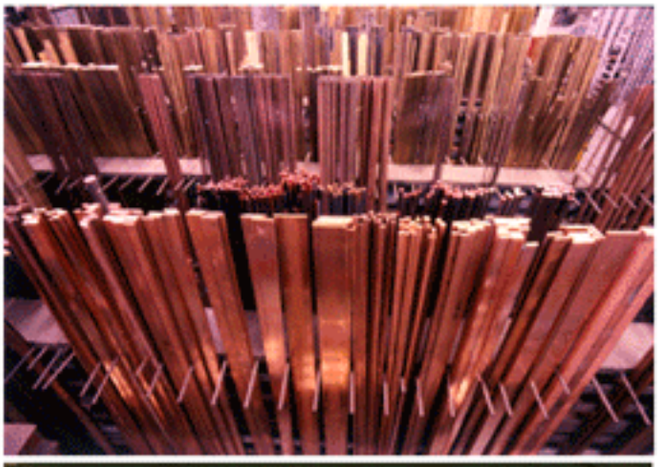
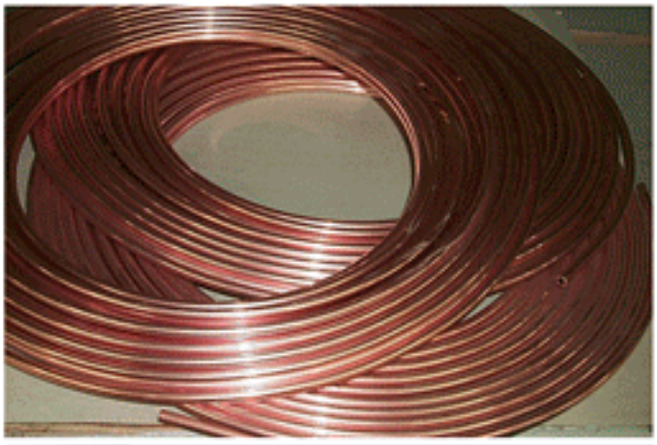
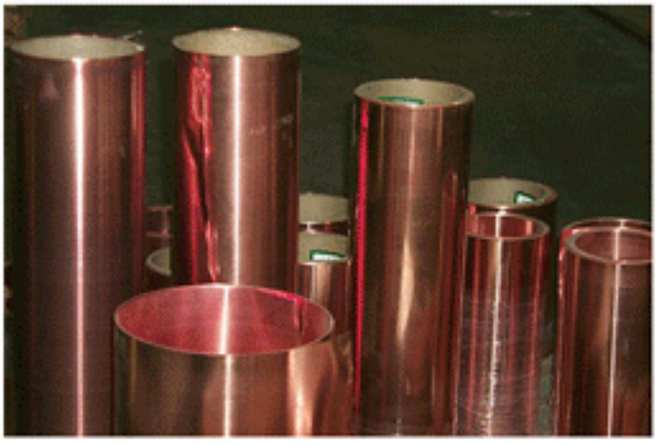
Copper Mill Products

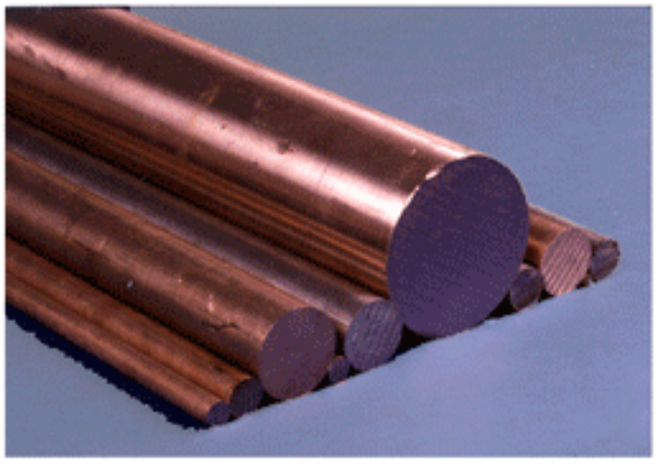
Copper Pipe, Rod, Bar, Sheet, Plate, Tubing and Wire

ALASKAN COPPER









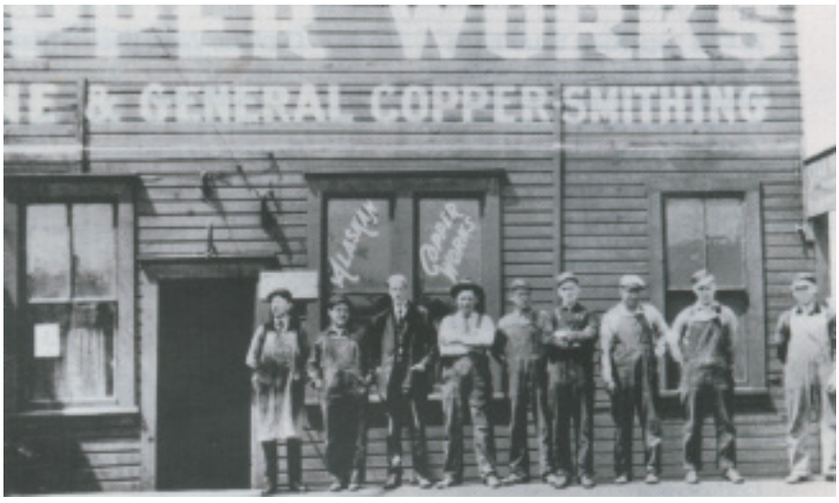
ALASKAN COPPER & BRASS COMPANY

History

When Alaskan Copper Works was founded as a marine coppersmithing company in 1913, one of its major activities was forming and brazing pipe and pipe fittings made from copper, brass and bronze, primarily for use in the Pacific Northwest shipbuilding industry.

Beginning in the 1920's, many of the area's growing process industries, such as pulp and paper, which had relied on wood stave and cast iron as corrosion resistant materials for their tanks and piping, welcomed the development of a new weldable alloy, silicon bronze. This alloy had special advantages in weight, cost and corrosion resistance. Alaskan Copper Works participated in the transition to this innovative metal and in the development of the welding techniques necessary for its proper fabrication.

In the 1930's, alloys with even better corrosion resistance, such as the austenitic stainless steels, became available and quickly came into general use not only in the pulp and paper industry but also in the other process industries then beginning to develop, such as petrochemical and food processing. Again, Alaskan Copper Works participated in the application of these new, advantageous materials and in the development of the welding and fabricating procedures required to maximize their usefulness.



Alaskan Copper Works yesterday

Over the intervening years, improvements in our manufacturing capacities have seen the standard lengths of most pipe sizes increase from 4 feet to 10 feet and then to 20 feet. Die-formed smooth-flow elbows began to be made in small sizes and gradually advanced to include larger sizes and many radii and wall thicknesses. Other advances over the years have led to tees being made with smooth-drawn outlets, the development of many available choices in the types of stub ends for different services and our manufacturing of pipe and fittings to advanced specifications and in "exotic" alloys, including our qualification to produce fittings for the nuclear power industry.

As a result, today's customers of the Stainless Products Division of Alaskan Copper Works benefit from the accumulated experience of one of the nation's largest organizations devoted exclusively to the manufacturing of pipe and pipe fittings in stainless steels, high-nickel alloys, duplex stainless alloys, copper-nickel alloys, aluminum, titanium, zirconium, copper and other weldable corrosion resistant alloys.

Alasan Copper Works today.

Your Source for Corrosion Resistant Alloys

Alaskan Copper & Brass Company combines the largest and most diverse inventory of alloys in the Pacific Northwest with the very latest in material processing equipment. Our goal is to continue to be a true "service center" for our customers. We provide accurate, rapid quotation services and the ability to deliver material on time, preprocessed if necessary to our customer's exact specifications.

Northwest Owned and Operated

Alaskan Copper & Brass Company has been owned and operated by the same family since 1913. In our Seattle, Portland and Canadian distribution facilities, the emphasis has always been on personal service and long term relationships with our customers. Contract terms, credit terms and special stocking programs can be negotiated locally, with people who understand the Northwest market and its customers.

State of the Art Processing Equipment

Preprocessing of customer material has become more important every year due to more exacting quality requirements in most industries. Alaskan has responded to that demand by investing heavily in new processing equipment. Minimize scrap and save inventory costs! Let Alaskan do your material processing.

Customer Service our Specialty

Our sales staff is backed up by one of the most extensive information systems in the metals industry. Each salesperson has instantaneous access to all of our over 13,000 stocking items through a touch-input computer screen. Questions regarding the status of your order can be answered immediately, without a return call. We value your time as much as you do. This catalog covers sizes, weights and specifications of material for the commercial, military, marine, waste-water, petro-chemical, pharmaceutical, beverage and power industries. Call one of our informed and experienced salespeople for the rapid quotation response you expect in these competitive times.

ALASKAN COPPER

ALASKAN COPPER & BRASS COMPANY

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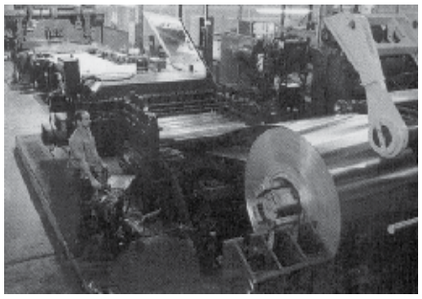
ALASKAN COPPER PROCESSING CAPABILITIES

Coil Processing

Aluminum, brass, copper, copper-nickel and stainless steel coil stock from .010" through $^{3}/_{8}$" thick and up to 96" wide are levelled and cut to length on Alaskan's custom-made line.



Alaskan's Cut-To-Length facility allows for efficient use of sheet and plate material.

Shearing

Precision shearing from light gauge to $^{3}/_{8}$" thick copper alloy material, $^{1}/_{2}$" thick stainless steel and up to $^{3}/_{4}$" thick aluminum. Sheet or plate can be sheared in 20 foot continuous lengths using an adjustable backgauge. Plate up to 1" thick can be sheared in lengths up to 48".

Sawing

Abrasive sawing of copper alloy material and stainless steel though 4" thick to close tolerance for rectangles and squares. Metal carbide sawing of aluminum plate through 6" thick. Plate up to 96" x 168" can be sawed in full lengths. Plate up to 12 foot long can be sawed with a +/- .005" inch tolerance.

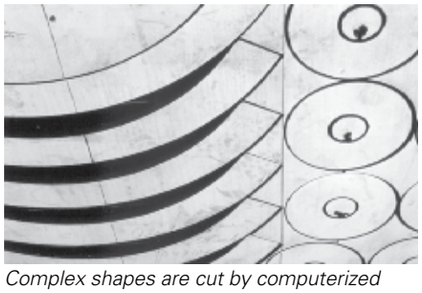
Order the size that is needed, not just "standard" sizes.

Splice Welding

Simultaneous welding from both sides by automatic gas tungsten-arc process to achieve any required sheet size from stock material. The weld procedures and welder qualifications conform to Section IX of the ASME Boiler and Pressure Vessel Code. The resulting weld has minimum distortion and minimum reinforcement to allow easy forming such as rolling. Material up to 20 feet in length may be welded together.

Plasma Burning

Computerized automatic plasma burning of any shape can be accomplished. All corrosion resistant alloys can be cut up to 3" thick. Up to 96" x 240" material can be accommodated. A water table is utilized to keep slag and the heat affected zone to a minimum.



Complex shapes are cut by computerized plasma cutting tables.

Do-All Sawing

Automatic multiple cutting up to 16" by 16" bar or 16" diameter round bar, rod or tubing.

Custom Fabrication

Custom fabrication of most industrial shapes can be performed by our affiliated company, ALASKAN COPPER WORKS. Work will be performed on a complete package basis including material or on a labor only basis utilizing the customer's material. The entire engineering and drafting department of ALASKAN COPPER WORKS is at your disposal, offering computerized design of heat transfer equipment, pressure vessels and tanks.

Aluminum wet pump pressure vessel used to transfer fish from a ship's hold to the dock.

Table Showing Fractions, Decimals, Centimeters & Millimeters

Fractional Inch	Decimal Inch	Centimeters	Millimeters	Millimeters	Centimeters	Decimal Inch	Fractional Inch
1/64	.0156	.0396	.3969	13.0969	1.310	.5156	33/64
1/32	.0312	.0792	.7938	13.4938	1.350	.5313	17/32
3/64	.0469	.1191	1.1906	13.8906	1.389	.5469	35/64
1/16	**.0625**	**.1588**	**1.5875**	**14.2875**	**1.429**	**.5625**	**9/16**
5/64	.0781	.1984	1.9844	14.6844	1.468	.5781	37/64
3/32	.0938	.2383	2.3813	15.0813	1.508	.5938	19/32
7/64	.1094	.2779	2.7781	15.4781	1.548	.6094	39/64
1/8	**.125**	**.3175**	**3.1750**	**15.8750**	**1.588**	**.625**	**5/8**
9/64	.1406	.3571	3.5719	16.2719	1.627	.6406	41/64
5/32	.1563	.3970	3.9688	16.6688	1.667	.6563	21/32
11/64	.1719	.4366	4.3656	17.0656	1.707	.6719	43/64
3/16	**.1875**	**.4763**	**4.7625**	**17.4625**	**1.746**	**.6875**	**11/16**
13/64	.2031	.5159	5.1594	17.8594	1.786	.7031	45/64
7/32	.2188	.5558	5.5563	18.2563	1.826	.7188	23/32
15/64	.2344	.5954	5.9531	18.6531	1.865	.7344	47/64
1/4	**.250**	**.6350**	**6.3500**	**19.0500**	**1.905**	**.750**	**3/4**
17/64	.2656	.6746	6.7469	19.4469	1.945	.7656	49/64
9/32	.2813	.7145	7.1438	19.8438	1.984	.7812	25/32
19/64	.2969	.7541	7.5406	20.2406	2.024	.7969	51/64
5/16	**.3125**	**.7938**	**7.9375**	**20.6375**	**2.064**	**.8125**	**13/16**
21/64	.3281	.8334	8.3344	21.0344	2.103	.8281	53/64
11/32	.3438	.8733	8.7313	21.4313	2.143	.8438	27/32
23/64	.3594	.9129	9.1281	21.8281	2.183	.8594	55/64
3/8	**.375**	**.9525**	**9.5250**	**22.2250**	**2.223**	**.875**	**7/8**
25/64	.3906	.9921	9.9219	22.6219	2.262	.8906	57/64
13/32	.4063	1.032	10.3188	23.0188	2.302	.9063	29/32
27/64	.4219	1.072	10.7156	23.4156	2.342	.9219	59/64
7/16	**.4375**	**1.111**	**11.1125**	**23.8125**	**2.381**	**.9375**	
29/64	.4531	1.151	11.5094	24.2094	2.421	.9531	61/64
15/32	.4688	1.191	11.9063	24.6063	2.461	.9688	31/32
31/64	.4844	1.230	12.3031	25.0031	2.500	.9844	63/64
1/2	**.500**	**1.270**	**12.7000**	**25.4000**	**2.540**	**1.000**	**1**

Copper Mill Products

Characteristics of Copper

Electrolytic Tough Pitch Copper (UNS C11000)

ELECTROLYTIC TOUGH PITCH COPPER has long been the standard type of commercial wrought copper used for the production of wire, rod, plate, sheet and strip. The presence of very small amounts of oxygen affects some of the mechanical properties to a measurable extent, but this grade of copper is entirely satisfactory for most of the usual processes. It is easy to deep draw, spin, or stamp. It is the logical choice for bus connections, switch and panel boards, circuit breakers, and power feed systems in general, because of high electrical conductivity, ease of soft or silver soldering and ability to receive a silver plate. Expansion joints, kettles, vats, pressure vessels, distillery and other process equipment are readily formed from the metal. Its resistance to corrosion assures a long life. For welding and high temperature applications see Deoxidized Copper and Oxygen Free Copper.

We Stock Rod, Wire, Bar, Sheet and Plate in ELECTROLYTIC TOUGH PITCH COPPER (ETP)
Composition: Copper (Min.) 99.90% Oxygen (Nom.) .04%

Oxygen-Free Copper

1. Phosphor Deoxidized, Residual Phosphorus (UNS C12200)

DEOXIDIZED COPPER is produced by introducing phosphorus or another element as a deoxidizing agent to assure the removal of all oxygen. This type differs from ETP Copper in that it has lower electrical and thermal conductivity, but it forms and bends more readily in difficult applications. It is particularly suitable for applications requiring hot working, annealing, soldering, brazing or welding, operations in which the residual phosphorus prevents the absorption of oxygen by the copper. If copper sheets or plates are to be welded, this type of copper is preferred because of its resistance to embrittlement by reducing gases, such as hydrogen, at high temperatures. Deoxidized Copper is widely used for pipe and tube for plumbing, gas and oil lines, refrigeration, condensers, pulp and paper lines, brewery and distilling tubes, brew kettles, vats and industrial tanks.

Our stock of Copper Tubing is Normally PHOSPHOR-DEOXIDIZED COPPER, (DHP)

Composition: Copper (Min.) 99.90% Phosphorus .02%

2. High Conductivity, Carbon Deoxidized, OFHC® (UNS C10200)

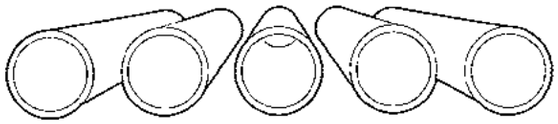
OXYGEN-FREE HIGH CONDUCTIVITY COPPER is produced by melting and pouring Copper in the presence of carbon or carbonaceous gases, so that no oxygen can be absorbed. No deoxidizing agent is required. It combines most of the advantages of ETP and Deoxidized Copper. It is excellent for deep drawing, has a high electrical and thermal conductivity, and resists the embrittling effect of reducing gases (hydrogen) on equipment operated at elevated temperatures, although it is **not** as suitable for welding as Deoxidized Copper. This type of copper is specially good for severe deep drawing, spinning, and close radius bending, and is used in electronic tubes or similar applications because it makes a perfect seal to glass. For electrical uses requiring conductivity higher that Deoxidized Copper affords, Oxygen-Free Copper is usually specified.

We Stock Sheet and Plate in OXYGEN-FREE HIGH CONDUCTIVITY, (OFHC)

Composition: Copper (Min.) 99.92%

Copper Pipe

Copper Bus Pipe, Regular, Sch 40



- UNS Designation Numbers: UNS C11000
- Nominal Chemicals: Copper 99.9%
- Average Physical Properties: Tensile 40,000 psi, Elongation 3%, Hardness F80, Temper H80 (Hard Drawn)
- Electrical Conductivity: 101% IACS
- Specifications: ASTM B 188, Temper H80 (Hard Drawn)
- Stocked in 20 foot lengths

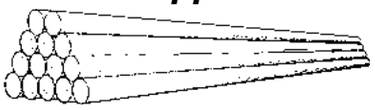
Nominal Pipe Size	OD	Wall	Lbs/Ft	Lbs/20 Ft Length	Part Number
1/2	.840	.108	.955	19.100	489979
3/4	1.050	.127	1.820	36.400	431544
1	1.315	.127	1.820	27.300	439916*
1	1.315	.127	1.820	36.400	269921
1 1/4	1.660	.146	2.690	53.800	433821
1 1/2	1.900	.150	3.200	64.000	269939
2	2.375	.157	4.220	84.400	475815
2 1/2	2.875	.188	6.120	122.400	137182
3	3.500	.219	8.760	175.200	486670
3 1/2	4.000	.250	11.420	228.400	439403
4	4.500	.250	12.940	155.280	509169*
4	4.500	.250	12.940	258.800	497388
6	6.625	.250	19.400	232.800	137239**
6	6.625	.250	19.400	232.800	452168*
8	8.625	.313	31.630	379.600	137247*

*12 Ft Length. ** Phosphor deoxidized.

Dimensions are in inches. All weights are approximate.
Sizes not shown may be available upon request.

Copper Rod & Bar

Round Copper Rod

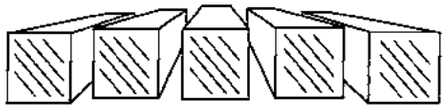


- UNS Designation Number: UNS C11000 ETP
- Nominal Chemicals: Copper 99.9%, Oxygen .04% (ETP), Copper 99.95% (OFHC)
- Average Physical Properties: Tensile 45,000 psi, Elongation 18%, Hardness F80
- Machinability = 20, Electrical Conductivity 101% IACS
- Specifications: ASTM B 187, Temper H04 (Hard)
- Stocked in 12 foot lengths

Diameter	Lbs/Ft	Lbs/length	Part Number
3/16	.107	1.290	137467
1/4	.190	2.280	137475
5/16	.296	3.550	137483
3/8	.426	5.110	137491
1/2	.757	9.080	137506
5/8	1.180	14.210	137514
3/4	1.710	20.460	137522
7/8	2.320	27.840	137530
1	3.030	36.360	137548
1 1/8	3.840	46.020	137556
1 1/4	4.740	56.820	137564
1 1/2	6.820	81.820	137580
1 3/4	9.280	111.400	137598
2	12.120	145.400	137603
2 1/4	15.360	184.300	120339
2 1/2	18.970	227.600	137611
3	27.310	327.700	274879
4	48.560	582.700	137637

Dimensions are in inches. All weights are approximate.
Sizes not shown may be available upon request.

Square Copper Rod



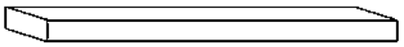
- UNS Designation Number: UNS C11000 ETP
- Nominal Chemicals: Copper 99.9%, Oxygen .04%
- Average Physical Properties: Tensile 45,000 psi, Elongation 18%, Hardness F80
- Machinability = 20, Electrical Conductivity 101% IACS
- Specifications: ASTM B 187, Temper H04 (Hard)
- Stocked in 12 foot lengths

Diameter	Lbs/Ft	Lbs/length	Part Number
1/4	.242	2.900	137661
3/8	.543	6.520	137679
1/2	.965	11.580	137695
5/8	1.440	17.280	449393
3/4	2.170	26.040	137700
1	3.860	46.300	137718
1 1/4	6.030	72.350	137726
1 1/2	8.680	104.200	137734
2	15.430	185.200	137742
3	34.780	417.400	137750

Dimensions are in inches. All weights are approximate.
Sizes not shown may be available upon request.

Copper Rod & Bar

Rectangular Copper Bus Bar, Square Edge



- UNS Designation Number: UNS C11000 ETP
- Nominal Chemicals: Copper 99.9%, Oxygen .04%
- Average Physical Properties: Tensile 45,000 psi, Elongation 18%, Hardness F80
- Machinability = 20 (F.C. Brass =100)
- Specifications: ASTM B 187, Temper H02 (Half-Hard)
- Stocked in 12 foot lengths

Size	Lbs/Ft	Lbs/length	Part Number
1/8 x 3/8	.181	2.170	137792
1/8 x 1/2	.241	2.410	137807
1/8 x 5/8	.301	3.610	137815
1/8 x 3/4	.362	4.340	137823
1/8 x 1	.482	5.780	137831
1/8 x 1 1/4	.604	7.250	137857
1/8 x 1 1/2	.724	8.690	137865
1/8 x 2	.965	11.580	137873
1/8 x 3	1.452	17.424	588896
3/16 x 1/2	.362	4.340	137881
3/16 x 5/8	.452	5.420	137899
3/16 x 3/4	.544	6.530	137904
3/16 x 1	.724	8.690	137912
3/16 x 1 1/4	.904	10.850	137920
3/16 x 1 1/2	1.090	13.020	137938
3/16 x 2	1.458	17.496	466256
1/4 x 3/8	.362	4.340	137946
1/4 x 1/2	.482	5.780	137954
1/4 x 5/8	.604	7.250	137962
1/4 x 3/4	.724	8.690	137970
1/4 x 1	.965	11.580	137988
1/4 x 1 1/4	1.210	14.470	138007
1/4 x 1 1/2	1.450	17.360	138015
1/4 x 1 3/4	1.690	20.260	138031
1/4 x 2	1.930	23.160	138057
1/4 x 2	1.930	38.600	228975*
1/4 x 2 1/2	2.410	28.940	138073
1/4 x 3	2.890	34.730	138081
1/4 x 3	2.894	57.880	512617*
1/4 x 4	3.860	46.300	138104
1/4 x 4	3.860	77.160	228991*
1/4 x 5	4.820	57.880	138146
1/4 x 6	5.790	69.440	138154
1/4 x 6	5.789	115.778	417388*
3/8 x 1/2	.727	8.720	138170

Size	Lbs/Ft	Lbs/Length	Part Number
3/8 x 3/4	1.090	13.030	138188
3/8 x 1	1.450	17.360	138196
3/8 x 1 1/4	1.810	21.710	138201
3/8 x 1 1/2	2.170	26.040	138219
3/8 x 2	2.890	34.730	138227
3/8 x 2 1/2	3.620	43.400	138235
3/8 x 3	4.340	52.090	138243
3/8 x 4	5.790	69.460	138251
3/8 x 5	7.270	87.200	432922
3/8 x 6	8.680	104.200	138269
1/2 x 3/4	1.450	17.360	138277
1/2 x 1	1.930	23.150	138285
1/2 x 1 1/4	2.460	29.540	415344
1/2 x 1 1/2	2.890	34.730	138293
1/2 x 2	3.860	46.300	138308
1/2 x 2 1/2	4.820	57.880	138316
1/2 x 3	5.790	69.460	138324
1/2 x 4	7.720	92.600	138358
1/2 x 5	9.650	115.800	138366
1/2 x 6	11.580	139.000	138374
1/2 x 8	15.430	185.200	138382
3/4 x 1 1/2	4.330	51.960	138390
3/4 x 2	5.750	69.000	138405
3/4 x 2 1/2	7.267	87.204	102276
3/4 x 3	8.670	104.000	138413
3/4 x 4	11.580	139.000	138421
3/4 x 6	17.390	208.700	138439
1 x 2	7.720	92.640	138447
1 x 3	11.580	139.000	138463
1 x 4	15.500	186.000	473083
1 x 5	19.330	232.000	138471
1 x 6	23.160	277.900	138489
2 x 4	30.800	369.600	138502
2 x 6	46.400	556.800	138510

* 20 foot lengths
Dimensions are in inches. All weights are approximate.
Sizes not shown may be available upon request.

Copper Sheet & Plate

Sheet Copper - Standard Roofing Sizes

- Nominal Chemicals: Copper 99.5%, Oxygen .04%
- Average Physical Properties:

Temper:	Soft	1/8 Hard
Tensile:	34,000 psi	36,000 psi
Hardness:	F50	F70

- Electrical Conductivity: 101% IACS
- Specifications: ASTM B 370, Temper Cold Rolled H00 (1/8 H) and 060 (Soft)

Weight per Sq Ft							
Ozs.	Lbs/Sq Ft	Thickness	Gauge	Size	Lbs/Sheet	Temper	Part Number
10	.625	.0135	28	36 x 120	18.750	1/8 H	454217
12	.750	.0162	27	36 x 120	22.500	1/8 H	510233
16	1.000	.0216	24	24 x 96	16.000	1/8 H	101416
16	1.000	.0216	24	24 x 120	20.000	1/8 H	142674
16	1.000	.0216	24	30 x 96	20.000	1/8 H	142705
16	1.000	.0216	24	30 x 120	25.000	1/8 H	142690
16	1.000	.0216	24	36 x 96	24.000	Soft	233912
16	1.000	.0216	24	36 x 96	24.000	1/8 H	142721
16	1.000	.0216	24	36 x 120	30.000	1/8 H	142713
16	1.000	.0216	24	48 X 96	32.000	1/8 H	142381
16	1.000	.0216	24	48 X 120	40.000	1/8 H	506399
20	1.250	.0270	22	24 x 96	20.000	1/8 H	142739
20	1.250	.0270	22	36 x 96	30.000	1/8 H	142763
20	1.250	.0270	22	36 x 120	37.500	1/8 H	142755
20	1.250	.0270	22	48 x 120	50.000	1/8 H	492794
24	1.500	.0320	21	36 x 96	36.000	1/8 H	142789
24	1.500	.0320	21	36 x 120	45.000	1/8 H	142771
24	1.500	.0320	21	48 x 96	48.000	1/8 H	142399
24	1.500	.0320	21	48 x 120	60.000	1/8 H	421395
32	2.000	.0430	19	36 x 96	48.000	1/8 H	142810
32	2.000	.0430	19	36 x 120	60.000	1/8 H	431609
32	2.000	.0430	19	48 x 96	64.000	1/8 H	634744
32	2.000	.0430	19	48 x 120	80.000	1/8 H	142404
48	3.000	.0647	16	36 x 96	72.000	1/8 H	142412
48	3.000	.0647	16	36 x 120	90.000	1/8 H	142420
48	3.000	.0647	16	48 x 96	96.000	1/8 H	547581
48	3.000	.0647	16	48 x 120	120.000	1/8 H	142438

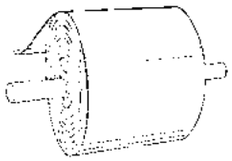
Dimensions are in inches. All weights are approximate.
Sizes not shown may be available upon request.

Patterned Sheet Copper

Weight per Sq Ft							
Ozs.	Lbs/Sq Ft	Thickness	Gauge	Size	Lbs/Sheet	Pattern	Part Number
16	1.000	.0216	24	36 x 96	24.000	Barked	585602
16	1.000	.0216	24	36 x 96	24.000	Hammered	585597

Copper Sheet & Plate

Roll Copper - Standard Roofing Sizes



- Temper 060 (Soft)

Weight per Sq Ft							
Ozs.	Lbs/Sq Ft	Thickness	Gauge	Size	Lbs/Lin Ft	Temper	Part Number
16	1.000	.0216	24	6 x COIL	.500	Soft	142828
16	1.000	.0216	24	8 x COIL	.670	Soft	142836
16	1.000	.0216	24	10 x COIL	.830	Soft	142844
16	1.000	.0216	24	12 x COIL	1.000	Soft	241842
16	1.000	.0216	24	14 x COIL	1.170	Soft	142860
16	1.000	.0216	24	16 x COIL	1.330	Soft	142878
16	1.000	.0216	24	20 x COIL	1.670	Soft	142886

Roll Copper - Non-Standard Roofing Sizes

- UNS Designation Number: UNS C11000 ETP
- Nominal Chemicals: Copper 99.9%, Oxygen .04%
- Average Physical Properties:
  Temper: Soft
  Tensile: 34,000 psi
  Hardness: F50
- Electrical Conductivity: 101% IACS
- Specifications: ASTM B 370, Temper ($^{1}/_{8}$ Hard)

Electro-Deposited, Soft Temper, ANSI/IPC-MF-150F

Weight per Sq Ft	Lbs/ sq Ft	Thickness	Size	Part Number
$^{1}/_{2}$ oz.	.032	.00070	25 x COIL	544266
1 oz.	.063	.00135	25 x COIL	294316
3 oz	.188	.00405	25 x COIL	294332
5 oz.	.068	.00675	25 x COIL	294340

Copper in Coils, Rolled, Soft Temper, ASTM B 370

Weight per Sq Ft	Lbs/ sq Ft	Thickness	Size	Part Number
	.231	.005	12 x COIL	142894
	.300	.006	12 RDM x COIL	558370
	.300	.005	24 x COIL	560961
8 oz.	.500	.0108	12 x COIL	508294

Dimensions are in inches. All weights are approximate.
Sizes not shown may be available upon request.

Copper Sheet & Plate

OFHC® 101 Copper Plate

- UNS Designation Number: UNS C10100 ETP
- Nominal Chemicals: Copper 99.95%
- Average Physical Properties:

Temper:	Hot Rolled	1/8 Hard	1/2 Hard
Tensile:	34,000 psi	36,000 psi	42,000 psi
Hardness:	F50	F60	F80

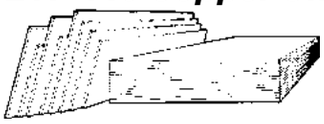
- Machinability = 20 (F.C. Brass = 100), Electrical Conductivity 101% IACS
- Specifications: ASTM B 152, Temper Cold Rolled, Hot Rolled

Thickness	Lbs/Sq Ft	Size of Sheet	Lbs/Sheet	Temper	Part Number
1/8	5.800	36 x 96	139.200	Cold Rolled	142226
3/16	8.690	36 x 120	260.900	Cold Rolled	471934
1/4	11.600	36 1/2 x 144 1/2	348.000	Cold Rolled	634087
3/8	17.400	36 x 96	417.600	Cold Rolled	142153
3/8	17.400	37 1/2 x 144	417.600	Cold Rolled	695253
1/2	23.200	36 1/2 x 144 1/2	556.800	Cold Rolled	634095
3/4	34.800	36 1/2 x 144 1/2	1044.000	Cold Rolled	658609
1	46.400	36 1/2 x 144 1/2	1392.000	Cold Rolled	656233
1 1/4	58.140	36 x 96	1395.000	Hot Rolled	142187
1 1/4	58.140	36 x 120	1744.200	Hot Rolled	551865
1 1/2	69.600	36 x 120	2088.000	Hot Rolled	233603
2	92.700	36 1/2 x 96 1/2	2267.450	Hot Rolled	142200

Dimensions are in inches. All weights are approximate.
Sizes not shown may be available upon request.

Copper Sheet & Plate

ETP 110 Copper Sheet & Plate



- UNS Designation Number: UNS C11000 ETP
- Nominal Chemicals: Copper 99.9%, Oxygen .04%
- Average Physical Properties:

Temper:	Soft Annealed	1/8 Hard	1/2 Hard
Tensile:	34,000 psi	36,000 psi	42,000 psi
Hardness:	F50	F70	F83

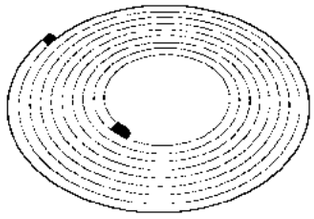
- Machinability = 20 (F.C. Brass = 100), Electrical Conductivity 101% IACS
- Specifications: ASTM B 152, Temper Soft, (1/8-1/2 Hard)

Ozs.	Thickness	Lbs/Sq Ft	Gauge	Size	Lbs/Sheet	Temper	Part Number
32	.0500	2.00	19	36 x 96	48.00	Soft Annealed	
48	.0647	3.00	16	36 x 96	72.00	Soft Annealed	142072
	.0930	4.17		36 x 96	100.20	1/4 - 1/2 H	433457
72	.0930	4.50		36 x 96	108.00	Soft Annealed	233881
96	.1250	6.00	10	36 x 96	144.00	1/8 - 1/2 H	233823
96	1/8	6.00		36 x 96	144.00	Soft Annealed	142111
	3/16	8.69		36 x 96	208.60	1/8 - 1/2 H	438376
	1/4	11.60		36 x 96	278.40	1/8 - 1/2 H	453601
	3/8	17.40		36 x 96	417.60	1/8 - 1/2 H	453596
	1/2	23.20		36 x 96	696.00	1/4 - 1/2 H	281305
	5/8	29.30		36 x 96	703.20	1/8 - 1/2 H	142527
	3/4	34.80		36 x 96	1044.00	1/8 - 1/2 H	554067
	1	46.40		36 x 96	1114.00	1/8 - 1/2 H	142666
	1 1/4	58.00		36 x 96	1794.20	1/8 - 1/2 H	101458
	1 1/2	69.60		36 x 120	2088.00	1/8 - 1/2 H	558312
	2	92.70		36 x 96	2224.80	1/8 - 1/2 H	142543

Dimensions are in inches. All weights are approximate.
Sizes not shown may be available upon request.

Copper Tubing

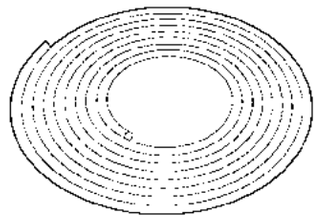
Soft Copper Refrigeration Tubing in Coils, Ends Sealed



- UNS Designation Number: UNS C12200
- Nominal Chemicals: Copper 99.9%, Phosphorus .02%
- Average Physical Properties: Tensile 32,000 psi, Elongation 50%
- Specifications: ASTM B 280 Soft Temper
- Stocked in 50 foot coils
- Copper refrigeration tubing is used as condenser coils in air conditioning and refrigeration equipment. The tube comes dehydrated, cleaned, ends sealed and uniformly soft in 50 foot coils packed in a carton.

OD	Wall	Lbs/Ft	Lbs/50 Ft Coil	Part Number
1/8	.030	.035	1.750	139728
3/16	.030	.058	2.900	139744
1/4	.030	.080	4.000	139752
5/16	.032	.109	5.450	139760
3/8	.032	.134	6.700	139778
3/8	.035	.145	7.250	446604
1/2	.032	.182	9.100	139786
5/8	.035	.251	12.550	139794
3/4	.035	.305	15.250	139809

Soft Copper Tubing in Coils, Non-Refrigeration Sizes, Open Ends



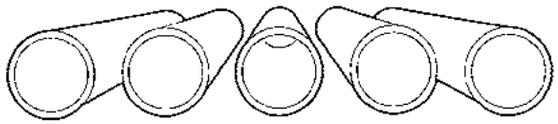
- UNS Designation Number: UNS C12200
- Nominal Chemicals: Copper 99.5%, Phosphorus .02%
- Average Physical Properties: Tensile 32,000 psi, Hardness F40
- Specifications: ASTM B 75 except yield, Soft Temper or ASTM B68
- Stocked in 25 to 100 foot coils

Size	Wall	Gauge	Lbs/Ft	Coil Size/Ft	Lbs/Coil	Part Number
5/32	.032	21	.051	50	2.550	139841*
1/2	.065	16	.344	50	17.200	139980

*ASTM B 75 except yield
Dimensions are in inches. All weights are approximate.
Sizes not shown may be available upon request.

Copper Tubing

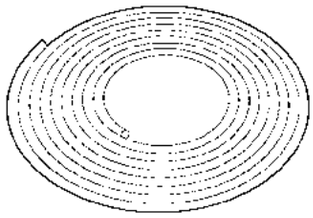
Hard Drawn Copper Tubing, Straight Lengths



- UNS Designation Number: UNS C12200
- Nominal Chemicals: Copper 99.9%, Phosphorus .02%
- Average Physical Properties: Tensile 44,000 psi, Hardness F75
- Specifications: ASTM B 75, Drawn Temper
- Stocked in 20 foot lengths

OD	Wall	Gauge	Lbs/Ft	Lbs/Length	Part Number
3/16	.032	21	.065	1.300	138984
1/4	.025	23	.069	1.380	136974
1/4	.032	21	.091	1.820	138992
1/4	.049	18	.128	2.560	137433
1/4	.065	16	.156	3.120	137441
5/16	.035	20	.118	2.360	139011
3/8	.032	21	.143	2.860	139029
3/8	.049	18	.209	4.180	139582
3/8	.065	16	.262	5.240	139590
7/16	.035	20	.170	3.400	139605
1/2	.032	21	.195	3.900	283200
1/2	.065	16	.368	7.360	139613
5/8	.065	16	.443	8.860	139621
3/4	.065	16	.542	10.840	139639
3/4	.083	14	.674	13.480	260294
1	.035	20	.411	8.220	139655
1	.049	18	.567	11.340	139663
1	.065	16	.740	14.800	139671
1 1/4	.065	16	.938	18.760	139697
1 1/2	.065	16	1.140	22.800	139710
2	.065	16	1.530	30.600	139736
2 1/2	.065	16	1.930	38.600	138879

Plastic Coated Copper Instrument Tubing

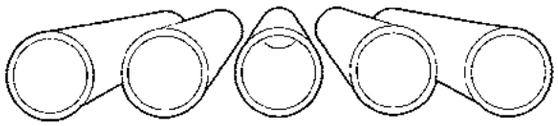


- UNS Designation Number: UNS C12200
- Specifications: ASTM B 68 & ASTM B 75
- Stocked in 100 foot and 500 foot random coils
- Single copper tubing with a corrosion resistant black PVC sheath .032" thick to protect against corrosive atmospheres, waters, oils, alkalis and most chemicals.

OD x Wall	Lbs/Ft	Coil Size/Ft	Lbs/Length	Part Number
1/4 x .030	.080	100	8.000	142797
1/4 x .030	.080	500	40.000	142802
3/8 x .032	.134	100	13.400	120753
1/2 x .035	.198	100	19.800	120779

Dimensions are in inches. All weights are approximate.
Sizes not shown may be available upon request.

Drawn Seamless Copper Tubing, Navy Specification Sizes MIL-T-24107B



- UNS Designation Number: UNS C12200
- Nominal Chemicals: Copper 99.9%, Phosphorus .02%
- Average Physical Properties: Tensile 45,000 psi, Yield 35,000 psi, Hardness F75
- Specifications: MIL-T-24107B, Drawn Temper
- Stocked in 20 foot lengths

Nominal Pipe Size	OD	Gauge	Wall Thickness	Lbs/Ft	Lbs/20 Ft	Part Number
	.188	21	.032	.059	1.100	138984
	.250	23	.025	.068	1.220	136974
	.250	21	.032	.092	1.800	138992
	.250	18	.049	.128	2.560	137433
	.250	16	.065	.156	3.120	137441
	.313	20	.035	.118	3.120	139011
	.375	21	.032	.134	2.600	139029
	.375	18	.049	.209	4.180	139582
	.375	16	.065	.262	5.240	139590
1/8	.438	20	.035	.170	5.240	139605
	.500	21	.032	.195	3.900	283200
	.500	16	.065	.368	7.360	139613
1/4	.540	16	.065	.391	7.800	228705
	.625	16	.065	.443	7.360	139621
3/8	.675	16	.065	.502	10.000	139168
	.750	16	.065	.542	6.504	139639
1/2	.840	16	.065	.637	12.700	139176
	1.000	18	.049	.567	8.220	139663
	1.000	16	.065	.740	11.340	139671
	1.000	20	.035	.411	13.480	139655
3/4	1.050	16	.065	.811	16.200	139184
3/4	1.250	16	.065	.938	14.800	139697
1	1.315	16	.065	1.020	20.500	139192
	1.500	16	.065	1.140	18.760	139710
1 1/4	1.660	16	.065	1.310	26.200	139207
1 1/2	1.900	16	.065	1.900	39.000	139215
	2.000	16	.065	1.530	22.800	139736
2	2.375	16	.065	1.900	38.000	139223
2	2.375	14	.083	2.440	48.800	139427
2 1/2	2.875	16	.065	2.310	46.200	139231
3	3.500	16	.065	2.940	58.800	139249
3 1/2	4.000	16	.065	3.360	67.200	139257
4	4.500	16	.065	3.790	75.800	139265
5	5.563		.068	5.330	106.000	139273
5	5.563		.132	9.600	192.000	139532

Dimensions are in inches. All weights are approximate.
Sizes not shown may be available upon request.

Rated Internal Working Pressures for Copper Tube Types K, L & M

Size	TYPE K		TYPE L		TYPE M	
Inches	Annealed	Drawn	Annealed	Drawn	Annealed	Drawn
	Service Temperature up tp 150° F (5,100 psi, annealed; 9,000 psi drawn)					
1/4	900	1595	810	1350	-	-
3/8	990	1745	675	1195	475	840
1/2	780	1375	625	1105	430	760
5/8	640	1135	545	965	-	-
3/4	750	1315	495	875	350	610
1	757	1010	440	770	295	515
1 1/4	465	820	385	680	295	515
1 1/2	435	765	355	630	290	510
2	380	665	315	555	300	450
2 1/2	355	520	295	520	235	410
3	340	605	275	490	220	385
3 1/2	325	570	270	470	215	385
4	315	555	255	450	215	380
5	305	540	235	410	205	355
6	305	540	215	385	190	335
8	325	580	240	420	200	350
10	330	585	240	425	205	355
12	330	585	225	395	205	360

Rated Internal Working Pressure (psi) for Copper Joint Tubes

Alloy Used For Joints	Service Temperature ° F	ENVIRONMENT					
		WATER AND NON-CORROSIVE LIQUIDS AND GASES					SATURATED STREAM
		TUBE SIZE, TYPES K, L AND M (IN INCHES)					
		1/4 to 1 Incl.	1 1/4 to 2 Incl.	2 1/2 to 4 Incl.	5 to 8 Incl.	10 to 12 Incl.	All
50-50 Tin-Lead Solder (a)	100 150 200 250	200 150 100 85	175 125 90 75	150 100 75 50	130 90 70 45	100 70 50 40	- - - 15
95-5 Tin-Antimony Solder (a)	100 150 200 250	500 400 300 200	400 350 250 175	300 275 200 150	270 250 280 135	150 150 140 110	- - - 15
Brazing Alloys (Melting at or above 1000° F)	100-150-200 250 350	(b) 300 270	(b) 210 190	(b) 170 150	(b) 150 150	(b) 150 150	- - 120

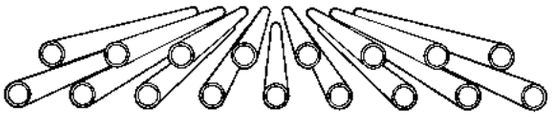
Note: Ratings up to 8 inches are those given in ANSI Standard B16.22 "Wrought Copper and Bronze Solder-Joint Pressure Fittings" and ANSI B16.18 "Cast Bronze Solder-Joint Pressure Fittings."

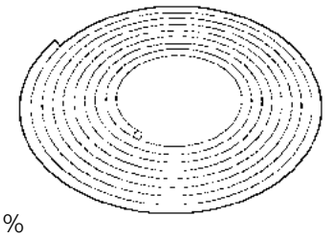
(a) Solder alloys are covered by ASTM Standard Specification B32.

(b) Rated internal pressure is that of tube being joined.

Copper Tubing

Copper Water Tubing, Type K, L & M





- UNS Designation Number: UNS C12200
- Nominal Chemicals: Copper 99.9% Min, Phosphorus .02%
- Average Physical Properties:

Temper:	Soft (Coils)	Hard Drawn (Straight Lengths)
Tensile:	32,000 psi	40,000 psi
Hardness:	F40	F70

- Specifications: ASTM B 88
- Standard Lengths & Temper: K (Soft)- 60 foot coils, K (Hard)- 20 foot straight lengths; L (Soft)- 60 foot coils, L (Hard)- 20 foot straight lengths; M (Hard)-20 foot straight lengths

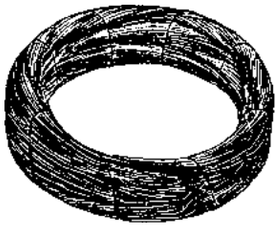
		TYPE K				TYPE L				TYPE M		
Nominal Pipe Size	Outside Diameter	Wall	Lbs/ Lin Ft	20 Ft Part Number	Coil Part Number	Wall	Lbs/ Lin Ft	20 Ft Part Number	Coil Part Number	Wall	Lbs/ Lin Ft	20 Ft Part Number
1/4	.375	.035	.145	138528	138536	.030	.126	138756	138764	.025	.106	120834
3/8	.500	.049	.269	138544	138552	.035	.198	138772	138780	.025	.145	120850
1/2	.625	.049	.344	138560	138578	.040	.285	138798	138803	.028	.204	120876
5/8	.750	.049	.418	138586	138594	.042	.362	138811	138829	.030	.263	120892
3/4	.875	.065	.641	138609	138617	.045	.455	138837	138845	.032	.328	120915
1	1.125	.065	.839	138625	138633	.050	.655	138853	138861	.035	.465	120923
1 1/4	1.375	.065	1.040	138641	138659	.055	.884	138887	241761	.042	.682	120957
1 1/2	1.625	.072	1.360	138667	138675	.060	1.140	138895		.049	.940	120973
2	2.125	.083	2.060	138683		.070	1.750	138900		.058	1.460	120999
2 1/2	2.625	.095	2.930	138691		.080	2.480	138918		.065	2.030	121018
3	3.125	.109	4.000	138706		.090	3.330	138926		.072	2.680	121026
3 1/2	3.625	.120	5.120	138714		.100	4.290	138934				
4	4.125	.134	6.510	138722								
5	5.125					.125	7.610	138950				

Dimensions are in inches. All weights are approximate.
Sizes not shown may be available upon request.

Type K tubing (heaviest wall) is most frequently employed for service lines. It can also be used for general plumbing and heating. Type L is the most popular type for general plumbing purposes and for low pressure steam heating and condensate return lines. Type M is used for interior plumbing purposes, above ground sanitary lines and non-pressure applications. Soft Temper tubes are very flexible and moderate-radius bends can be made by hand to avoid obstructions or allow changes in direction in construction work. Drawn temper straight lengths are stronger than coils.

Copper Wire

Hard and Soft Drawn Copper Wire on Spools



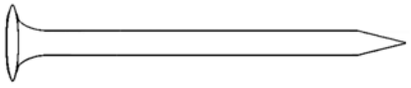
- UNS Designation Number: UNS C11000
- Nominal Chemicals: Copper 99.9%, Oxygen .04%
- Average Physical Properties: Hard Drawn: 49,000-67,000 psi, Soft Drawn: 36,000-40,000 psi
- Electrical Conductivity: 101% IACS (Soft), 99% IACS (Hard)
- Specifications: ASTM B 3

Gauge	Size	Ft/Lb	Lbs/Mft	1# Part Number	5# Part Number	10# Part Number	25# Part Number	50# Part Number	70# Part Number	75# Part Number	100# Part Number	200# Part Number
2	.258	4.980	201.000						150910			120494*
4	.204	6.280	126.000									150902
6	.162	12.580	79.500							120452*		150897
8	.129	20.000	50.000			513778	150889					
10	.102	31.800	31.400			498122	513786				150863	
12	.081	50.600	19.800	403290		101995						
14	.064	80.400	12.430	102072	102056	102030		150847				
16	.051	128.000	7.820	102111	102098	150839						
18	.040	203.000	4.920	102137		150821						
20	.032	323.000	3.090	102153	460242	150813	419380	506747				
22	.025	514.000	1.950	102179		150805						
24	.020	818.000	1.220	102195	498130	451552						
26	.016	1300.000	.770	102218		150782						
30	.010	3300.000	.303	272217								

Hard Temper Stocked in 200# Random Coils.
Soft Temper Stocked in 1#-50# Coils.
* Hard Drawn Temper, all others Soft Temper
Dimensions are in inches. All weights are approximate.
Sizes not shown may be available upon request.

Copper Nails

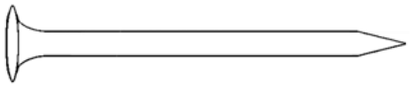
Standard Copper Slating Nails



- Head size is larger than common copper wire nails

Length	Size	Stubs Gauge	#/Lb	Part Number
1	2d	11	270	216562
1 1/4	3d	12	236	216601
1 1/2	4d	12	155	216635
1 3/4	5d	12	139	216669
2	6d	12	124	216685

Common Copper Wire Nails



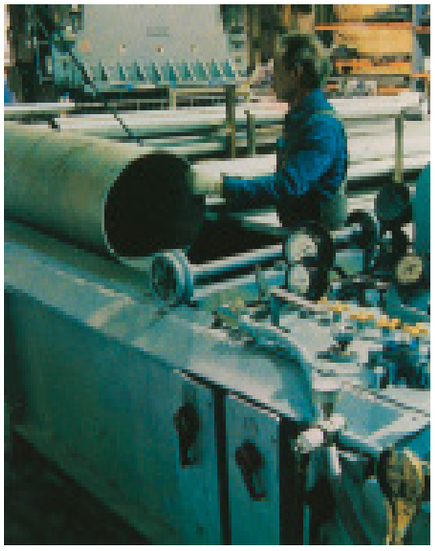
Length	Size	Stubs Gauge	#/Lb	Part Number
1	2d	15	689	216025
1 1/4	3d	14	424	216067
1 3/4	5d	12	179	216122
2	6d	11	130	216148
2 1/2	8d	10	83	216180
3	10d	9	58	216203

Dimensions are in inches. Sizes not shown may be available upon request.

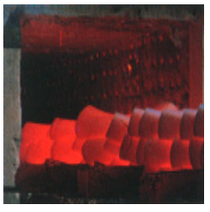
Alaskan Quality is achieved through a rigorous program designed to get the right instructions to the right people, so that a product is fabricated correctly the first time.

Since our beginning in 1913, the **Alaskan Quality Program** has been continually analyzed, revised and improved to meet the increasing challenges and complexity of specifications for piping, fittings, and custom fabrication. Our current **Quality Program** allows us to create an assignment of responsibility for engineering, drafting, layout, purchasing, scheduling, fabrication, examination, documentation and packaging. Thus our goal...conformance to specification...is consistently shared with you, the Purchaser.

Alaskan's facilities for radiography, liquid penetrant examination, ultrasonic gaging, hydrotesting and dimensional checking further confirm the quality that the program creates. Our program of proven procedures also enables the certification of parts and pressure vessels with the symbols of UM, U and U2 in accordance with Section VIII of the ASME Boiler and Pressure Vessel Code. Your purchase of **Alaskan** quality-crafted products will enable us to share with you our experience, knowledge and dependability.



Hydrotesting verifies pressure capabilities of pipe and tubing.



Heat-treatment stress relieves fittings after forming.

Specialized film reader and digital densitometer are used in interpreting radiographic film.

Geometric accuracy is checked on all Alaskan fittings.

Radiographic inspection checks the integrity of welds.

Did You Know?

ALASKAN COPPER

Alaskan Copper & Brass Company and Alaskan Copper Works are the nation's largest combination full service center and manufacturer of corrosion resistant alloy products.

The following publications from Alaskan Copper & Brass Company and Alaskan Copper Works are available upon request.

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Tubing, Fittings and Flanges

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• *Stainless Steel Piping Products*

Alaskan Copper Works
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Fax (206) 382-7346

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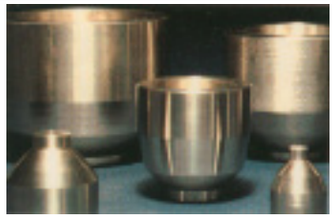

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