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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 336

PLAIN END STEEL TUBES, WELDED OR SEAMLESS

GENERAL TABLE OF DIMENSIONS AND MASSES PER UNIT LENGTH

2nd EDITION

December 1971

This second edition supersedes the first edition

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Also issued in French and Russian. Copies to be obtained through the national standards organizations.

BRIEF HISTORY

The ISO Recommendation R 336, *Plain end steel tubes, welded or seamless—General table of dimensions and masses per unit length*, was drawn up by Technical Committee ISO/TC 5, *Pipes and fittings*, the Secretariat of which is held by the Association Suisse de Normalisation (SNV).

Work on this question by the Technical Committee began in 1957 and led, in 1961, to the adoption of a Draft ISO Recommendation.

In August 1961, this Draft ISO Recommendation (No. 461) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies:

Australia	France	New Zealand
Belgium	Germany	Norway
Brazil	Greece	Spain
Burma	Hungary	Sweden
Czechoslovakia	India	Switzerland
Chile	Israel	United Kingdom
Denmark	Italy	Yugoslavia
Finland	Netherlands	

One Member Body opposed the approval of the Draft: U.S.S.R.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in September 1963, to accept it as an ISO RECOMMENDATION.

BRIEF HISTORY RELATING TO THE SECOND EDITION

A draft revision of this Recommendation was then studied by Technical Committee ISO/TC 5 and, in 1971, the P-Members of the Committee instructed the Secretariat to submit the Draft to the ISO Council under the abbreviated procedure provided for in clause F.7.1 of the Directives for the Technical Work of ISO.

This draft revision was then submitted by correspondence to the ISO Council which decided to accept it as the second edition of ISO Recommendation R 336.

ISO Recommendation R 336 December 1971

PLAIN END STEEL TUBES, WELDED OR SEAMLESS

GENERAL TABLE OF DIMENSIONS AND MASSES PER UNIT LENGTH

INTRODUCTION

This ISO Recommendation should be considered as a basic document for the preparation of specific ISO Recommendations. The diameters, thicknesses and masses per unit length for appropriate specifications (for example: for pipes and tubes for boilers, structural and mechanical purposes, pipelines, etc.) may be selected from this general table.

1. SCOPE

This ISO Recommendation gives a table of dimensions and the masses per unit length of plain end steel tubes in kilogrammes per metre and pounds per foot, calculated in accordance with the method agreed already for ISO Recommendation R 65, *Steel tubes for gas list threading*. An explanation of the method of calculation is given below. The corresponding diameters in millimetres and inches are in accordance with ISO Recommendation R 64, *Steel tubes—Outside diameters*. The corresponding thicknesses in millimetres and inches are in accordance with ISO Recommendation R 221, *Steel tubes—Wall thicknesses*.

2. FIELD OF APPLICATION

The main purpose of this table is to serve as a ready reckoner and to avoid the possibility of different countries putting forward different masses for a tube of the same nominal dimension. The inclusion of a mass for a given size of tube in this table, therefore, does not necessarily mean that this size is available although at some future date it may be.

Should the mass of a thinner or a thicker tube be required, it can be calculated by the method given below.

This table does not apply to tubes primarily intended to be screwed in accordance with ISO Recommendation R 7, *Pipe threads for gas list tubes and screwed fittings where pressure-tight joints are made on the threads ($^1/_8$ inch to 6 inches)*. The masses of such tubes, both screwed and plain end, are given in ISO Recommendation R 65.

The table is also applicable to special steel tubes (for example stainless), in which case the masses per unit length should be multiplied by appropriate coefficients.

3. METHOD OF CALCULATION

The values, to at least five significant figures, have been calculated by the following formulae:

— for the metric system: $m = (D - a) \cdot a \cdot 0.024\,661\,5^{*}$ kg/m . . . (A)

— for the inch system: $m = (D - a) \cdot a \cdot 10.681\,42^{**}$ lb/ft . . . . (B)

where

m is the mass;

D is the specified outside diameter;

a is the specified wall thickness.

The lb/ft value (B) is then converted to the kg/m value (C) by multiplying it by 1.4882.

$$\text{The mean value in kg/m (D)} = \frac{(A) + (C)}{2}$$

If this value does not differ by more than 1.5% from either (A) or (C), the tube dimensions are considered to be " corresponding "*** and the value (D) is the agreed value for tubes of the dimensions concerned, whether these dimensions be metric or inch. The mean value in kg/m (D) is rounded to three significant figures.

The equivalent mean lb/ft value (E) is found by dividing the rounded value (D) by 1.4882. This value (E) is then rounded to three significant figures.

The values given in the table are those of (D) and (E). If value (D) differs by more than 1.5% from either (A) or (C), the tubes are shown in separate columns.

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* This coefficient takes into account a density equal to 7.85 kg/dm³.

** This coefficient takes into account a density equal to 489.6 lb/ft³.

*** The dimensions in millimetres and in inches, given in the table, are considered to be " corresponding values ", although some of them are not exact equivalents. In all cases, however, the dimensions ensure practical interchangeability.

4. GENERAL TABLE OF DIMENSIONS AND MASSES PER UNIT LENGTH

Outside diameter			Wall thickness												
		mm	0.5	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.3	2.6	2.9	3.2	3.6
		in	0.020	0.024	0.032	0.040	0.048	0.056	0.064	0.072	0.080	0.092	0.104	0.116	0.128	0.144
mm	in															
10.2	0.402	kg/m	0.121	0.144	0.188	0.230	0.270	0.308	0.344	0.378	0.410	0.454	0.493			
		lb/ft	0.0813	0.0968	0.126	0.155	0.181	0.207	0.231	0.254	0.276	0.305	0.331			
12	0.472	kg/m	0.142	0.169	0.222	0.272	0.320	0.367	0.411	0.453	0.494	0.551	0.603	0.651	0.694	
		lb/ft	0.0954	0.114	0.149	0.183	0.215	0.247	0.276	0.304	0.332	0.370	0.405	0.437	0.466	
13.5	0.531	kg/m	0.161	0.192	0.252	0.310	0.366	0.420	0.472	0.522	0.571	0.639	0.703	0.762	0.817	0.883
		lb/ft	0.108	0.129	0.169	0.208	0.246	0.282	0.317	0.351	0.384	0.429	0.472	0.512	0.549	0.593
—	0.625	lb/ft	0.129	0.154	0.202	0.249	0.295	0.339	0.382	0.425	0.465	0.523	0.578	0.630	0.679	0.739
16	—	kg/m	0.192	0.229	0.301	0.371	0.439	0.505	0.569	0.632	0.692	0.778	0.860	0.938	1.01	1.10
17.2	0.677	kg/m	0.207	0.247	0.326	0.402	0.477	0.549	0.620	0.688	0.754	0.850	0.942	1.03	1.11	1.21
		lb/ft	0.139	0.166	0.219	0.270	0.321	0.369	0.417	0.462	0.507	0.571	0.633	0.692	0.746	0.813
19	0.750	kg/m	0.230	0.275	0.362	0.448	0.531	0.613	0.692	0.770	0.845	0.955	1.06	1.16	1.26	1.38
		lb/ft	0.155	0.185	0.243	0.301	0.357	0.412	0.465	0.517	0.568	0.642	0.712	0.779	0.847	0.927
—	0.787	lb/ft	0.162	0.194	0.255	0.316	0.375	0.433	0.489	0.544	0.598	0.679	0.753	0.820	0.894	0.981
20	—	kg/m	0.241	0.288	0.380	0.470	0.558	0.644	0.728	0.810	0.890	1.01	1.12	1.22	1.33	1.46
21.3	0.840	kg/m	0.259	0.310	0.409	0.506	0.601	0.694	0.785	0.874	0.962	1.09	1.21	1.33	1.44	1.59
		lb/ft	0.174	0.208	0.275	0.340	0.404	0.466	0.527	0.587	0.646	0.732	0.813	0.894	0.968	1.07
25		kg/m	0.302	0.361	0.477	0.592	0.704	0.815	0.923	1.03	1.13	1.29	1.44	1.58	1.72	1.90
25.4	1.000	kg/m	0.309	0.370	0.489	0.606	0.721	0.834	0.946	1.05	1.16	1.32	1.47	1.62	1.76	1.95
		lb/ft	0.208	0.249	0.329	0.407	0.484	0.560	0.636	0.706	0.779	0.887	0.988	1.09	1.18	1.31
26.9	1.059	kg/m	0.328	0.393	0.520	0.644	0.767	0.888	1.01	1.12	1.24	1.41	1.57	1.73	1.89	2.09
		lb/ft	0.220	0.264	0.349	0.433	0.515	0.597	0.679	0.753	0.833	0.947	1.05	1.16	1.27	1.40
30	1.181	kg/m	0.367	0.439	0.582	0.722	0.861	0.997	1.13	1.26	1.39	1.59	1.77	1.96	2.14	2.37
		lb/ft	0.247	0.295	0.391	0.485	0.579	0.670	0.759	0.847	0.934	1.07	1.19	1.32	1.44	1.59
31.8	1.250	kg/m	0.388	0.465	0.616	0.764	0.911	1.06	1.20	1.34	1.48	1.68	1.88	2.08	2.27	2.52
		lb/ft	0.261	0.312	0.414	0.513	0.612	0.712	0.806	0.900	0.994	1.13	1.26	1.40	1.53	1.69
33.7	1.327	kg/m	0.412	0.493	0.654	0.812	0.969	1.12	1.28	1.43	1.57	1.79	2.01	2.22	2.42	2.69
		lb/ft	0.277	0.331	0.439	0.546	0.651	0.753	0.860	0.961	1.05	1.20	1.35	1.49	1.63	1.81
38	1.500	kg/m	0.466	0.558	0.740	0.920	1.10	1.27	1.45	1.62	1.79	2.04	2.29	2.53	2.77	3.08
		lb/ft	0.313	0.375	0.497	0.618	0.739	0.853	0.974	1.09	1.20	1.37	1.54	1.70	1.86	2.07
42.4	1.669	kg/m	0.520	0.623	0.827	1.03	1.23	1.43	1.62	1.82	2.01	2.29	2.57	2.84	3.11	3.47
		lb/ft	0.349	0.419	0.556	0.692	0.827	0.961	1.09	1.22	1.35	1.54	1.73	1.91	2.09	2.33
44.5	1.750	kg/m	0.546	0.654	0.868	1.08	1.29	1.50	1.70	1.91	2.11	2.41	2.70	2.99	3.28	3.65
		lb/ft	0.367	0.439	0.583	0.726	0.867	1.01	1.14	1.28	1.42	1.62	1.81	2.01	2.20	2.45
48.3	1.900	kg/m	0.595	0.712	0.945	1.18	1.41	1.63	1.86	2.08	2.30	2.63	2.95	3.27	3.59	4.00
		lb/ft	0.400	0.478	0.635	0.793	0.947	1.10	1.25	1.40	1.55	1.77	1.98	2.20	2.41	2.69
51	2.000	kg/m	0.626	0.750	0.996	1.24	1.48	1.72	1.96	2.20	2.43	2.78	3.12	3.46	3.79	4.23
		lb/ft	0.421	0.504	0.669	0.833	0.994	1.16	1.32	1.48	1.63	1.87	2.10	2.32	2.55	2.84
54	2.125	kg/m	0.664	0.796	1.06	1.32	1.57	1.83	2.08	2.33	2.58	2.95	3.32	3.68	4.04	4.50
		lb/ft	0.446	0.535	0.712	0.887	1.05	1.23	1.40	1.57	1.73	1.98	2.23	2.47	2.71	3.02
57	2.250	kg/m	0.703	0.842	1.12	1.39	1.67	1.94	2.20	2.47	2.74	3.13	3.52	3.90	4.28	4.78
		lb/ft	0.472	0.566	0.753	0.934	1.12	1.30	1.48	1.66	1.84	2.10	2.37	2.62	2.88	3.21
60.3	2.375	kg/m	0.743	0.890	1.18	1.47	1.76	2.05	2.33	2.62	2.90	3.31	3.73	4.14	4.54	5.07
		lb/ft	0.499	0.598	0.793	0.988	1.18	1.38	1.57	1.76	1.95	2.22	2.51	2.78	3.05	3.41
63.5	2.500	kg/m	0.783	0.938	1.25	1.55	1.86	2.16	2.46	2.76	3.06	3.50	3.93	4.36	4.79	5.36
		lb/ft	0.526	0.630	0.840	1.04	1.25	1.45	1.65	1.85	2.06	2.35	2.64	2.93	3.22	3.60
70	2.750	kg/m	0.862	1.03	1.37	1.71	2.05	2.38	2.72	3.05	3.37	3.86	4.35	4.83	5.30	5.93
		lb/ft	0.579	0.692	0.921	1.15	1.38	1.60	1.83	2.05	2.26	2.59	2.92	3.25	3.56	3.98
73	2.875	kg/m	0.901	1.08	1.44	1.79	2.14	2.49	2.84	3.18	3.53	4.04	4.55	5.05	5.55	6.21
		lb/ft	0.605	0.726	0.968	1.20	1.44	1.67	1.91	2.14	2.37	2.71	3.06	3.39	3.73	4.17
76.1	3.000	kg/m	0.940	1.13	1.50	1.87	2.23	2.60	2.96	3.32	3.68	4.22	4.75	5.28	5.80	6.49
		lb/ft	0.632	0.759	1.01	1.26	1.50	1.75	1.99	2.23	2.47	2.84	3.19	3.55	3.90	4.36
82.5	3.250	kg/m	1.02	1.22	1.62	2.03	2.42	2.82	3.22	3.61	4.00	4.58	5.16	5.74	6.31	7.06
		lb/ft	0.685	0.820	1.09	1.36	1.63	1.89	2.16	2.43	2.69	3.08	3.47	3.86	4.24	4.74
88.9	3.500	kg/m	1.10	1.32	1.75	2.18	2.61	3.04	3.47	3.89	4.32	4.95	5.57	6.20	6.81	7.63
		lb/ft	0.739	0.887	1.18	1.46	1.75	2.04	2.33	2.61	2.90	3.33	3.74	4.17	4.58	5.13
101.6	4.000	kg/m	1.26	1.51	2.00	2.50	2.99	3.49	3.98	4.46	4.95	5.67	6.39	7.11	7.82	8.76
		lb/ft	0.847	1.01	1.34	1.68	2.01	2.35	2.67	3.00	3.33	3.81	4.29	4.78	5.25	5.89
108	4.250	kg/m	1.34	1.60	2.13	2.66	3.18	3.71	4.23	4.75	5.27	6.04	6.81	7.57	8.33	9.33
		lb/ft	0.900	1.08	1.43	1.79	2.14	2.49	2.84	3.19	3.54	4.06	4.58	5.09	5.60	6.27
114.3	4.500	kg/m	1.41	1.70	2.26	2.82	3.37	3.93	4.48	5.03	5.58	6.40	7.21	8.03	8.83	9.90
		lb/ft	0.947	1.14	1.52	1.89	2.26	2.64	3.01	3.38	3.75	4.30	4.84	5.40	5.93	6.65
127	5.000	kg/m		1.88	2.51	3.13	3.75	4.37	4.98	5.60	6.21	7.13	8.04	8.94	9.84	11.0
		lb/ft		1.26	1.69	2.10	2.52	2.94	3.35	3.76	4.17	4.79	5.40	6.01	6.61	7.39
133	5.250	kg/m		1.98	2.63	3.28	3.93	4.58	5.23	5.88	6.52	7.48	8.43	9.39	10.3	11.6
		lb/ft		1.33	1.77	2.20	2.64	3.08	3.51	3.95	4.38	5.03	5.66	6.31	6.92	7.79

This table is also applicable to special steel tubes (for example stainless), in which case the masses per unit length should be multiplied by approp

Wall thickness

3.6 0.144	4.0 0.160	4.5 0.176	— 0.192	5.0 —	5.4 0.212	5.6 0.219	5.9 0.232	6.3 0.250	7.1 0.281	8.0 0.312	8.8 0.344	— 0.375	10.0 0.394	11.0 0.438	12.5 0.500	14.2 0.562

Conventional mass per unit length

0.883 0.593																
0.739	0.793															
1.10	1.18															
1.21 0.813	1.31 0.880	1.41 0.947														
1.38 0.927	1.49 1.00	1.61 1.08	1.14	1.73												
0.981	1.06	1.15	1.21													
1.46	1.58	1.71		1.85												
1.59 1.07	1.72 1.16	1.87 1.26	1.34	2.01	2.12 1.42											
1.90	2.07	2.28		2.47	2.61	2.68	2.78	2.91								
1.95 1.31	2.12 1.42	2.31 1.55	1.66	2.52	2.66 1.79	2.73 1.83	2.83 1.90	2.97 2.00								
2.09 1.40	2.28 1.53	2.48 1.67	1.79	2.70	2.86 1.92	2.94 1.98	3.06 2.06	3.21 2.16	3.48 2.34							
2.37 1.59	2.59 1.74	2.83 1.90	2.04	3.08	3.28 2.20	3.37 2.26	3.52 2.37	3.70 2.49	4.03 2.71	4.34 2.92						
2.52 1.69	2.76 1.85	3.02 2.03	2.17	3.30	3.51 2.36	3.60 2.42	3.76 2.53	3.97 2.67	4.33 2.91	4.68 3.14						
2.69 1.81	2.95 1.98	3.23 2.17	2.33	3.54	3.76 2.53	3.87 2.60	4.04 2.71	4.27 2.87	4.67 3.14	5.05 3.39	5.39 3.62					
3.08 2.07	3.38 2.27	3.71 2.49	2.68	4.07	4.34 2.92	4.47 3.00	4.67 3.14	4.95 3.33	5.43 3.65	5.91 3.97	6.33 4.25	4.51	6.91 (4.65)			
3.47 2.33	3.81 2.56	4.19 2.82	3.03	4.61	4.92 3.31	5.07 3.41	5.31 3.57	5.62 3.78	6.19 4.16	6.76 4.54	7.27 4.89	5.18	7.99 (5.37)	8.54 5.74		
3.65 2.45	4.02 2.70	4.42 2.97	3.20	4.87	5.20 3.49	5.35 3.59	5.61 3.77	5.95 4.00	6.56 4.41	7.17 4.82	7.72 5.19	5.51	8.51 (5.71)	9.11 6.12	9.90 6.65	
4.00 2.69	4.41 2.96	4.85 3.26	3.52	5.34	5.71 3.84	5.89 3.96	6.17 4.15	6.55 4.40	7.24 4.86	7.93 5.33	8.56 5.75	6.13	9.45 (6.34)	10.2 6.85	11.1 7.46	
4.23 2.84	4.66 3.13	5.13 3.45	3.71	5.67	6.05 4.07	6.24 4.19	6.54 4.39	6.95 4.67	7.69 5.17	8.43 5.66	9.10 6.11	6.51	10.1 (6.79)	10.9 7.32	11.9 8.00	12.9 8.67
4.50 3.02	4.97 3.34	5.47 3.68	3.96	6.04	6.46 4.34	6.66 4.48	6.99 4.70	7.43 4.99	8.23 5.53	9.04 6.07	9.77 6.56	7.01	10.9 (7.26)	11.7 7.86	12.9 8.67	14.0 9.41
4.78 3.21	5.27 3.54	5.81 3.90	4.22	6.41	6.87 4.62	7.08 4.76	7.44 5.00	7.91 5.32	8.77 5.89	9.65 6.48	10.4 6.99	7.51	11.6 (7.79)	12.5 8.40	13.8 9.27	15.0 10.1
5.07 3.41	5.59 3.76	6.17 4.15	4.48	6.82	7.30 4.91	7.53 5.06	7.91 5.32	8.42 5.66	9.34 6.28	10.3 6.92	11.1 7.46	8.01	12.4 (8.33)	13.4 9.00	14.8 9.94	16.2 10.9
5.36 3.60	5.91 3.97	6.52 4.38	4.73	7.21	7.72 5.19	7.97 5.36	8.37 5.62	8.91 5.99	9.90 6.65	10.9 7.32	11.8 7.93	8.51	13.2 (8.87)	14.3 9.61	15.8 10.6	17.3 11.6
5.93 3.98	6.55 4.40	7.24 4.86	5.25	8.01	8.58 5.77	8.85 5.95	9.31 6.26	9.92 6.67	11.0 7.39	12.2 8.20	13.2 8.87	9.51	14.8 (9.94)	16.0 10.8	17.8 12.0	19.6 13.2
6.21 4.17	6.86 4.61	7.58 5.09	5.50	8.38	8.99 6.04	9.28 6.24	9.76 6.56	10.4 6.99	11.6 7.79	12.8 8.60	13.9 9.34	10.0	15.5 (10.4)	16.9 11.4	18.8 12.6	20.6 13.8
6.49 4.36	7.17 4.82	7.92 5.32	5.76	8.77	9.41 6.32	9.71 6.52	10.2 6.85	10.9 7.32	12.1 8.13	13.4 9.00	14.6 9.81	10.5	16.3 (11.0)	17.7 11.9	19.7 13.2	21.7 14.6
7.06 4.74	7.80 5.24	8.63 5.80	6.27	9.56	10.3 6.92	10.6 7.12	11.1 7.46	11.9 8.00	13.2 8.87	14.6 9.81	15.9 10.7	11.5	17.9 (12.0)	19.5 13.1	21.7 14.6	24.0 16.1
7.63 5.13	8.43 5.66	9.33 6.27	6.78	10.3	11.1 7.46	11.5 7.73	12.1 8.13	12.9 8.67	14.4 9.68	15.9 10.7	17.3 11.6	12.5	19.5 (13.1)	21.2 14.2	23.7 15.9	26.2 17.6
8.76 5.89	9.70 6.52	10.7 7.19	7.81	11.9	12.8 8.60	13.2 8.87	13.9 9.34	14.9 10.0	16.6 11.2	18.4 12.4	20.1 13.5	14.5	22.6 (15.2)	24.7 16.6	27.6 18.5	30.7 20.6
9.33 6.27	10.3 6.92	11.4 7.66	8.32	12.7	13.6 9.14	14.1 9.47	14.8 9.94	15.8 10.6	17.7 11.9	19.6 13.2	21.4 14.4	15.5	24.2 (16.3)	26.4 17.7	29.6 19.9	32.9 22.1
9.90 6.65	11.0 7.39	12.1 8.13	8.84	13.5	14.5 9.74	15.0 10.1	15.8 10.6	16.8 11.3	18.8 12.6	20.9 14.0	22.8 15.3	16.5	25.7 (17.3)	28.1 18.9	31.6 21.2	35.1 23.6
11.0 7.39	12.2 8.20	13.5 9.07	9.86	15.0	16.2 10.9	16.7 11.2	17.6 11.8	18.8 12.6	21.0 14.1	23.4 15.7	25.5 17.1	18.5	28.9 (19.4)	31.6 21.2	35.5 23.9	39.6 26.6
11.6 7.79	12.8 8.60	14.2 9.54	10.4	15.8	17.0 11.4	17.6 11.8	18.5 12.4	19.8 13.3	22.1 14.9	24.6 16.5	26.9 18.1	19.5	30.3 (20.4)	33.3 22.4	37.4 25.1	41.8 28.1

y appropriate coefficients.

14.2 0.562	16.0 0.625	17.5 0.688	— 0.750	20.0 0.787	— 0.812	22.2 0.875	— 0.938	25.0 1	28.0 1.10	30.0 1.18	32.0 1.26	36.0 1.42	Outside diameter	
													mm	in
													10.2	0.402
													12	0.472
													13.5	0.531
													—	0.625
													16	—
													17.2	0.677
													19	0.750
													—	0.787
													20	—
													21.3	0.840
													25	
													25.4	1.000
													26.9	1.059
													30	1.181
													31.8	1.250
													33.7	1.327
													38	1.500
													42.4	1.669
													44.5	1.750
													48.3	1.900
12.9 8.67													51	2.000
14.0 9.41													54	2.125
15.0 10.1	16.2 10.9												57	2.250
16.2 10.9	17.4 11.7												60.3	2.375
17.3 11.6	18.7 12.6												63.5	2.500
19.6 13.2	21.2 14.2	22.6 15.2											70	2.750
20.6 13.8	22.4 15.1	23.9 16.1	17.0	26.1 (17.5)									73	2.875
21.7 14.6	23.7 15.9	25.3 17.0	18.0	27.7 (18.6)									76.1	3.000
24.0 16.1	26.2 17.6	28.0 18.8	20.0	30.8 (20.7)	21.2	33.0 22.2	23.2						82.5	3.250
26.2 17.6	28.7 19.3	30.8 20.7	22.0	34.0 (22.8)	23.3	36.5 24.5	25.7	39.6 26.6					88.9	3.500
30.7 20.6	33.7 22.6	36.2 24.3	26.0	40.2 (27.0)	27.7	43.5 29.2	30.7	47.5 31.9	50.8 34.1				101.6	4.000
32.9 22.1	36.2 24.3	39.0 26.2	28.0	43.4 (29.2)	29.8	47.0 31.6	33.2	51.4 34.5	55.2 37.1	57.6 38.7			108	4.250
35.1 23.6	38.6 25.9	41.7 28.0	30.0	46.5 (31.2)	32.0	50.4 33.9	35.7	55.3 37.2	59.5 40.0	62.3 41.9	64.9 43.6		114.3	4.500
39.6 26.6	43.6 29.3	47.2 31.7	34.0	52.8 (35.4)	36.3	57.4 38.6	40.7	63.2 42.5	68.3 45.9	71.7 48.2	74.9 50.3	80.8 54.3	127	5.000
41.8 28.1	46.1 31.0	49.9 33.5	36.0	55.7 (37.5)	38.5	60.8 40.9	43.2	67.1 45.1	72.5 48.7	76.3 51.3	79.8 53.6	86.3 58.0	133	5.250

4. GENERAL TABLE OF DIMENSIONS AND MASSES PER UNIT LENGTH *(concluded)*

Outside diameter		mm in	0.5 0.020	0.6 0.024	0.8 0.032	1.0 0.040	1.2 0.048	1.4 0.056	1.6 0.064	1.8 0.072	2.0 0.080	2.3 0.092	2.6 0.104	2.9 0.116	3.2 0.128	3.6 0.144	4.0 0.160	4.5 0.176	— 0.192	5.0 —
mm	in																			
139.7	5.500	kg/m lb/ft		2.07 1.39	2.76 1.85	3.45 2.32	4.13 2.78	4.81 3.23	5.49 3.69	6.17 4.15	6.84 4.60	7.85 5.27	8.86 5.95	9.86 6.63	10.9 7.32	12.2 8.20	13.5 9.07	14.9 10.0	10.9	16.6
141.3	5.563	kg/m lb/ft		2.10 1.41	2.79 1.87	3.49 2.35	4.18 2.81	4.87 3.27	5.55 3.73	6.24 4.19	6.92 4.65	7.94 5.34	8.96 6.02	9.97 6.70	11.0 7.39	12.3 8.27	13.6 9.14	15.1 10.1	11.0	16.8
152.4	6.000	kg/m lb/ft			3.01 2.02	3.76 2.53	4.51 3.03	5.25 3.53	5.99 4.02	6.73 4.52	7.47 5.02	8.58 5.77	9.68 6.50	10.8 7.26	11.9 8.00	13.3 8.94	14.7 9.88	16.4 11.0	11.9	18.2
159	6.250	kg/m lb/ft			3.14 2.11	3.92 2.63	4.70 3.16	5.48 3.68	6.25 4.20	7.02 4.72	7.80 5.24	8.95 6.01	10.1 6.79	11.2 7.53	12.4 8.33	13.9 9.34	15.4 10.3	17.1 11.5	12.4	19.0
165.1	6.500	kg/m lb/ft			3.27 2.20	4.08 2.74	4.89 3.29	5.69 3.82	6.50 4.37	7.30 4.91	8.10 5.44	9.30 6.25	10.5 7.06	11.7 7.86	12.9 8.67	14.4 9.68	16.0 10.8	17.8 12.0	12.9	19.7
168.3	6.625	kg/m lb/ft			3.33 2.24	4.16 2.80	4.98 3.35	5.81 3.90	6.63 4.46	7.45 5.01	8.26 5.55	9.48 6.37	10.7 7.19	11.9 8.00	13.1 8.80	14.7 9.88	16.3 11.0	18.1 12.2	13.2	20.1
177.8	7.000	kg/m lb/ft			3.52 2.37	4.39 2.95	5.27 3.54	6.14 4.13	7.00 4.70	7.87 5.29	8.74 5.87	10.0 6.72	11.3 7.59	12.6 8.47	13.9 9.34	15.6 10.5	17.3 11.6	19.2 12.9	14.0	21.3
193.7	7.625	kg/m lb/ft			3.83 2.57	4.79 3.22	5.74 3.86	6.69 4.50	7.64 5.13	8.58 5.84	9.53 6.40	10.9 7.32	12.3 8.27	13.7 9.21	15.1 10.1	17.0 11.4	18.8 12.6	20.9 14.0	15.2	23.3
219.1	8.625	kg/m lb/ft			4.34 2.92	5.42 3.64	6.50 4.37	7.57 5.09	8.65 5.81	9.72 6.53	10.8 7.26	12.4 8.33	14.0 9.41	15.6 10.5	17.2 11.6	19.3 13.0	21.4 14.4	23.7 15.9	17.3	26.4
244.5	9.625	kg/m lb/ft			4.84 3.25	6.05 4.07	7.25 4.87	8.46 5.68	9.66 6.49	10.9 7.32	12.0 8.06	13.8 9.27	15.6 10.5	17.4 11.7	19.2 12.9	21.5 14.4	23.9 16.1	26.5 17.8	19.3	29.5
267	10.500	kg/m lb/ft				6.61 4.44	7.92 5.32	9.23 6.20	10.5 7.06	11.9 8.00	13.2 8.87	15.1 10.1	17.1 11.5	19.0 12.8	21.0 14.1	23.5 15.8	26.1 17.5	29.0 19.5	21.1	32.3
273	10.750	kg/m lb/ft				6.76 4.54	8.10 5.44	9.45 6.35	10.8 7.26	12.1 8.13	13.5 9.07	15.5 10.4	17.5 11.8	19.5 13.1	21.5 14.4	24.1 16.2	26.7 17.9	29.7 20.0	21.7	33.0
298.5	11.750	kg/m lb/ft					8.86 5.95	10.3 6.92	11.8 7.93	13.3 8.94	14.7 9.88	16.9 11.4	19.1 12.8	21.3 14.3	23.5 15.8	26.4 17.7	29.3 19.7	32.5 21.8	23.7	36.2
323.9	12.750	kg/m lb/ft						11.2 7.53	12.8 8.60	14.4 9.68	16.0 10.8	18.4 12.4	20.8 14.0	23.1 15.5	25.5 17.1	28.6 19.2	31.8 21.4	35.3 23.7	25.8	39.3
355.6	14.000	kg/m lb/ft						12.3 8.27	14.1 9.47	15.8 10.6	17.6 11.8	20.2 13.6	22.8 15.3	25.4 17.1	28.0 18.8	31.5 21.2	34.9 23.5	38.8 26.1	28.3	43.2
368	14.500	kg/m lb/ft						12.8 8.60	14.6 9.81	16.4 11.0	18.2 12.2	20.9 14.0	23.6 15.9	26.3 17.7	29.0 19.5	32.6 21.9	36.2 24.3	40.2 27.0	29.3	44.8
406.4	16.000	kg/m lb/ft								18.1 12.2	20.1 13.5	23.1 15.5	26.1 17.5	29.1 19.6	32.1 21.6	36.0 24.2	40.0 26.9	44.4 29.8	32.4	49.5
419	16.5	kg/m lb/ft								18.7 12.6	20.7 13.9	23.8 16.0	26.9 18.1	30.0 20.2	33.1 22.2	37.2 25.0	41.2 27.7	45.8 30.8	33.4	51.0
457	18.0	kg/m lb/ft								20.4 13.7	22.6 15.2	26.0 17.5	29.4 19.8	32.7 22.0	36.1 24.3	40.6 27.3	45.0 30.2	50.1 33.7	36.5	55.8
508	20.0	kg/m lb/ft									25.1 16.9	28.9 19.4	32.6 21.9	36.4 24.5	40.1 26.9	45.1 30.3	50.1 33.7	55.7 37.4	40.6	62.0
559	22.0	kg/m lb/ft										31.8 21.4	35.9 24.1	40.1 26.9	44.2 29.7	49.7 33.4	55.1 37.0	61.3 41.2	44.7	68.3
610	24.0	kg/m lb/ft											39.2 26.3	43.7 29.4	48.2 32.4	54.2 36.4	60.2 40.5	66.9 45.0	48.8	74.6
660	26.0	kg/m lb/ft											42.5 28.6	47.4 31.9	52.3 35.1	58.7 39.4	65.2 43.8	72.5 48.7	52.9	80.8
711	28.0	kg/m lb/ft												51.0 34.3	56.3 37.8	63.3 42.5	70.3 47.2	78.1 52.5	57.0	87.1
762	30.0	kg/m lb/ft												54.7 36.8	60.3 40.5	67.8 45.6	75.3 50.6	83.8 56.3	61.1	93.3
813	32.0	kg/m lb/ft													64.4 43.3	72.4 48.6	80.4 54.0	89.4 60.1	65.2	99.6
864	34.0	kg/m lb/ft													68.4 46.0	76.9 51.7	85.4 57.4	95.0 63.8	69.3	106
914	36.0	kg/m lb/ft														81.5 54.8	90.5 60.8	101 67.9	73.4	112
1016	40.0	kg/m lb/ft															101 67.9	112 75.3	81.6	125
1220	48.0	kg/m lb/ft															121 81.3	134 90.0	98.0	150
1420	55.9	kg/m lb/ft															141 94.7	156 105	114	174
1620	63.8	kg/m lb/ft															161 108	179 120	130	199
1820	71.7	kg/m lb/ft															181 122	201 135	147	224
2020	79.5	kg/m lb/ft															200 134	223 150	163	248
2220	87.4	kg/m lb/ft															220 148	245 165	179	273

This table is also applicable to special steel tubes (for example stainless), in which case the masses per unit length should be multiplied by appropriate c