Dimensions and Weights for Tubes

Mcneil Instruments is a premier manufacturer of a wide range of **high-quality tubes**, catering to industries like oil and gas, power, chemical, and more. Below is a detailed **weight chart table** for different tube types, incorporating dimensions, material properties, and applications.

General Weight Chart for Steel Tubes

DN (Nominal)	Outer Diameter (O.D.) [mm]	Wall Thickness (s) [mm]	Weight of Pipe [kg/m]	Water Content [l/m]	Water-Filled Weight [kg/m]	Max. Span (L) [m]
6	10.2	1.6	0.34	0.04	0.38	1.0
8	13.5	1.8	0.52	0.08	0.60	1.0
25	33.7	2.0	1.56	0.69	2.25	2.0
50	60.3	2.3	3.29	2.44	5.73	3.1
100	114.3	3.2	8.77	9.14	17.91	4.5
200	219.1	4.5	23.82	34.67	58.49	6.0

Stainless Steel Tube Sizes :

Nominal Pipe Size (inches)	Outside Diameter (mm)	5S (mm) (inches)	10S (mm) (inches)	40S (mm) (inches)	80S (mm) (inches)
1/8	10.3	-	-	1.25 (0.049)	1.73 (0.068)
1/4	13.7	-	-	1.66 (0.065)	2.24 (0.088)
3/8	17.2	-	-	1.66 (0.065)	2.32 (0.091)
1/2	21.3	1.65 (0.065)	0.81	2.11 (0.083)	2.77 (0.109)
3/4	26.7	1.65 (0.065)	1.02	2.11 (0.083)	2.87 (0.113)
1	33.4	1.65 (0.065)	1.3	2.77 (0.109)	3.38 (0.133)
1 1/4	42.2	1.65 (0.065)	1.66	2.77 (0.109)	3.56 (0.140)
1 1/2	48.3	1.65 (0.065)	1.91	2.77 (0.109)	3.69 (0.145)
2	60.3	1.65 (0.065)	2.4	2.77 (0.109)	3.92 (0.154)
2 1/2	73	2.11 (0.083)	3.69	3.05 (0.120)	5.16 (0.203)
3	88.9	2.11 (0.083)	4.52	3.05 (0.120)	5.49 (0.216)
3 1/2	101.6	2.11 (0.083)	5.18	3.06 (0.120)	5.74 (0.226)
4	114.3	2.11 (0.083)	5.84	3.06 (0.120)	6.02 (0.237)
5	141.3	2.77 (0.109)	9.46	3.41 (0.134)	6.56 (0.258)
6	168.3	2.77 (0.109)	11.3	3.41 (0.134)	7.12 (0.280)
8	219.1	2.77 (0.109)	14.8	3.76 (0.148)	8.18 (0.322)
10	273.1	3.41 (0.134)	22.7	4.20 (0.165)	9.28 (0.365)
12	323.9	3.97 (0.156)	31.3	4.58 (0.180)	9.53 (0.375)

Weights for Specific Tube Types Manufactured by Mcneil Instruments

Tube Type	Size Range (O.D.) [mm]	Wall Thickness (s) [mm]	Weight Range [kg/m]	Application
Alloy Steel Tube	10 - 610	1.5 - 6.3	0.34 - 93.8	High-pressure pipelines, power plants
Hastelloy Tube	12 - 400	2.0 - 6.0	0.42 - 62.0	Corrosive environments
Inconel Tube	10 - 355	1.6 - 5.6	0.3 - 48.3	High-temperature applications
Stainless Steel Tube	6 - 508	1.6 - 6.3	0.34 - 77.9	General-purpose industrial tubing
Stainless Steel Seamless Tube	8 - 457	1.8 - 6.3	0.5 - 70.0	Oil and gas, petrochemical industries
Copper Tube	6 - 159	1.5 - 5.0	0.3 - 15.3	Heat exchangers, HVAC systems
904L Stainless Steel Tubing	12 - 219	2.0 - 5.6	0.5 - 24.0	Marine, chemical processing
ASME SA 213 TP 304 Stainless Steel Tube	8 - 323.9	2.0 - 6.0	0.5 - 43.9	Food-grade and industrial use

ASTM A511 Stainless Steel Seamless Tubing	10 - 168.3	2.5 - 4.0	0.8 - 16.2	High-precision instrumentation
Stainless Steel Heat Exchanger Tube	8 - 159	1.8 - 5.0	0.5 - 15.0	Heat exchangers, condensers
Stainless Steel Capillary Tube	6 - 88.9	1.6 - 3.2	0.34 - 6.2	Medical, instrumentation
Stainless Steel Rectangular Tubing	Various	Customizable	Varies	Structural and architectural applications

Stainless Steel Tube Weight :

Size (inches)	Outside Diameter (mm)	Wall Thickness (mm)	Weight (kg/m)
1/8	10.3	0.287	0.3646
1/4	13.7	0.088	0.6325
3/8	17.1	0.091	0.8453
1/2	21.3	0.109	1.2664
3/4	26.7	0.113	1.6831
1	33.4	0.133	2.5001
1 1/4	42.2	0.14	3.3841
1 1/2	48.3	0.145	4.0463
2	60.3	0.154	5.4378
2 1/2	73	0.203	8.6239
3	88.9	0.216	11.2788

3 1/2	101.6	0.226	13.5616
4	114.3	0.237	16.0632
5	141.3	0.258	21.7614
6	168.3	0.28	28.2468
8	219.1	0.322	42.5079
10	273.1	0.365	60.2677
12	323.9	0.375	73.7832

Formula to Calculate Tube Weight

The weight of a tube can be calculated using the following formula:

$$\text{Weight per meter (kg/m)} = \pi \times (\text{Outer Radius}^2 - \text{Inner Radius}^2) \times \text{Density of Material}$$

Where:

- Outer Radius = Outer Diameter / 2
- Inner Radius = Outer Diameter - 2 × Wall Thickness / 2
- Density of Material:
  - Steel: 7,850 kg/m^3
  - Stainless Steel: 7,930 kg/m^3
  - Copper: 8,960 kg/m^3

Example Calculation for a Steel Tube

Given:

Outer Diameter (O.D) = 60.3mm, Wall Thickness (s) = 2.3 mm, Material Density = 7,850kg/m ^{3}

Steps:

- **Outer Radius (R_{outer}):**

R_{outer} = O.D / 2 = 60.3 / 2 = 30.15mm

- **Inner Radius (R_{inner}):**

(R_{inner}): O.D.−2×s / 2 = 60.3−2×2.3 / 2 = 55.7 /2 = 27.85mm

- **Cross-Sectional Area (AAA):**

Convert radius to meters:

$A=\pi\times (R^2_{outer} - R^2_{inner})$
$A=\pi\times((0.03015)^2-(0.02785)^2)$
$A=\pi\times(0.000909-0.000776)$
$A=\pi\times0.000133=0.0004188m^2$

- **Weight per meter (WWW):**

W=A×Density = 0.0004188×7,850 = 3.28kg/m

The weight of a steel tube with an outer diameter of **60.3 mm** and wall thickness of **2.3 mm** is approximately **3.28 kg/m**.

Stainless Steel Seamless Tube Sizes :

Nominal OD (in)	Wall (in)	Nominal ID (in)	Nominal Wt./Ft. (lbs)
1/16	0.01	0.042	0.0057
1/16	0.016	0.03	0.008
1/16	0.02	0.022	0.0092
3/32	0.016	0.062	0.0136
3/32	0.02	0.054	0.0162
3/32	0.028	0.038	0.0202
1/8	0.01	0.105	0.0126
1/8	0.012	0.101	0.0149
1/8	0.016	0.093	0.0191
1/8	0.02	0.085	0.0231
1/8	0.028	0.069	0.0298
1/8	0.035	0.055	0.0346
1/8	0.049	0.027	0.0409
5/32	0.016	0.124	0.0246
5/32	0.02	0.116	0.0299
5/32	0.028	0.1	0.0394
1/4	0.035	0.18	0.0827
1/4	0.049	0.152	0.1083
1/4	0.065	0.12	0.1322
1/4	0.083	0.084	0.1524
1/4	0.095	0.06	0.1619
5/16	0.016	0.281	0.0521

5/16	0.02	0.273	0.0643
5/16	0.028	0.257	0.0876
5/16	0.035	0.243	0.1068
5/16	0.049	0.215	0.142
5/16	0.058	0.196	0.1623
5/16	0.065	0.183	0.1769
5/16	0.083	0.144	0.2095
5/16	0.095	0.123	0.2272
3/8	0.016	0.343	0.0631
3/8	0.02	0.335	0.0781
3/8	0.028	0.319	0.1068
3/8	0.035	0.305	0.1309
3/8	0.049	0.277	0.1757
3/8	0.058	0.259	0.2022
3/8	0.065	0.245	0.2216
3/8	0.083	0.209	0.2666
3/8	0.095	0.185	0.2926
3/8	0.109	0.157	0.3189
3/8	0.12	0.135	0.3366
7/16	0.02	0.398	0.0918
7/16	0.028	0.382	0.1261
7/16	0.035	0.368	0.1549
7/16	0.049	0.34	0.2094
7/16	0.065	0.308	0.2663
7/16	0.083	0.272	0.3236

7/16	0.095	0.248	0.3579
7/16	0.12	0.198	0.4191
1/2	0.016	0.468	0.0851
1/2	0.02	0.46	0.1056
1/2	0.028	0.444	0.1453
1/2	0.035	0.43	0.179
1/2	0.049	0.402	0.243
1/2	0.065	0.37	0.311
1/2	0.083	0.334	0.3807
1/2	0.095	0.417	0.4232
1/2	0.109	0.282	0.4688
1/2	0.12	0.26	0.5016
1/2	0.134	0.232	0.5395
1/2	0.156	0.188	0.5903
1/2	0.188	0.124	0.6452
9/16	0.028	0.507	0.1646
9/16	0.035	0.493	0.203
9/16	0.049	0.465	0.2767
9/16	0.065	0.433	0.3557
9/16	0.083	0.397	0.4377
9/16	0.095		

Polished Stainless Steel Tube Sizes :

Nominal Pipe Size	Outside Diameter (in)	Schedule 5S (W.T. in)	Schedule 10S (W.T. in)	Schedule 40S (W.T. in)
1/2	21.34	1.65	0.81	2.11
3/4	26.67	1.65	1.03	2.11
1	33.4	1.65	1.31	2.77
1 1/4	42.16	1.65	1.67	2.77
1 1/2	48.26	1.65	1.92	2.77
2	60.33	1.65	2.42	2.77
2 1/2	73.03	2.11	3.74	3.05
3	88.9	2.11	4.57	3.05
3 1/2	101.6	2.11	5.25	3.05
4	114.3	2.11	5.95	3.05
5	141.3	2.77	9.59	3.4

Features of Mcneil Instruments Tubes

1. **Durable Materials**: Precision-engineered using **alloy steel, stainless steel, copper**, and specialty alloys.
2. **Wide Applications**: Suitable for industries like **oil & gas, chemical, energy, and marine**.
3. **Global Standards**: Compliant with **ASME, ASTM, DIN, and other international standards**.
4. **Custom Solutions**: Available in varying sizes, dimensions, and finishes for specific applications.

Why Choose Mcneil Instruments?

- **Top-Notch Quality**: Advanced manufacturing processes ensure superior performance.
- **Comprehensive Product Range**: From **seamless tubes to specialized rectangular tubing**, Mcneil Instruments offers it all.
- **Reliable Service**: Committed to timely delivery and customer satisfaction.

For more details or to inquire about specific dimensions and weights, reach out to **Mcneil Instruments** today!