21.500	2.52118
						STD, 20, 40S	0.375	21.250	2.46289
XS, 30, 80S	0.500	21.000				2.40528			
40	0.688	20.624				2.31992			
60	0.875	20.250				2.23654			
80	1.125	19.750				2.12746			
100	1.375	19.250				2.02110			
120	1.625	18.750				1.91747			
140	1.875	18.250				1.81657			
160	2.125	17.750				1.71840			



Table 1 - Standard Pipes: Carbon Steel, Stainless, Alloys, PVC, ABS

SIZE NPS	SIZE DIN	O.D. (in.)	Schedules	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
24	600	24.000	5S	0.218	33.564	3.02848
			10, 10S	0.250	23.500	3.01205
			STD, 20, 40S	0.375	23.250	2.94831
			XS, 80S	0.500	23.000	2.88524
			30	0.562	22.876	2.85422
			40	0.688	22.624	2.79168
			60	0.969	22.062	2.65471
			80	1.219	21.562	2.53574
			100	1.531	20.938	2.39110
			120	1.812	20.376	2.26446
			140	2.062	19.876	2.15469
			160	2.344	19.312	2.03414
			26	650	26.00	10
STD, 40S	0.375	25.250				3.47736
XS, 80S	0.500	25.000				3.40884
28	700	28.00	10	0.312	27.376	4.08759
			STD, 40S	0.375	27.250	4.05005
			XS, 20, 80S	0.500	27.000	3.97607
			30	0.625	26.750	3.90278
30	750	30.000	10	0.312	29.376	4.70665
			STD, 40S	0.375	29.250	4.66637
			XS, 20, 80S	0.500	29.000	4.58694
			30	0.625	28.750	4.50820
32	800	32.00	10	0.312	31.376	5.36936
			STD	0.375	31.250	5.32632
			20	0.500	31.000	5.24144
			30	0.625	30.750	5.15724
			40	0.688	30.624	5.11506
34	850	34.00	10	0.312	33.376	6.07569
			STD	0.375	33.250	6.02990
			20	0.500	33.000	5.93957
			30	0.625	32.750	5.84992
			40	0.688	32.624	5.80499
36	900	36.000	10	0.312	35.376	6.82566
			STD, 40S	0.375	35.250	6.77712
			XS, 20, 80S	0.500	35.000	6.68133
42	1050	42.000	STD, 40S	0.375	41.250	9.28058
			XS, 80S	0.500	41.000	9.16842
			30	0.625	40.750	6.05696
			40	0.750	40.500	8.94617
48	1200	48.000	STD, 40S	0.375	47.250	12.17673
			XS, 80S	0.500	47.000	12.04822



**Table 2 – HDPE**

In HDPE (High-Density Polyethylene) pipe, "SDR" indicates the ratio of outside diameter to wall thickness. The bigger the thickness of the pipe wall, the smaller the SDR value and the higher the strength of the pipe ore pressure class. The listed ID, wall thickness, and calculated interior area are averages. A portable thickness gauge should be used for exact measurements where needed. ASTM standard PD4710.

DR Ratio	7	7.3	9	9.3	11	13.5	15.5	17	21	26	32.5
Pressure (psi)	335	320	250	241	200	160	140	125	100	80	65

HDPE pipe comes in different colors based on the usage:

Black with Blue stripes is for potable water

Yellow jacket or Black with Yellow stripes is for fuel and pressurized gases

SIZE NPS	SIZE DIN	O.D. (in.)	SDR	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
1/2	15	0.840	7	0.125	0.590	0.00190
			7.3	0.120	0.600	0.00196
			9	0.100	0.640	0.00223
			9.3	0.095	0.650	0.00230
			11	0.080	0.680	0.00252
			13.5	0.065	0.710	0.00275
3/4	20	1.050	7	0.160	0.730	0.00291
			7.3	0.150	0.750	0.00307
			9	0.125	0.800	0.00349
			9.3	0.120	0.810	0.00358
			11	0.100	0.851	0.00395
			13.5	0.850	0.880	0.00422
1	25	1.315	7	0.198	0.920	0.00462
			7.3	0.193	0.930	0.00472
			9	0.153	1.010	0.00556
			9.3	0.148	1.020	0.00567
			11	0.125	1.065	0.00619
			13.5	0.103	1.110	0.00672
1 ¼	32	1.660	7	0.251	1.158	0.00731
			7.3	0.241	1.178	0.00757
			9	0.195	1.270	0.00879
			11	0.157	1.346	0.00988
			13.5	0.131	1.399	0.01067
			15.5	0.107	1.446	0.01140
			17	0.100	1.460	0.01163





Table 2 – HDPE

SIZE NPS	SIZE DIN	O.D. (in.)	SDR	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
1 ½	40	1.900	7	0.283	1.335	0.00972
			7.3	0.271	1.359	0.06529
			9	0.220	1.461	0.01164
			11	0.180	1.541	0.01295
			13.5	0.147	1.607	0.01409
			15.5	0.128	1.645	0.01476
			17	0.110	1.680	0.01539
2	50	2.375	7	0.360	1.656	0.01496
			7.3	0.339	1.698	0.01573
			9	0.264	1.847	0.01861
			9.3	0.273	1.830	0.01827
			11	0.216	1.943	0.02059
			13.5	0.183	2.009	0.02201
			15.5	0.160	2.056	0.02306
2 ½	65	2.875	7	0.410	2.055	0.02303
			7.3	0.393	2.089	0.02380
			9	0.319	2.237	0.02729
			11	0.261	2.353	0.03020
			13.5	0.213	2.449	0.03271
			15.5	0.183	2.510	0.03436
			3	80	3.500	7
7.3	0.480	2.540				0.03519
9	0.405	2.691				0.03950
9.3	0.400	2.700				0.03976
11	0.331	2.838				0.04393
13.5	0.270	2.961				0.04782
15.5	0.235	3.030				0.05007
17	0.214	3.072				0.05147
21	0.174	3.153				0.05422
26	0.140	3.220				0.05655
32.5	0.110	3.280				0.05868



Table 2 – HDPE

SIZE NPS	SIZE DIN	O.D. (in.)	SDR	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
4	100	4.500	7	0.669	3.163	0.05457
			7.3	0.616	3.268	0.05825
			9	0.520	3.460	0.06529
			9.3	0.515	3.470	0.06567
			11	0.409	3.682	0.07394
			13.5	0.333	3.834	0.08017
			15.5	0.290	3.920	0.08381
			17	0.265	3.970	0.08596
			21	0.215	4.070	0.09035
			26	0.175	4.150	0.09393
5	125	5.563	32.5	0.140	4.220	0.09713
			7	0.827	3.910	0.08338
			7.3	0.762	4.039	0.08898
			9	0.655	4.253	0.09865
			9.3	0.637	4.290	0.10038
			11	0.526	4.511	0.11099
			13.5	0.412	4.739	0.12249
			15.5	0.359	4.845	0.12803
			17	0.327	4.909	0.13144
			21	0.265	5.033	0.13816
6	150	6.625	26	0.214	5.135	0.14382
			32.5	0.171	5.221	0.14867
			7	0.985	4.656	0.11824
			7.3	0.908	4.809	0.12614
			9	0.780	5.065	0.13992
			9.3	0.758	5.110	0.14242
			11	0.603	5.420	0.16022
			13.5	0.491	5.643	0.17368
			15.5	0.428	5.770	0.18158
			17	0.390	5.845	0.18634
7	175	7.125	21	0.335	5.956	0.19348
			26	0.255	6.115	0.20395
			32.5	0.203	6.219	0.21094
			7	1.018	5.089	0.14125
			7.3	0.976	5.173	0.06529
			9	0.838	5.450	0.16200
			9.3	0.813	5.500	0.16499
			11	0.648	5.829	0.18532
			13.5	0.528	6.069	0.20089
			15.5	0.460	6.205	0.21000
			17	0.419	6.287	0.21558
			21	0.339	6.447	0.22670
			26	0.274	6.577	0.23593



Table 2 – HDPE

SIZE NPS	SIZE DIN	O.D. (in.)	SDR	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
8	200	8.625	7	1.232	6.161	0.20703
			7.3	1.181	6.263	0.21394
			9	1.018	6.590	0.23686
			9.3	0.983	6.660	0.24192
			11	0.784	7.057	0.27162
			13.5	0.639	7.347	0.29441
			15.5	0.556	7.513	0.30786
			17	0.538	7.549	0.31082
			21	0.411	7.803	0.33209
			26	0.311	7.963	0.34584
10	250	10.750	32.5	0.265	8.095	0.35741
			7	1.536	7.678	0.32153
			7.3	1.473	7.804	0.33217
			9	1.265	8.220	0.36853
			9.3	1.225	8.300	0.37574
			11	1.035	8.680	0.41093
			13.5	0.796	9.158	0.45743
			15.5	0.693	9.364	0.47824
			17	0.632	9.486	0.49079
			21	0.511	9.728	0.51615
12	300	12.750	26	0.439	9.873	0.53165
			32.5	0.331	10.088	0.55506
			7	1.821	9.108	0.45245
			7.3	1.747	9.256	0.46728
			9	1.502	9.746	0.51806
			9.3	1.455	9.840	0.52810
			11	1.229	10.293	0.57784
			13.5	0.944	10.862	0.64350
			15.5	0.823	11.104	0.67249
			17	0.750	11.250	0.69029
12	300	12.750	21	0.607	11.536	0.72583
			26	0.490	11.770	0.75558
			32.5	0.392	11.966	0.78095



Table 2 – HDPE

SIZE NPS	SIZE DIN	O.D. (in.)	SDR	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
14	350	14.000	7	2.120	9.760	0.51955
			7.3	2.033	9.934	0.53824
			9	1.650	10.700	0.62445
			9.3	1.595	10.810	0.63735
			11	1.350	11.300	0.79644
			13.5	1.037	11.926	0.77574
			15.5	0.903	12.129	0.81100
			17	0.824	12.352	0.83215
			21	0.667	12.666	0.87500
			26	0.538	12.924	0.91101
			32.5	0.431	13.138	0.94142
16	400	16.000	7	2.286	11.428	0.71231
			7.3	2.192	11.616	0.73594
			9	1.885	12.230	0.81579
			9.3	1.825	12.350	0.83188
			11	1.540	12.920	0.91044
			13.5	1.185	13.630	1.01325
			15.5	1.032	13.936	1.05926
			17	0.941	14.118	1.08711
			21	0.761	14.478	1.14326
			26	0.615	14.770	1.18984
			32.5	0.492	15.016	1.22980
18	450	18.000	7	2.571	12.858	0.90172
			7.3	2.466	13.068	0.93142
			9	2.120	13.760	1.03268
			9.3	2.050	13.900	1.05380
			11	1.734	14.532	1.15180
			13.5	1.333	15.334	1.04974
			15.5	1.161	15.678	1.34063
			17	1.059	15.882	1.37574
			21	0.857	16.286	1.44662
			26	0.692	16.616	1.50584
			32.5	0.553	16.894	1.55665
20	500	20.000	7	3.030	13.940	1.05987
			7.3	2.905	14.190	1.09823
			9	2.355	15.290	1.27509
			9.3	2.280	15.440	1.30023
			11	1.925	16.150	1.42256
			13.5	1.541	16.919	1.56126
			15.5	1.342	17.316	1.63539
			17	1.224	17.553	1.68047
			21	0.991	18.019	1.77088
			32.5	0.640	18.720	1.91134



Table 2 – HDPE

SIZE NPS	SIZE DIN	O.D. (in.)	SDR	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
22	550	22.000	7	3.332	15.337	1.28294
			7.3	3.014	15.972	1.93138
			9	2.542	16.916	1.56071
			11	2.080	17.840	1.73587
			13.5	1.695	18.610	1.88895
			15.5	1.476	19.048	1.97891
			17	1.346	19.308	2.03330
			21	1.090	19.821	2.14278
			26	0.880	20.240	2.23433
			32.5	0.704	20.592	2.31273
24	600	24.000	7	3.634	16.732	1.52694
			7.3	3.288	17.424	1.65586
			9	2.827	18.346	1.83573
			11	2.313	19.374	2.04723
			13.5	1.849	20.302	2.24804
			15.5	1.611	20.779	2.35492
			17	1.468	21.064	2.41996
			21	1.189	21.623	2.55011
			26	1.000	22.000	2.63981
			32.5	0.768	22.464	2.75233
26	650	26.000	7	3.937	18.126	1.79179
			7.3	3.836	18.328	1.83213
			9	3.811	18.378	1.84214
			11	2.545	20.910	2.38471
			13.5	2.074	21.852	2.60441
			15.5	1.806	22.388	2.73374
			17	1.647	22.706	2.81195
			21	1.333	23.334	2.96965
			26	1.077	23.846	3.10140
			32.5	0.862	24.276	3.21426
28	700	28.000	7	4.000	18.000	1.77614
			7.3	3.836	20.328	2.25380
			9	3.111	21.778	2.58680
			11	2.545	22.910	2.86271
			13.5	2.074	23.852	3.10296
			15.5	1.806	24.388	3.24399
			17	1.647	24.706	3.32915
			21	1.333	25.334	3.50054
			26	1.077	25.846	3.64346
			32.5	0.862	26.276	3.76570



Table 2 – HDPE

SIZE NPS	SIZE DIN	O.D. (in.)	SDR	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
30	750	30.000	9	3.333	23.334	2.96965
			11	2.727	24.546	3.28616
			13.5	2.222	25.556	3.56215
			15.5	1.935	26.130	3.72397
			17	1.765	26.470	3.82151
			21	1.429	27.142	4.01801
			26	1.154	27.692	4.18250
			32.5	0.923	28.154	4.32322
32	800	32.000	9	3.556	24.888	3.37837
			11	2.909	26.182	3.73880
			13.5	2.370	27.260	4.05302
			15.5	2.065	27.870	4.23644
			17	1.882	28.236	4.34844
			21	1.524	28.952	4.57177
			26	1.231	29.538	4.75871
			32.5	0.985	30.030	4.91856
34	850	34.000	9	3.778	26.444	3.81401
			11	3.091	27.818	4.22065
			13.5	2.519	28.962	4.57493
			15.5	2.194	29.612	4.78258
			17	2.000	30.000	4.90873
			21	1.619	30.762	5.16127
			26	1.308	31.384	5.37209
			32.5	1.046	31.908	5.55298
36	900	36.000	9	4.000	28.000	4.27605
			11	3.273	29.454	4.73168
			13.5	2.667	30.666	5.12910
			15.5	2.323	31.354	5.36183
			17	2.118	31.764	5.50297
			21	1.714	32.572	5.78650
			26	1.385	33.230	6.02265
			32.5	1.108	33.784	6.22514
42	1050	42.000	11	3.818	34.364	6.44072
			13.5	3.111	35.778	6.98167
			15.5	2.710	36.580	7.29818
			17	2.471	37.058	7.49016
			21	2.000	38.000	7.87579
			26	1.615	38.770	8.19820
			32.5	1.292	39.416	8.47368



Table 2 – HDPE

SIZE NPS	SIZE DIN	O.D. (in.)	SDR	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
48	1200	48.000	13.5	3.556	34.888	6.63864
			15.5	3.097	35.806	6.99260
			17	2.824	36.352	7.20748
			21	2.286	37.428	7.64047
			26	1.846	38.308	8.00398
			32.5	1.477	39.046	8.31534
54	1350	54.000	15.5	3.484	35.032	6.69356
			17	3.176	35.644	6.92947
			21	2.571	36.858	7.40953
			26	2.077	37.846	7.81209
			32.5	1.662	38.676	8.15850



**Table 3 – Copper pipe or tube**

Type M Red printing, thinnest wall, used for low-pressure applications and drainage  
 Type L Blue printing, used for most purposes  
 Type K Green printing, thickest wall and typically used for underground burial

SIZE NPS	SIZE DIN	O.D. (in.)	Type	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
1/4	8	0.375	M	NA	NA	NA
			L	0.030	0.315	0.00054
			K	0.035	0.305	0.00051
3/8	10	0.500	M	0.025	0.450	0.00110
			L	0.035	0.430	0.00101
			K	0.049	0.402	0.00088
1/2	15	0.625	M	0.028	0.569	0.00177
			L	0.040	0.545	0.00162
			K	0.049	0.527	0.00151
5/8	--	0.750	M	NA	NA	NA
			L	0.042	0.666	0.00242
			K	0.049	0.652	0.00232
3/4	20	0.875	M	0.032	0.811	0.00359
			L	0.045	0.785	0.00336
			K	0.065	0.745	0.00303
1	25	1.125	M	0.035	1.055	0.00607
			L	0.050	1.025	0.00573
			K	0.065	0.995	0.00540
1 1/4	32	1.375	M	0.042	1.291	0.00909
			L	0.055	1.265	0.00873
			K	0.065	1.245	0.00845
1-1/2	40	1.625	M	0.049	1.527	0.01272
			L	0.060	1.505	0.01235
			K	0.072	1.481	0.01196
2	50	2.125	M	0.058	2.009	0.02201
			L	0.070	1.985	0.02149
			K	0.083	1.959	0.02093
2-1/2	65	2.625	M	0.065	2.495	0.03395
			L	0.080	2.465	0.03314
			K	0.095	2.435	0.03234
3	80	3.125	M	0.072	2.981	0.04847
			L	0.090	2.945	0.04730
			K	0.109	2.907	0.04609
3-1/2	90	3.625	M	0.083	3.459	0.06526
			L	0.100	3.425	0.06398
			K	0.120	3.385	0.06249
4	100	4.125	M	0.095	3.935	0.08445
			L	0.110	3.905	0.08317
			K	0.134	3.857	0.08114





**Table 4 – Cast Iron**

Cast Iron pipe is available in classes A through H. Not all sizes are available in all classes. Service grade has thinner wall. Extra Heavy has ID that matches the pipe size.

SIZE NPS	SIZE DIN	Class	O.D. (in.)	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
3	80	A	3.80	0.39	3.020	0.04974
		B	3.96	0.42	3.120	0.05309
		C	3.96	0.45	3.060	0.05107
		D	3.96	0.48	3.000	0.04909
4	100	A	4.80	0.42	3.960	0.08553
		B	5.00	0.45	4.100	0.09168
		C	5.00	0.40	4.200	0.09621
		D	5.00	0.52	3.960	0.08553
6	150	A	6.90	0.44	6.020	0.19766
		B	7.10	0.48	6.140	0.20562
		C	7.10	0.51	6.080	0.20162
		D	7.10	0.55	6.000	0.19635
		E	7.22	0.58	6.060	0.20030
		F	7.22	0.61	6.000	0.19635
		G	7.38	0.65	6.080	0.20162
		H	7.38	0.69	6.000	0.19635
8	200	A	9.05	0.46	8.130	0.36050
		B	9.05	0.51	8.030	0.35169
		C	9.30	0.56	8.180	0.36495
		D	9.30	0.60	8.100	0.35785
		E	9.42	0.66	8.100	0.35785
		F	9.42	0.66	8.100	0.35785
		G	9.60	0.75	8.100	0.35785
		H	9.60	0.80	8.000	0.34907
10	250	A	11.10	0.50	10.100	0.55638
		B	11.10	0.57	9.960	0.54106
		C	11.40	0.62	10.160	0.56301
		D	11.40	0.68	10.040	0.54979
		E	11.60	0.74	10.120	0.55858
		F	11.60	0.80	10.000	0.54541
		G	11.84	0.86	10.120	0.55858
		H	11.84	0.92	10.000	0.54541
12	300	A	13.20	0.54	12.120	0.80118
		B	13.20	0.62	11.960	0.78017
		C	13.50	0.68	12.140	0.80383
		D	13.50	0.75	12.000	0.78540
		E	13.78	0.82	12.140	0.80383
		F	13.78	0.89	12.000	0.78540
		G	14.08	0.97	12.140	0.80383
		H	14.08	1.04	12.000	0.78540



Table 4 - Cast Iron

SIZE NPS	SIZE DIN	Class	O.D. (in.)	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
14	350	A	15.30	0.57	14.160	1.09359
		B	15.30	0.66	13.980	1.06596
		C	15.65	0.74	14.170	1.09513
		D	15.65	0.82	14.010	1.07054
		E	15.98	0.90	14.180	1.09668
		F	15.98	0.99	14.000	1.06901
		G	16.32	1.07	14.180	1.09668
		H	16.32	1.16	14.000	1.06901
16	400	A	17.40	0.60	16.200	1.43139
		B	17.40	0.70	16.000	1.39626
		C	17.80	0.80	16.200	1.43139
		D	17.80	0.89	16.020	1.39976
		E	18.16	0.90	16.360	1.45980
		F	18.16	1.08	16.000	1.39626
		G	18.54	1.18	16.380	1.46337
		H	18.54	1.27	16.000	1.39626
18	450	A	19.50	0.64	18.220	1.81061
		B	19.50	0.75	18.000	1.76714
		C	19.92	0.87	18.180	1.80266
		D	19.92	0.96	18.000	1.76714
		E	20.34	1.07	18.200	1.80663
		F	20.34	1.17	18.000	1.76714
		G	20.78	1.28	18.220	1.81061
		H	20.78	1.39	18.000	1.76714
20	500	A	21.60	0.67	20.260	2.23875
		B	21.60	0.80	20.000	2.18166
		C	22.06	0.92	20.220	2.22992
		D	22.06	1.03	20.000	2.18166
		E	22.54	1.15	20.240	2.23433
		F	22.54	1.27	20.000	2.18166
		G	23.02	1.39	20.240	2.23433
		H	23.02	1.51	20.000	2.18166
24	600	A	25.80	0.76	24.280	3.21532
		B	25.80	0.89	24.020	3.14683
		C	26.32	1.05	24.220	3.19945
		D	26.32	1.16	24.000	3.14159
		E	26.90	1.31	24.280	3.21532
		F	26.90	1.45	24.000	3.14159
		G	27.76	1.75	24.260	3.21003
		H	27.76	1.88	24.000	3.14159



Table 4 - Cast Iron

SIZE NPS	SIZE DIN	Class	O.D. (in.)	Wall (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
30	750	A	31.74	0.88	29.980	4.90219
		B	32.00	1.03	29.940	4.88912
		C	32.40	1.20	30.000	4.90873
		D	32.74	1.37	30.000	4.90873
32	800	A	37.96	0.99	35.980	7.06073
		B	38.30	1.15	36.000	7.06858
		C	38.70	1.36	35.980	7.06073
		D	39.16	1.58	36.000	7.06858
42	1050	A	44.20	1.10	42.000	9.62112
		B	44.50	1.28	41.940	9.59365
		C	45.10	1.54	42.020	9.63028
		D	45.58	1.78	42.020	9.63028
48	1200	A	50.50	1.26	47.980	12.55589
		B	50.80	1.42	47.960	12.54542
		C	51.40	1.71	47.980	12.55589
		D	51.98	1.99	48.000	12.56636
54	1400	A	56.66	1.35	53.960	15.88075
		B	57.10	1.55	54.000	15.90430
		C	57.80	1.90	54.000	15.90430
		D	58.40	2.23	53.940	15.86898
60	1500	A	62.80	1.39	60.020	19.64803
		B	63.40	1.67	60.060	19.67423
		C	64.20	2.00	60.200	19.76606
		D	64.82	2.38	60.060	19.67423
72	1800	A	75.34	1.62	72.100	28.35290
		B	76.00	1.95	72.100	28.35290
		C	76.88	2.39	72.100	28.35290
84	2100	A	87.54	1.72	84.100	38.57616
		B	88.54	2.22	83.140	37.70050



**Table 5 – Ductile Iron**

Ductile Iron Pipe Size (DIPS) is available in both a Pressure Class and a Thickness Class. Cement lining is also very common. To identify DI pipe, look for markings on the face of the bell flange. Most ductile pipes have the letters "D I" or the word "Ductile" cast directly into the face of the bell flange. No cast iron pipes have these markings.

UNL = Unlined

SCL = Single Cement Lining

3"-12" = 1/16" or 0.0625"

14"-24" = 3/32" or 0.09375

30"-36" = 1/8 or 0.125

DCL = Double Cement Lining

3-12" = 1/8" or 0.125

14"-24" = 3/16" or 0.1875

30"-36" = 1/4" or 0.25

SIZE NPS	SIZE DIN	O.D. (in.)	Class-Lining	Wall (in.)	Lining (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
3	80	3.96	350, 51-UNL	0.25	0	3.46	0.06529
			350, 51-SCL	0.25	0.0625	3.34	0.06084
			350, 51-DCL	0.25	0.125	3.21	0.05620
			52-UNL	0.28	0	3.40	0.06305
			52-SCL	0.28	0.0625	3.28	0.05868
			52-DCL	0.28	0.125	3.15	0.05412
			53-UNL	0.31	0	3.34	0.06084
			53-SCL	0.31	0.0625	3.22	0.05638
			53-DCL	0.31	0.125	3.09	0.05208
			54-UNL	0.34	0	3.28	0.05868
			54-SCL	0.34	0.0625	3.16	0.05429
			54-DCL	0.34	0.125	3.03	0.05007
			55-UNL	0.37	0	3.22	0.05655
			55-SCL	0.37	0.0625	3.10	0.05225
			55-DCL	0.37	0.125	2.97	0.04811
			56-UNL	0.40	0	3.16	0.05446
			56-SCL	0.40	0.0625	3.04	0.05024
			56-DCL	0.40	0.125	2.91	0.04619
4	100	4.80	350-UNL	0.25	0	4.30	0.10085
			350-SCL	0.25	0.0625	4.18	0.09530
			350-DCL	0.25	0.125	4.05	0.08946
			51-UNL	0.26	0	4.28	0.09991
			51-SCL	0.26	0.0625	4.16	0.09439
			51-DCL	0.26	0.125	4.03	0.08858
			52-UNL	0.29	0	4.22	0.09713
			52-SCL	0.29	0.0625	4.10	0.09168
			52-DCL	0.29	0.125	3.97	0.08596



## Pipe Dimensions

SIZE NPS	SIZE DIN	O.D. (in.)	Class-Lining	Wall (in.)	Lining (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
4...			53-UNL	0.32	0	4.16	0.09439
			53-SCL	0.32	0.0625	4.04	0.08902
			53-DCL	0.32	0.125	3.91	0.08338
			54-UNL	0.35	0	4.10	0.09168
			54-SCL	0.35	0.0625	3.98	0.08640
			54-DCL	0.35	0.125	3.85	0.08084
			55-UNL	0.38	0	4.04	0.08902
			55-SCL	0.38	0.0625	3.92	0.08381
			55-DCL	0.38	0.125	3.79	0.07834
			56-UNL	0.41	0	3.98	0.08640
			56-SCL	0.41	0.0625	3.86	0.08126
			56-DCL	0.41	0.125	3.73	0.07588
6	150	6.90	350-UNL	0.25	0	6.40	0.22340
			350-SCL	0.25	0.0625	6.28	0.21510
			350-DCL	0.25	0.125	6.15	0.20629
			50-UNL	0.25	0	6.40	0.22340
			50-SCL	0.25	0.0625	6.28	0.21510
			50-DCL	0.25	0.125	6.15	0.20629
			51-UNL	0.28	0	6.34	0.21923
			51-SCL	0.28	0.0625	6.22	0.21101
			51-DCL	0.28	0.125	6.09	0.20228
			52-UNL	0.31	0	6.28	0.21510
			52-SCL	0.31	0.0625	6.16	0.20696
			52-DCL	0.31	0.125	6.03	0.19832
			53-UNL	0.34	0	6.22	0.21101
			53-SCL	0.34	0.0625	6.10	0.20295
			53-DCL	0.34	0.125	5.97	0.19439
			54-UNL	0.37	0	6.16	0.20696
			54-SCL	0.37	0.0625	6.04	0.19898
			54-DCL	0.37	0.125	5.91	0.19050
			55-UNL	0.40	0	6.10	0.20295
			55-SCL	0.40	0.0625	5.98	0.19504
			55-DCL	0.40	0.125	5.85	0.18665
			56-UNL	0.43	0	6.04	0.19898
			56-SCL	0.43	0.0625	5.92	0.19115
			56-DCL	0.43	0.125	5.79	0.18285
8	200	9.05	350-UNL	0.25	0	8.55	0.39871
			350-SCL	0.25	0.0625	8.43	0.38760
			350-DCL	0.25	0.125	8.30	0.37574
			50-UNL	0.27	0	8.51	0.39499
			50-SCL	0.27	0.0625	8.39	0.38393
			50-DCL	0.27	0.125	8.26	0.37212
			51-UNL	0.30	0	8.45	0.38944
			51-SCL	0.30	0.0625	8.33	0.37846
			51-DCL	0.30	0.125	8.20	0.36674



## Pipe Dimensions

SIZE NPS	SIZE DIN	O.D. (in.)	Class-Lining	Wall (in.)	Lining (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
8...			52-UNL	0.33	0	8.39	0.38393
			52-SCL	0.33	0.0625	8.27	0.37303
			52-DCL	0.33	0.125	8.14	0.36139
			53-UNL	0.36	0	8.33	0.37846
			53-SCL	0.36	0.0625	8.21	0.36763
			53-DCL	0.36	0.125	8.08	0.35608
			54-UNL	0.39	0	8.27	0.37303
			54-SCL	0.39	0.0625	8.15	0.36228
			54-DCL	0.39	0.125	8.02	0.35081
			55-UNL	0.42	0	8.21	0.36763
			55-SCL	0.42	0.0625	8.09	0.35696
			55-DCL	0.42	0.125	7.96	0.34558
			56-UNL	0.45	0	8.15	0.36228
			56-SCL	0.45	0.0625	8.03	0.35169
			56-DCL	0.45	0.125	7.90	0.34039
10	250	11.10	350-UNL	0.26	0	10.58	0.61052
			350-SCL	0.26	0.0625	10.46	0.59675
			350-DCL	0.26	0.125	10.33	0.58201
			50-UNL	0.29	0	10.52	0.60361
			50-SCL	0.29	0.0625	10.40	0.58992
			50-DCL	0.29	0.125	10.27	0.57526
			51-UNL	0.32	0	10.46	0.59675
			51-SCL	0.32	0.0625	10.34	0.58313
			51-DCL	0.32	0.125	10.21	0.56856
			52-UNL	0.35	0	10.40	0.58992
			52-SCL	0.35	0.0625	10.28	0.57639
			52-DCL	0.35	0.125	10.15	0.56190
			53-UNL	0.38	0	10.34	0.58313
			53-SCL	0.38	0.0625	10.22	0.56968
			53-DCL	0.38	0.125	10.09	0.55528
			54-UNL	0.41	0	10.28	0.57639
			54-SCL	0.41	0.0625	10.16	0.56301
			54-DCL	0.41	0.125	10.03	0.54869
			55-UNL	0.44	0	10.22	0.56968
			55-SCL	0.44	0.0625	10.10	0.55638
			55-DCL	0.44	0.125	9.97	0.54215
56-UNL	0.47	0	10.16	0.56301			
56-SCL	0.47	0.0625	10.04	0.54979			
56-DCL	0.47	0.125	9.91	0.53564			
12	300	13.20	350-UNL	0.28	0	12.64	0.87141
			350-SCL	0.28	0.0625	12.52	0.85494
			350-DCL	0.28	0.125	12.39	0.83728
			50-UNL	0.31	0	12.58	0.86315
			50-SCL	0.31	0.0625	12.46	0.84677
			50-DCL	0.31	0.125	12.33	0.82919



## Pipe Dimensions

SIZE NPS	SIZE DIN	O.D. (in.)	Class-Lining	Wall (in.)	Lining (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
12...			51-UNL	0.34	0	12.52	0.85494
			51-SCL	0.34	0.0625	12.40	0.83863
			51-DCL	0.34	0.125	12.27	0.82114
			52-UNL	0.37	0	12.46	0.84677
			52-SCL	0.37	0.0625	12.34	0.83053
			52-DCL	0.37	0.125	12.21	0.81313
			53-UNL	0.40	0	12.40	0.83863
			53-SCL	0.40	0.0625	12.28	0.82248
			53-DCL	0.40	0.125	12.15	0.80516
			54-UNL	0.43	0	12.34	0.83053
			54-SCL	0.43	0.0625	12.22	0.81446
			54-DCL	0.43	0.125	12.09	0.79722
			55-UNL	0.46	0	12.28	0.82248
			55-SCL	0.46	0.0625	12.16	0.80648
			55-DCL	0.46	0.125	12.03	0.78933
			56-UNL	0.49	0	12.22	0.81446
			56-SCL	0.49	0.0625	12.10	0.79854
			56-DCL	0.49	0.125	11.97	0.78148
14	350	15.30	250-UNL	0.28	0	14.74	1.18501
			250-SCL	0.28	0.09375	14.55	1.15466
			250-DCL	0.28	0.1875	14.36	1.12470
			300-UNL	0.30	0	14.70	1.17859
			300-SCL	0.30	0.09375	14.51	1.14832
			300-DCL	0.30	0.1875	14.32	1.11844
			350-UNL	0.31	0	14.68	1.17538
			350-SCL	0.31	0.09375	14.49	1.14515
			350-DCL	0.31	0.1875	14.30	1.11532
			50-UNL	0.33	0	14.64	1.16899
			50-SCL	0.33	0.09375	14.45	1.13884
			50-DCL	0.33	0.1875	14.26	1.10909
			51-UNL	0.36	0	14.58	1.15942
			51-SCL	0.36	0.09375	14.39	1.12940
			51-DCL	0.36	0.1875	14.20	1.09977
			52-UNL	0.39	0	14.52	1.14990
			52-SCL	0.39	0.09375	14.33	1.12000
			52-DCL	0.39	0.1875	14.14	1.09050
			53-UNL	0.42	0	14.46	1.14042
			53-SCL	0.42	0.09375	14.27	1.11064
			53-DCL	0.42	0.1875	14.08	1.08127
			54-UNL	0.45	0	14.40	1.13097
			54-SCL	0.45	0.09375	14.21	1.10132
			54-DCL	0.45	0.1875	14.02	1.07207
55-UNL	0.48	0	14.34	1.12157			
55-SCL	0.48	0.09375	14.15	1.09204			
55-DCL	0.48	0.125	13.97	1.06444			



## Pipe Dimensions

SIZE NPS	SIZE DIN	O.D. (in.)	Class-Lining	Wall (in.)	Lining (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
14...			56-UNL	0.52	0	14.26	1.10909
			56-SCL	0.52	0.09375	14.07	1.07973
			56-DCL	0.52	0.1875	13.88	1.05077
16	400	17.40	250-UNL	0.30	0	16.80	1.53938
			250-SCL	0.30	0.09375	16.61	1.50476
			250-DCL	0.30	0.1875	16.43	1.47232
			300-UNL	0.32	0	16.76	1.53206
			300-SCL	0.22	0.09375	16.57	1.49752
			300-DCL	0.32	0.1875	16.39	1.46516
			350-UNL	0.34	0	16.72	1.52475
			350-SCL	0.34	0.09375	16.53	1.49030
			350-DCL	0.34	0.1875	16.35	1.45802
			50-UNL	0.34	0	16.72	1.52475
			50-SCL	0.34	0.09375	16.53	1.49030
			50-DCL	0.34	0.1875	16.35	1.45802
			51-UNL	0.37	0	16.66	1.51383
			51-SCL	0.37	0.09375	16.47	1.47950
			51-DCL	0.37	0.1875	16.29	1.44734
			52-UNL	0.40	0	16.60	1.50295
			52-SCL	0.40	0.09375	16.41	1.46874
			52-DCL	0.40	0.1875	16.23	1.43669
			53-UNL	0.43	0	16.54	1.49210
			53-SCL	0.43	0.09375	16.35	1.45802
			53-DCL	0.43	0.1875	16.17	1.42609
54-UNL	0.46	0	16.48	1.48129			
54-SCL	0.46	0.09375	16.29	1.44734			
54-DCL	0.46	0.1875	16.11	1.41553			
55-UNL	0.49	0	16.42	1.47053			
55-SCL	0.49	0.09375	16.23	1.43669			
55-DCL	0.49	0.125	16.05	1.40500			
56-UNL	0.52	0	16.36	1.45980			
56-SCL	0.52	0.09375	16.17	1.42609			
56-DCL	0.52	0.1875	15.99	1.39452			
18	450	19.50	250-UNL	0.31	0	18.88	1.94416
			250-SCL	0.31	0.09375	18.69	1.90522
			250-DCL	0.31	0.1875	18.51	1.86870
			300-UNL	0.34	0	18.82	1.93182
			300-SCL	0.24	0.09375	18.63	1.89301
			300-DCL	0.34	0.1875	18.45	1.85661
			50-UNL	0.35	0	18.80	1.92771
			50-SCL	0.35	0.09375	18.61	1.88895
			50-DCL	0.35	0.1875	18.43	1.85258
			350-UNL	0.36	0	18.78	1.92362
			350-SCL	0.36	0.09375	18.59	1.88489
			350-DCL	0.36	0.1875	18.41	1.84856





## Pipe Dimensions

SIZE NPS	SIZE DIN	O.D. (in.)	Class-Lining	Wall (in.)	Lining (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
18...			51-UNL	0.38	0	18.74	1.91543
			51-SCL	0.38	0.09375	18.55	1.87679
			51-DCL	0.38	0.1875	18.37	1.84054
			52-UNL	0.41	0	18.68	1.90318
			52-SCL	0.41	0.09375	18.49	1.86467
			52-DCL	0.41	0.1875	18.31	1.82854
			53-UNL	0.44	0	18.62	1.89098
			53-SCL	0.44	0.09375	18.43	1.85258
			53-DCL	0.44	0.1875	18.25	1.81657
			54-UNL	0.47	0	18.56	1.87881
			54-SCL	0.47	0.09375	18.37	1.84054
			54-DCL	0.47	0.1875	18.19	1.80465
			55-UNL	0.50	0	18.50	1.86668
			55-SCL	0.50	0.09375	18.31	1.82854
			55-DCL	0.50	0.125	18.13	1.79276
			56-UNL	0.53	0	18.44	1.85459
			56-SCL	0.53	0.09375	18.25	1.81657
			56-DCL	0.53	0.1875	18.07	1.78092
20	500	21.60	250-UNL	0.33	0	20.94	2.39156
			250-SCL	0.33	0.09375	20.75	2.34835
			250-DCL	0.33	0.1875	20.57	2.30779
			300-UNL	0.36	0	20.88	2.37787
			300-SCL	0.26	0.09375	20.69	2.33479
			300-DCL	0.36	0.1875	20.51	2.29434
			50-UNL	0.36	0	20.88	2.37787
			50-SCL	0.36	0.09375	20.69	2.33479
			50-DCL	0.36	0.1875	20.51	2.29434
			350-UNL	0.38	0	20.84	2.36877
			350-SCL	0.38	0.09375	20.65	2.32577
			350-DCL	0.38	0.1875	20.47	2.28540
			51-UNL	0.39	0	20.82	2.36422
			51-SCL	0.39	0.09375	20.63	2.32127
			51-DCL	0.39	0.1875	20.45	2.28094
			52-UNL	0.42	0	20.76	2.35062
			52-SCL	0.42	0.09375	20.57	2.30779
			52-DCL	0.42	0.1875	20.39	2.26757
			53-UNL	0.45	0	20.70	2.33705
			53-SCL	0.45	0.09375	20.51	2.29434
			53-DCL	0.45	0.1875	20.33	2.25425
			54-UNL	0.48	0	20.64	2.32352
			54-SCL	0.48	0.09375	20.45	2.28094
			54-DCL	0.48	0.1875	20.27	2.24096
55-UNL	0.51	0	20.58	2.31003			
55-SCL	0.51	0.09375	20.39	2.26757			
55-DCL	0.51	0.125	20.21	2.22772			



## Pipe Dimensions

SIZE NPS	SIZE DIN	O.D. (in.)	Class-Lining	Wall (in.)	Lining (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
20...			56-UNL	0.54	0	20.52	2.29658
			56-SCL	0.54	0.09375	20.33	2.25425
			56-DCL	0.54	0.1875	20.15	2.21451
24	600	25.80	200-UNL	0.33	0	25.14	3.44713
			200-SCL	0.33	0.09375	24.95	3.39522
			200-DCL	0.37	0.1875	24.77	3.34641
			250-UNL	0.37	0	25.06	3.42523
			250-SCL	0.37	0.09375	24.87	3.37348
			250-DCL	0.33	0.1875	24.69	3.32483
			50-UNL	0.38	0	25.04	3.41976
			50-SCL	0.38	0.09375	24.85	3.36806
			50-DCL	0.38	0.1875	24.67	3.31944
			300-UNL	0.40	0	25.00	3.40884
			300-SCL	0.40	0.09375	24.81	3.35723
			300-DCL	0.40	0.1875	24.63	3.30869
			51-UNL	0.41	0	24.98	3.40339
			51-SCL	0.41	0.09375	24.79	3.35182
			51-DCL	0.41	0.1875	24.61	3.30332
			350-UNL	0.43	0	24.94	3.39250
			350-SCL	0.43	0.09375	24.75	3.34101
			350-DCL	0.43	0.1875	24.57	3.29259
			52-UNL	0.44	0	24.92	3.38706
			52-SCL	0.44	0.09375	24.73	3.33561
			52-DCL	0.44	0.1875	24.55	3.28723
			53-UNL	0.47	0	24.86	3.37077
			53-SCL	0.47	0.09375	24.67	3.31944
			53-DCL	0.47	0.1875	24.49	3.27118
			54-UNL	0.50	0	24.80	3.35452
			54-SCL	0.50	0.09375	24.61	3.30332
			54-DCL	0.50	0.1875	24.43	3.25517
			55-UNL	0.53	0	24.74	3.33831
			55-SCL	0.53	0.09375	24.55	3.28723
			55-DCL	0.53	0.1875	24.37	3.23920
			56-UNL	0.56	0	24.68	3.32214
			56-SCL	0.56	0.09375	24.49	3.27118
			56-DCL	0.56	0.1875	24.31	3.22327
30	750	32.00	150-UNL	0.34	0	31.32	5.35021
			150-SCL	0.34	0.125	31.07	5.26514
			150-DCL	0.34	0.25	30.82	5.18075
			200-UNL	0.38	0	31.24	5.32291
			200-SCL	0.38	0.125	30.99	5.23806
			200-DCL	0.38	0.25	30.74	5.15389
			50-UNL	0.39	0	31.22	5.31610
			50-SCL	0.39	0.125	30.97	5.23130
			50-DCL	0.39	0.25	30.72	5.14718



## Pipe Dimensions

SIZE NPS	SIZE DIN	O.D. (in.)	Class-Lining	Wall (in.)	Lining (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
30...			250-UNL	0.42	0	31.16	5.29568
			250-SCL	0.42	0.125	30.91	5.21105
			250-DCL	0.42	0.25	30.66	5.12709
			51-UNL	0.43	0	31.14	5.28889
			51-SCL	0.43	0.125	30.89	5.20431
			51-DCL	0.43	0.25	30.64	5.12041
			300-UNL	0.45	0	31.10	5.27531
			300-SCL	0.45	0.125	30.85	5.19084
			300-DCL	0.45	0.25	30.60	5.10705
			52-UNL	0.47	0	31.06	5.26175
			52-SCL	0.47	0.125	30.81	5.51892
			52-DCL	0.47	0.25	30.56	5.09370
			350-UNL	0.49	0	31.02	5.24820
			350-SCL	0.49	0.125	30.77	5.16395
			350-DCL	0.49	0.25	30.52	5.08038
			53-UNL	0.51	0	30.98	5.23468
			53-SCL	0.51	0.125	30.73	5.15053
			53-DCL	0.51	0.25	30.48	5.06707
54-UNL	0.55	0	30.90	5.20768			
54-SCL	0.55	0.125	30.65	5.12375			
54-DCL	0.55	0.25	30.40	5.04051			
55-UNL	0.59	0	30.82	5.18075			
55-SCL	0.59	0.125	30.57	5.09704			
55-DCL	0.59	0.25	30.32	5.01401			
56-UNL	0.63	0	30.74	5.15389			
56-SCL	0.63	0.125	30.49	5.07040			
56-DCL	0.63	0.25	30.24	4.98759			
36	900	38.30	150-UNL	0.38	0	37.54	7.68627
			150-SCL	0.38	0.125	37.29	7.58424
			150-DCL	0.38	0.25	37.04	7.48288
			200-UNL	0.42	0	37.46	7.65354
			200-SCL	0.42	0.125	37.21	7.55173
			200-DCL	0.42	0.25	36.86	7.41033
			50-UNL	0.43	0	37.44	7.64537
			50-SCL	0.43	0.125	37.19	7.54361
			50-DCL	0.39	0.25	36.94	7.44253
			250-UNL	0.47	0	37.36	7.61274
			250-SCL	0.47	0.125	37.11	7.51119
			250-DCL	0.47	0.25	36.86	7.41033
			51-UNL	0.48	0	37.34	7.60459
			51-SCL	0.48	0.125	37.09	7.50310
			51-DCL	0.48	0.25	36.84	7.40229
			300-UNL	0.51	0	37.28	7.58017
			300-SCL	0.51	0.125	37.03	7.47884
			300-DCL	0.51	0.25	36.78	7.37820



## Pipe Dimensions

SIZE NPS	SIZE DIN	O.D. (in.)	Class-Lining	Wall (in.)	Lining (in.)	I.D. (in.)	A <sub>int</sub> (Ft.2)
36...			52-UNL	0.53	0	37.24	7.56391
			52-SCL	0.53	0.125	36.99	7.46269
			52-DCL	0.53	0.25	36.74	7.36216
			350-UNL	0.56	0	37.18	7.53956
			350-SCL	0.56	0.125	36.93	7.43850
			350-DCL	0.56	0.25	36.68	7.33813
			53-UNL	0.58	0	37.14	7.52334
			53-SCL	0.58	0.125	36.89	7.42240
			53-DCL	0.58	0.25	36.64	7.32214
			54-UNL	0.63	0	37.04	7.48288
			54-SCL	0.63	0.125	36.79	7.38221
			54-DCL	0.63	0.25	36.54	7.28223
			55-UNL	0.68	0	36.94	7.44253
			55-SCL	0.68	0.125	36.69	7.34214
			55-DCL	0.68	0.25	36.44	7.24242
			56-UNL	0.73	0	36.84	7.40229
			56-SCL	0.73	0.125	36.59	7.30217
			56-DCL	0.73	0.25	36.34	7.20273



**Table 6 – Concrete Pipe**

NR = Nonreinforced, AASHTO M 86  
 R = Reinforced, AASHTO M 170, ASTM C 76

SIZE NPS	SIZE DIN	I.D. (in.)	Schedules	Wall (in.)	O.D. (in.)	A <sub>int</sub> (Ft.2)
4	100	4.00	NR Class 1	0.6250	5.25	0.08727
			NR Class 2	0.7500	5.50	0.08727
			NR Class 3	0.7500	5.50	0.08727
6	150	6.00	NR Class 1	0.6250	7.25	0.19635
			NR Class 2	0.7500	7.50	0.19635
			NR Class 3	0.8750	7.75	0.19635
8	200	8.00	NR Class 1	0.7500	9.50	0.34907
			NR Class 2	0.8750	9.75	0.34907
			NR Class 3	1.1250	10.25	0.34907
10	250	10.00	NR Class 1	0.8750	11.75	0.54541
			NR Class 2	1.0000	12.00	0.54541
			NR Class 3	1.7500	13.50	0.54541
12	300	12.00	NR Class 1	1.0000	14.00	0.78540
			NR Class 2	1.3750	14.75	0.78540
			NR Class 3	1.7500	15.50	0.78540
			R Wall B	2.0000	16.00	0.78540
15	375	15.00	R Wall B	2.2500	19.50	1.22718
18	450	18.00	R Wall B	2.5000	23.00	1.76714
21	535	21.00	R Wall B	2.7500	26.50	2.40528
24	600	24.00	R Wall B	3.0000	30.00	3.14159
27	685	27.00	R Wall B	3.2500	33.50	3.97607
30	750	30.00	R Wall B	3.5000	37.50	4.90873
33	840	33.00	R Wall B	3.7500	40.50	5.93957
36	900	36.00	R Wall C	4.0000	44.00	7.06858
42	1050	42.00	R Wall C	4.5000	51.00	9.62112
48	1200	48.00	R Wall C	5.0000	58.00	12.56636
54	1400	54.00	R Wall C	5.5000	65.00	15.90430
60	1500	60.00	R Wall C	6.0000	72.00	19.63494
66	1650	66.00	R Wall C	6.5000	79.00	23.75827
72	1850	72.00	R Wall C	7.0000	86.00	28.27431
78	2000	78.00	R Wall C	7.5000	93.00	33.18304
84	2150	84.00	R Wall C	8.0000	100.00	38.48448
90	2250	90.00	R Wall C	8.5000	107.00	44.17861
96	2450	96.00	R Wall C	9.0000	114.00	50.26544
102	2600	102.00	R Wall C	9.5000	121.00	56.74497
108	2750	108.00	R Wall C	10.0000	128.00	63.61720