

ENGINEERING INFORMATION - STEEL PIPE DATA

16.9

REV. 4-99

Commercial wrought steel pipe data

Note 1: The letters "s", "x", and "xx" in the column of Schedule Numbers indicate Standard, Extra Strong, and Double Extra Strong Pipe, respectively.

Note 2: The values shown in square feet for the Transverse Internal Area also represent the volume in cubic feet per foot of pipe length.

Nominal pipe size	Outside diameter (D)	Schedule number	Wall thickness (t)	Inside diameter (d)	Area of metal (a)	Transverse internal area		Moment of inertia (I)	Weight of pipe	Weight of Water	External surface	Section modulus
inches	inches	(see note 1)	inches	inches	square inches	square inches	square feet (see note 2)	inches to 4th power	pounds per foot	pounds per foot of pipe	sq. ft. per foot of pipe	($2 \frac{1}{D}$)
1/8	0.405	40s	.068	.269	.0720	.0568	.00040	.00106	.244	.025	.106	.00523
		80x	.095	.215	.0925	.0364	.00025	.00122	.314	.016	.106	.00602
1/4	0.540	40s	.088	.364	.1250	.1041	.00072	.00331	.424	.045	.141	.01227
		80x	.119	.302	.1574	.0716	.00050	.00377	.535	.031	.141	.01395
3/8	0.675	40s	.091	.493	.1670	.1910	.00133	.00729	.567	.083	.178	.02160
		80x	.126	.423	.2173	.1405	.00098	.00862	.738	.061	.178	.02554
1/2	0.840	40s	.109	.622	.2503	.3040	.00211	.01709	.850	.132	.220	.04780
		80x	.147	.546	.3200	.2340	.00163	.02008	1.087	.102	.220	.04780
		160	.187	.466	.3836	.1706	.00118	.02212	1.300	.074	.220	.05267
		...xx	.294	.252	.5043	.0500	.00035	.02420	1.714	.022	.220	.05762
3/4	1.050	40s	.113	.824	.3326	.5330	.00371	.03704	1.130	.231	.275	.07055
		80x	.154	.742	.4335	.4330	.00300	.04479	1.473	.188	.275	.08531
		160	.218	.614	.5698	.2961	.00206	.05269	1.940	.128	.275	.10036
		...xx	.308	.434	.7180	.1480	.00103	.05792	2.440	.064	.275	.11032
1	1.315	40s	.133	1.049	.4939	.8640	.00600	.08734	1.678	.375	.344	.13280
		80x	.179	.957	.6388	.7190	.00499	.10560	2.171	.312	.344	.16060
		160	.250	.815	.8365	.5217	.00362	.12510	2.840	.230	.344	.19030
		...xx	.358	.599	1.0760	.2820	.00196	.14050	3.659	.122	.344	.21360
1-1/4	1.660	40s	.140	1.380	.6685	1.4950	.01040	.19470	2.272	.649	.435	.23460
		80x	.191	1.278	.8815	1.2830	.00891	.24180	2.996	.555	.435	.29130
		160	.250	1.160	1.1070	1.0570	.00734	.28390	3.764	.458	.435	.34210
		...xx	.382	.896	1.5340	.6300	.00438	.34110	5.214	.273	.435	.41100
1-1/2	1.900	40s	.145	1.610	.7995	2.0360	.01414	.30990	2.717	.882	.497	.32620
		80x	.200	1.500	1.0680	1.7670	.01225	.39120	3.631	.765	.497	.41180
		160	.281	1.338	1.4290	1.4060	.00976	.48240	4.862	.608	.497	.50780
		...xx	.400	1.100	1.8850	.9500	.00660	.56780	6.408	.420	.497	.59770
2	2.375	40s	.154	2.067	1.0750	3.3550	.02330	.66570	3.652	1.450	.622	.56060
		80x	.218	1.939	1.4770	2.9530	.02050	.86790	5.022	1.280	.622	.73090
		160	.343	1.689	2.1900	2.2410	.01556	1.16200	7.440	.970	.622	.97900
		...xx	.436	1.503	2.6560	1.7740	.01232	1.31100	9.029	.770	.622	1.10400
2-1/2	2.875	40s	.203	2.469	1.7040	4.7880	.03322	1.53000	5.790	2.070	.753	1.06400
		80x	.276	2.323	2.2540	4.2380	.02942	1.92400	7.660	1.870	.753	1.33900
		160	.375	2.125	2.9450	3.5460	.02463	2.35300	10.010	1.540	.753	1.63800
		...xx	.552	1.771	4.0280	2.4640	.01710	2.87100	13.700	1.070	.753	1.99700
3	3.500	40s	.216	3.068	2.2280	7.3930	.05130	3.01700	7.580	3.200	.916	1.72400
		80x	.300	2.900	3.0160	6.6050	.04587	3.89400	10.250	2.860	.916	2.22500
		160	.437	2.626	4.2050	5.4160	.03761	5.03200	14.320	2.350	.916	2.87600
		...xx	.600	2.300	5.4660	4.1550	.02885	5.99300	18.580	1.800	.916	3.42400
3-1/2	4.000	40s	.226	3.548	2.6800	9.8860	.06870	4.78800	9.110	4.290	1.047	2.39400
		80x	.318	3.364	3.6780	8.8880	.06170	6.28000	12.510	3.840	1.047	3.14000
		160	.437	3.026	5.5780	10.3300	.07170	11.65000	19.000	4.470	1.178	5.17800
		...xx	.531	3.438	6.6210	9.2800	.06450	13.27000	22.510	4.020	1.178	5.89800
4	4.500	40s	.237	4.026	3.1740	12.7300	.08840	7.23300	10.790	5.500	1.178	3.21400
		80x	.337	3.826	4.4070	11.5000	.07986	9.61000	14.980	4.980	1.178	4.27100
		120	.437	3.626	5.5780	10.3300	.07170	11.65000	19.000	4.470	1.178	5.17800
		160	.531	3.438	6.6210	9.2800	.06450	13.27000	22.510	4.020	1.178	5.89800
5	5.563	...xx	.674	3.152	8.1010	7.8000	.05420	15.28000	27.540	3.380	1.178	6.79100
		40s	.258	5.047	4.3000	20.0100	.13900	15.16000	14.620	8.670	1.456	5.45100
		80x	.375	4.813	6.1120	18.1900	.12630	20.67000	20.780	7.880	1.456	7.43100
		120	.500	4.563	7.9530	16.3500	.11360	25.73000	27.100	7.090	1.456	9.25000
6	6.625	160	.625	4.313	9.6960	14.6100	.10150	30.03000	32.960	6.330	1.456	10.79600
		...xx	.750	4.063	11.3400	12.9700	.09010	33.63000	38.550	5.610	1.456	12.09000
		40s	.280	6.065	5.5810	28.8900	.20060	28.14000	18.970	12.510	1.734	8.50000
		80x	.432	5.761	8.4050	26.0700	.18100	40.49000	28.570	11.290	1.734	12.22000
8	8.625	120	.562	5.501	10.7000	23.7700	.16500	49.61000	36.400	10.300	1.734	14.98000
		160	.718	5.189	13.3200	21.1500	.14690	58.97000	45.300	9.160	1.734	17.81000
		...xx	.864	4.897	15.6400	18.8400	.13080	66.33000	53.160	8.160	1.734	20.02000
		20	.250	8.125	6.5700	51.8500	.36010	57.72000	22.360	22.470	2.258	13.39000
8	8.625	30	.277	8.071	7.2600	51.1600	.35530	63.35000	24.700	22.170	2.258	14.69000
		40s	.322	7.981	8.4000	50.0300	.34740	72.49000	28.550	21.700	2.258	16.81000
		60	.406	7.813	10.4800	47.9400	.33290	88.73000	35.640	20.770	2.258	20.58000
		80x	.500	7.625	12.7600	45.6600	.31710	105.70000	43.390	19.780	2.258	24.51000
		100	.593	7.439	14.9600	43.4600	.30180	121.30000	50.870	18.830	2.258	28.14000
		120	.718	7.189	17.8400	40.5900	.28190	140.50000	60.630	17.590	2.258	32.58000
		140	.812	7.001	19.9300	38.5000	.26730	153.70000	67.760	16.680	2.258	35.65000
		...xx	.875	6.875	21.3000	37.1200	.25780	162.00000	72.420	16.100	2.258	37.56000
		160	.906	6.813	21.9700	36.4600	.25320	165.90000	74.690	15.800	2.258	38.48000

Commercial wrought steel pipe data (continued)

Nominal pipe size	Outside diameter (D)	Schedule number	Wall thickness (t)	Inside diameter (d)	Area of metal (a)	Traverse internal area		Moment of inertia (I)	Weight of pipe	Weight of Water	External surface	Section modulus
inches	inches	(see note 1)	inches	inches	square inches	square inches	square feet (see note 2)	inches to 4th power	pounds per foot	pounds per foot of pipe	sq. ft. per foot of pipe	$(2 \frac{1}{D})$
10	10.75	20	.250	10.250	8.24	82.52	.5731	113.7	28.04	35.76	2.814	21.15
		30	.307	10.136	10.07	80.69	.5603	137.4	34.24	34.96	2.814	25.57
		40s	.365	10.020	11.90	78.86	.5475	160.7	40.48	34.20	2.814	29.90
		60x	.500	9.750	16.10	74.66	.5185	212.0	54.74	32.35	2.814	39.43
		80	.593	9.564	18.92	71.84	.4989	244.8	64.33	31.13	2.814	45.54
		100	.718	9.314	22.63	68.13	.4732	286.1	76.93	29.53	2.814	53.22
		120	.843	9.064	26.24	64.53	.4481	324.2	89.20	27.96	2.814	60.32
		140	1.000	8.750	30.63	60.13	.4176	367.8	104.13	26.06	2.814	68.43
	12.75	160	1.125	8.500	34.02	56.75	.3941	399.3	115.65	24.59	2.814	74.29
		20	.250	12.250	9.82	117.86	.8185	191.8	33.38	51.07	3.338	30.20
		30	.330	12.090	12.87	114.80	.7972	248.4	43.77	49.74	3.338	38.10
		...s	.375	12.000	14.58	113.10	.7854	279.3	49.56	49.00	3.338	43.80
		40	.406	11.938	15.77	111.93	.7773	300.3	53.53	48.50	3.338	47.10
		...x	.500	11.750	19.24	108.43	.7528	361.5	65.42	46.92	3.338	56.70
		60	.562	11.626	21.52	106.16	.7372	400.4	73.16	46.00	3.338	62.80
		80	.687	11.376	26.03	101.64	.7058	475.1	88.51	44.04	3.338	74.60
	14.00	100	.843	11.064	31.53	96.14	.6677	561.6	107.20	41.66	3.338	88.10
		120	1.000	10.750	36.91	90.76	.6303	641.6	125.49	39.33	3.338	100.70
		140	1.125	10.500	41.08	86.59	.6013	700.5	133.68	37.52	3.338	109.90
		160	1.312	10.126	47.14	80.53	.5592	781.1	160.27	34.89	3.338	122.60
		10	.250	13.500	10.80	143.14	.9940	255.3	36.71	62.03	3.665	36.60
		20	.312	13.376	13.42	140.52	.9758	314.4	45.68	60.89	3.665	45.00
		30s	.375	13.250	16.05	137.88	.9575	372.8	54.57	59.75	3.665	53.20
		40	.437	13.126	18.61	135.32	.9397	429.1	63.37	58.64	3.665	61.30
	16.00	...x	.500	13.000	21.21	132.73	.9217	483.8	72.09	57.46	3.665	69.10
		60	.593	12.814	24.98	128.96	.8956	562.3	84.91	55.86	3.665	80.30
		80	.750	12.500	31.22	122.72	.8522	687.3	106.13	53.18	3.665	98.20
		100	.937	12.126	38.45	115.49	.8020	824.4	130.73	50.04	3.665	117.80
		120	1.093	11.814	44.32	109.62	.7612	929.6	150.67	47.45	3.665	132.80
		140	1.250	11.500	50.07	103.87	.7213	1027.0	170.22	45.01	3.665	146.80
		160	1.406	11.188	55.63	98.31	.6827	1117.0	189.12	42.60	3.665	159.60
		10	.250	15.500	12.37	188.69	1.3103	383.7	42.05	81.74	4.189	48.00
	18.00	20	.312	15.376	15.38	185.69	1.2895	473.2	52.36	80.50	4.189	59.20
		30s	.375	15.250	18.41	182.65	1.2684	562.1	62.58	79.12	4.189	70.30
		40x	.500	15.000	24.35	176.72	1.2272	731.9	82.77	76.58	4.189	91.50
		60	.656	14.688	31.62	169.44	1.1766	932.4	107.50	73.42	4.189	116.60
		80	.843	14.314	40.14	160.92	1.1175	1155.8	136.46	69.73	4.189	144.50
		100	1.031	13.938	48.48	152.58	1.0596	1364.5	164.83	66.12	4.189	170.50
		120	1.218	13.564	56.56	144.50	1.0035	1555.8	192.29	62.62	4.189	194.50
		140	1.437	13.126	65.74	135.32	.9397	1760.3	223.64	58.64	4.189	220.00
	20.00	160	1.593	12.814	72.10	128.96	.8956	1893.5	245.11	55.83	4.189	236.70
		10	.250	17.500	13.94	240.53	1.6703	549.1	47.39	104.21	4.712	61.10
		20	.312	17.376	17.34	237.13	1.6467	678.2	59.03	102.77	4.712	75.50
		...s	.375	17.250	20.76	233.71	1.6230	806.7	70.59	101.18	4.712	89.60
		30	.437	17.126	24.11	230.36	1.5997	930.3	82.06	99.84	4.712	103.40
		...x	.500	17.000	27.49	226.98	1.5763	1053.2	92.45	98.27	4.712	117.00
		40	.562	16.876	30.79	223.68	1.5533	1171.5	104.75	96.93	4.712	130.10
		60	.750	16.500	40.64	213.83	1.4849	1514.7	138.17	92.57	4.712	168.30
	24.00	80	.937	16.126	50.23	204.24	1.4183	1833.0	170.75	88.50	4.712	203.80
		100	1.156	15.688	61.17	193.30	1.3423	2180.0	207.96	83.76	4.712	242.30
		120	1.375	15.250	71.81	182.66	1.2684	2498.1	244.14	79.07	4.712	277.60
		140	1.562	14.876	80.66	173.80	1.2070	2749.0	274.23	75.32	4.712	305.50
		160	1.781	14.438	90.75	163.72	1.1369	3020.0	308.51	70.88	4.712	335.60
		10	.250	19.500	15.51	298.65	2.0740	756.4	52.73	129.42	5.236	75.60
		20s	.375	19.250	23.12	290.04	2.0142	1113.0	78.60	125.67	5.236	11.30
		30x	.500	19.000	30.63	283.53	1.9690	1457.0	104.13	122.87	5.236	145.70
	20.00	40	.593	18.814	36.15	278.00	1.9305	1703.0	122.91	120.46	5.236	170.40
		60	.812	18.376	48.95	265.21	1.8417	2257.0	166.40	114.92	5.236	225.70
		80	1.031	17.938	61.44	252.72	1.7550	2772.0	208.87	109.51	5.236	277.10
		100	1.281	17.438	75.33	238.83	1.6585	3315.2	256.10	103.39	5.236	331.50
		120	1.500	17.000	87.18	226.98	1.5762	3754.0	296.37	98.35	5.236	375.50
		140	1.750	16.500	100.33	213.82	1.4849	4216.0	341.10	92.66	5.236	421.70
		160	1.968	16.064	111.49	202.67	1.4074	4585.5	379.01	87.74	5.236	458.50
		10	.250	23.500	18.65	433.74	3.0121	1315.4	63.41	187.95	6.283	109.60
	24.00	20s	.375	23.250	27.83	424.56	2.9483	1942.0	94.62	183.95	6.283	161.90
		...x	.500	23.000	36.91	415.48	2.8853	2549.5	125.49	179.87	6.283	212.50
		30	.562	22.876	41.39	411.00	2.8542	2843.0	140.80	178.09	6.283	237.00
		40	.687	22.626	50.31	402.07	2.7921	3421.3	171.17	174.23	6.283	285.10
		60	.968	22.064	70.04	382.35	2.6552	4652.8	238.11	165.52	6.283	387.70
		80	1.218	21.564	87.17	365.22	2.5362	5672.0	296.36	158.26	6.283	472.80
		100	1.531	20.938	108.07	344.32	2.3911	6849.9	367.40	149.06	6.283	570.80
		120	1.812	20.376	126.31	326.08	2.2645	7825.0	429.39	141.17	6.283	652.10
	24.00	140	2.062	19.876	142.11	310.28	2.1547	8625.0	483.13	134.45	6.283	718.90
		160	2.343	19.314	159.41	292.98	2.0346	9455.9	541.94	126.84	6.283	787.90