TABLE 1. STANDARD WROUGHT PIPE

Table of Standard Dimensions

Size Inches	Diameters		Nominal Thickness Inches	Circumference		Transverse Areas			Length of Pipe per Square Foot of		Nominal Weight per Foot	
	External Inches	Approximate Internal Inches		External Inches	Internal Inches	External Sq. In.	Internal Sq. In.	Metal Sq. In.	External Surface	Internal Surface	Plain Ends	Threaded and Coupled
1/8	0.405	0.269	0.068	1.272	0.845	0.129	0.057	0.072	9.431	14.199	0.244	0.245
1/4	0.540	0.364	0.088	1.696	1.144	0.229	0.104	0.125	7.073	10.493	0.424	0.425
3/8	0.675	0.493	0.091	2.121	1.549	0.358	0.191	0.167	5.658	7.747	0.567	0.568
1/2	0.840	0.622	0.109	2.639	1.954	0.554	0.304	0.250	4.547	6.141	0.850	0.852
3/4	1.050	0.824	0.113	3.299	2.589	0.866	0.533	0.333	3.637	4.635	1.130	1.134
1	1.315	1.049	0.133	4.131	3.296	1.358	0.864	0.494	2.904	3.641	1.678	1.684
1 1/4	1.660	1.380	0.140	5.215	4.335	2.164	1.495	0.669	2.301	2.767	2.272	2.281
1 1/2	1.900	1.610	0.145	5.969	5.058	2.835	2.036	0.799	2.010	2.372	2.717	2.731
2	2.375	2.067	0.154	7.461	6.494	4.430	3.355	1.075	1.608	1.847	3.652	3.678
2 1/2	2.875	2.469	0.203	9.032	7.757	6.492	4.788	1.704	1.328	1.547	5.793	5.819
3	3.500	3.068	0.216	10.996	9.638	9.621	7.393	2.228	1.091	1.245	7.575	7.616
3 1/2	4.000	3.548	0.226	12.566	11.146	12.566	9.886	2.680	0.954	1.076	9.109	9.202
4	4.500	4.026	0.237	14.137	12.648	15.904	12.730	3.174	0.848	0.948	10.790	10.889
5	5.563	5.047	0.258	17.477	15.856	24.306	20.006	4.300	0.686	0.756	14.617	14.810
6	6.625	6.065	0.280	20.813	19.054	34.472	28.891	5.581	0.576	0.629	18.974	19.185
8	8.625	8.071	0.277	27.096	25.356	58.426	51.161	7.265	0.442	0.473	24.696	25.000
8	8.625	7.981	0.322	27.096	25.073	58.426	50.027	8.399	0.442	0.478	28.554	28.809
9	9.625	8.941	0.342	30.238	28.089	72.760	62.786	9.974	0.396	0.427	33.907	34.188
10	10.750	10.192	0.279	33.772	32.019	90.763	81.585	9.178	0.355	0.374	31.201	32.000
10	10.750	10.136	0.307	33.772	31.843	90.763	80.691	10.072	0.355	0.376	34.240	35.000
10	10.750	10.020	0.365	33.772	31.479	90.763	78.855	11.908	0.355	0.381	40.483	41.132
11	11.750	11.000	0.375	36.914	34.558	108.434	95.033	13.401	0.325	0.347	45.557	46.247
12	12.750	12.090	0.330	40.055	37.982	127.676	114.800	12.876	0.299	0.315	43.773	45.000
12	12.750	12.000	0.375	40.055	37.699	127.676	113.097	14.579	0.299	0.318	49.562	50.706

Corrosion

The electrolytic theory of corrosion, as formulated in 1903 by Dr. Whitney, led to the development of certain protective methods for closed water systems, which are based on the removal of dissolved oxygen from the water. Careful experiments in various research laboratories have demonstrated that the amount of corrosion found in such systems is almost directly proportional to the amount of oxygen in solution, and varies with the temperature.

All reliable data on this subject indicate that the composition of the iron—*i.e.*, the varying amount of carbon, phosphorous, manganese, sulphur, silicon, oxides, slag and copper usually found in wrought iron and soft steel—makes very little difference in the amount or character of corrosion under water, although under atmospheric exposure the influence of composition is sometimes more marked.

In practice, oxygen removal has been accomplished in two ways, namely; by de-aerating the water mechanically; and by fixing the free oxygen by chemical combination. Suitable apparatus for this purpose is now on the market.

Protective Coatings

The introduction into piping systems of various chemical compounds, usually for forming a protective coating of thin deposit has apparently been rewarded with some success. Piping exposed to elements or buried in the ground is quite successfully protected by coatings of the ashphaltic type, usually applied hot.

Cast Metal Piping

There are available several types of cast ferrous metal piping made in special process to insure uniform wall thickness, which are believed to be exceedingly resistant to the agencies which so rapidly destroy wrought steel and iron piping used in heating systems.

Wrought Iron Piping

Genuine wrought iron piping has in many aged installations demonstrated superior resistance to corrosion.

Alloy Metal Piping

Claims of superiority are made for wrought steel piping bearing a small alloy of copper. These claims, however, have not received general recognition. They will, undoubtedly, be proved or disproved within a comparatively short time.

Thread Cutting

It is not usually practicable with threaded piping to screw all the threads into the fittings, so that there is left a raw metal cut, partly through the wall of the tube, inviting attack by outside influences. Welded or compression-flanged piping may have a longer life so far as attack from the exterior is concerned due to absence of this weak point.

Pipe Welding

The application of welding on the job gives to the heating industry an improved method of joining pipes.