

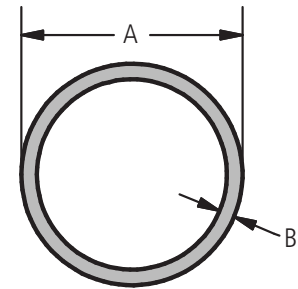
Seamless Bus Pipe

Seamless bus pipe is an extruded tubular product used to convey electricity. It is manufactured to a "nominal," not actual, inside diameter. The wall thickness is described by a "schedule." The schedules are determined by the American Standards Association.

Seamless bus pipe is generally made of 6063-T6 alloy in ANSI Schedule 40 pipe because of its excellent mechanical and electrical properties. 6061-T6 alloy tubular bus is used where high strength and lower conductivity are required.

Specification: B-241 (Seamless Pipe)

Note: For seamless bus tubing over 6 inches, see page 618.



Schedule 40

Nominal Size	Outside Diameter of Tube	Wall Thickness	Area	Weight
in.	in.	in.	sq. in.	lb/ft
SCH 40	A	B		
1	1.315	0.133	0.4939	0.581
1 1/4	1.660	0.140	0.6685	0.786
1 1/2	1.900	0.145	0.7995	0.940
2	2.375	0.154	1.0750	1.264
2 1/2	2.875	0.203	1.7040	2.004
3	3.500	0.216	2.2280	2.621
3 1/2	4.000	0.226	2.6800	3.151
4	4.500	0.237	3.1740	3.733
5	5.563	0.258	4.3000	5.057
6	6.625	0.280	5.5810	6.564
8	8.625	0.322	8.3990	9.879

Schedule 80

Nominal Size	Outside Diameter of Tube	Wall Thickness	Area	Weight
in.	in.	in.	sq. in.	lb/ft
SCH 80	A	B		
1	1.315	0.179	0.6388	0.751
1 1/4	1.660	0.191	0.8815	1.037
1 1/2	1.900	0.200	1.0680	1.256
2	2.375	0.218	1.4770	1.737
2 1/2	2.875	0.276	2.2540	2.650
3	3.500	0.300	3.0160	3.547
3 1/2	4.000	0.318	3.6780	4.326
4	4.500	0.337	4.4070	5.183
5	5.563	0.375	6.1120	7.188
6	6.625	0.432	8.4050	9.884
8	8.625	0.500	12.763	15.009

Ordering Instructions:

Step 1: Choose Nominal Size

Nominal Size	Size Code
1	100
1 1/4	125
1 1/2	150
2	200
2 1/2	250
3	300
3 1/2	350
4	400
5	500
6	600
8	800

Step 2: Choose Schedule

Schedule Number	Schedule Code
SCH 40	S40
SCH 80	S80

Step 5: Choose Packaging

Package Type	Package Code
Bare - Bat - Bundle (BBB)	B
EHV	E

See pictures on page 3

Step 3: Choose Alloy

Alloy Number	Alloy Code
6061	X
6063	Y
6101	Z

Step 4: Choose Temper

Temper	Temper Code
T6	T6
T61	T61
T63	T63

Step 6: Build Catalog Number

Size Code	+	Schedule Code	+	Alloy Code	+	Temper	+	Package Code
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Example: To order 2 1/2 inch Schedule 40 6101 T-61 Alloy Bus Pipe with BBB packaging

250	+	S40	+	Z	+	T61	+	B
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Completed Catalog Number is 250S40ZT61B.

Physical & Electrical Properties of Aluminum

Standard Pipe-Size Conductors at Typical Conductivities

Nominal Size in	A	B	Area sq in	Weight lbs/ft	Inductive reactance 1 ft spacing 60 Hz microhm/ ft	6063-T6				6061-T6			
	Outside Diameter of Tube in	Wall Thickness in				DC Resistance at 20°C microhms/ ft	60 Hz Rac/RDC at 70°C	AC Resistance at 70°C 60 Hz microhms/ft	Current Ratings Amp at 60 Hz (1) (2) (3) (4) Outdoor	DC Resistance at 20°C microhms/ft	60 Hz Rac/RDC at 70°C	AC Resistance at 70°C 60 Hz microhms/ft	Current Ratings Amp at 60 Hz (1) (2) (3) (4) Outdoor
Schedule 40 Pipe													
1	1.315	0.133	0.494	0.581	68.24	31.120	1.00039	36.580	681	38.360	1.00032	43.820	622
1 1/4	1.660	0.140	0.669	0.786	62.68	22.990	1.00050	27.030	859	28.340	1.00039	32.370	705
1 1/2	1.900	0.145	0.800	0.940	59.45	19.220	1.00064	22.600	984	23.690	1.00046	27.070	900
2	2.375	0.154	1.075	1.264	54.15	14.300	1.00082	16.820	1234	17.630	1.00055	20.140	1128
2 1/2	2.875	0.203	1.704	2.004	49.85	9.019	1.00220	10.620	1663	11.170	1.00150	12.710	1520
3	3.500	0.216	2.228	2.621	45.19	6.897	1.00300	8.126	2040	8.500	1.00180	9.725	1865
3 1/2	4.000	0.226	2.680	3.151	42.05	5.736	1.00380	6.761	2347	7.070	1.00220	8.091	2145
4	4.500	0.237	3.174	3.733	39.28	4.842	1.00470	5.712	2664	5.968	1.00270	6.834	2436
5	5.563	0.258	4.300	5.057	34.31	3.574	1.00680	4.224	3348	4.406	1.00400	5.051	3063
6	6.625	0.280	5.581	6.564	30.23	2.754	1.00950	3.263	4064	3.394	1.00540	3.897	3719
8	8.625	0.322	8.399	9.879	24.39	1.830	1.0162	2.167	5434	2.257	1.0086	2.590	5047
Schedule 80 Pipe													
1	1.315	0.179	0.639	0.751	68.81	24.060	1.00100	28.300	774	29.650	1.00075	33.840	707
1 1/4	1.660	0.191	0.882	1.037	63.14	17.440	1.00140	20.520	985	21.490	1.00105	24.570	901
1 1/2	1.900	0.200	1.068	1.256	59.89	14.390	1.00200	16.940	1137	17.730	1.00150	20.280	1039
2	2.375	0.218	1.477	1.737	54.56	10.400	1.00280	12.260	1446	12.820	1.00210	14.670	1322
2 1/2	2.875	0.276	2.254	2.650	50.23	6.820	1.00720	8.071	1907	8.406	1.00390	9.647	1746
3	3.500	0.300	3.016	3.547	45.55	5.096	1.01030	6.050	2363	6.281	1.00490	7.225	2199
3 1/2	4.000	0.318	3.678	4.326	42.39	4.178	1.01380	4.972	2735	5.150	1.00750	5.935	2507
4	4.500	0.337	4.407	5.183	39.61	3.487	1.01710	4.168	3118	4.298	1.00950	4.965	2862
5	5.563	0.375	6.112	7.188	34.63	2.515	1.02600	3.032	3949	3.099	1.01650	3.604	3631
6	6.625	0.432	8.405	9.884	30.58	1.829	1.04570	2.247	4891	2.254	1.02120	2.656	4532
8	8.625	0.500	12.763	15.009	24.12	1.204	1.095	1.467	6651	1.484	1.0388	1.739	6152

Notes:

1. Current ratings listed in the Tables are based on 30°C temperature rise over 40°C ambient horizontally mounted conductors, with spacing sufficient to eliminate proximity effects, generally assumed not to be significant if spacing is 18 in. or over. Conduction of heat by supporting structures and taps can appreciably affect the ratings.
2. Conductors with a 2ft/sec crosswind. Nominal oxidized surface ($e=0.50$)
3. Current Ratings for direct current are close to those of alternating current for all except the larger sizes; and for them, the increase for dc bus is about 1.5 percent.
4. NEMA Standard SG1-3.02 (7/13/60) lists current rating for tubes of 57%-61% IACS conductivity, but without stated emissivity factors. However, even after adjustment for the 53% IACS conductivity of 6063-T6 alloy (and 43% for 6061-T6 alloy), the ratings differ somewhat from those of this table.