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Streamline®
Tube • Fittings • Valves

COPPER TUBE FOR HVACR APPLICATIONS

Product Description:

Streamline® Service Coils, ACR/Nitrogenized straight-length or line set copper tube for use in refrigeration applications. Available sizes ranging from 1/8" to 8-1/8" in outside diameter. All tube should be manufactured in the United States.

Material:

Streamline® Copper Tube is manufactured from UNS C12200 grade of copper.

Key Specifications:

Streamline® Copper Refrigeration Service Coils, ACR/Nitrogenized straight lengths and line sets are made to meet the chemical, mechanical, cleanness, and eddy current testing requirements of the applicable specification of ASTM B280. Streamline® copper tube is third party verified in select sizes[1] through Underwriters Laboratories (UL) for operating pressure of 700psi at 250°F.

Installation:

Installations shall comply with the latest applicable building codes for the local jurisdiction. For detailed installation instructions, consult the Copper Development Association at copper.org.

References:

[1]

Product Line	Product Type	Outer Diameter
Copper Tube c UL us 700 PSI R410A	Streamline® Refrigeration Service Coils Streamline® Line Sets & Mini-Splits Streamline® ACR - Type L (Hard Lengths) Streamline® ACR - Type K (Hard Lengths)	1/8" – 1-1/8" 1/8" – 1-1/8" 1/8" – 1-3/8" 1/8" – 2-5/8"

C12200	99.9% Pure Copper
ASTM B280	Seamless Copper Tube for Air Conditioning and Refrigeration

MADE IN USA

A BRAND OF MUELLER INDUSTRIES

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COPPER TUBE DATA

Mueller Streamline's cleaning, purging and pressurizing process assures the high level of tube cleanliness in conformance to ASTM B280, the refrigeration industry standard. The tube is sealed with plugs which maintain the standard of cleanliness from the factory to the job site.

STREAMLINE® COPPER TUBE PRESSURIZED WITH NITROGEN provides maximum protection against the formation of harmful oxides normally formed during brazing operations. Reduction of these oxides greatly reduces system contamination. Plugs are reusable. When less than a 20' length of tube is required for an installation the unused length of tube may be re-plugged to prevent atmospheric contamination during storage.

STREAMLINE® NITROGENIZED seamless copper tube is available in sizes 3/8" OD through 3-1/8" OD. Larger sizes from 3-5/8" OD through 8-1/8" OD are cleaned and capped. Manufactured and cleaned in accordance with ASTM B280. 20-ft. lengths hard drawn - cleaned and capped - color coded - Marked "ACR/MED"

TYPE K NITROGENIZED ACR / MED — **RATED WORKING PRESSURE (PSIG)**

O.D. DIA.	WT/FT	150°F	200°F	250°F	300°F	400°F
3/8	0.145	913	877	860	842	537
1/2	0.269	960	923	904	885	565
5/8	0.344	758	728	713	698	446
3/4	0.418	700 †	700 †	700 †	577	368
7/8	0.641	700 †	700 †	700 †	668	426
1 1/8	0.839	700 †	700 †	700 †	513	327
1 3/8	1.04	700 †	700 †	700 †	416	266
1 5/8	1.36	700 †	700 †	700 †	387	247
2 1/8	2.06	700 †	700 †	700 †	341	217
2 5/8	2.93	700 †	700 †	700 †	312	199
3 1/8	4	500^	500^	500^	302	193
3 5/8	5.12	450^	450^	450^	286	183
4 1/8	6.51	450^	450^	450^	282	180
5 1/8	9.67	293	281	276	270	172
6 1/8	13.9	295	283	277	271	173
8 1/8	25.9	314	301	295	289	184

TYPE L NITROGENIZED ACR / MED

3/8	0.126	777	747	731	716	457
1/2	0.198	700 †	700 †	700 †	612	391
5/8	0.285	700 †	700 †	700 †	567	362
3/4	0.362	700 †	700 †	700 †	496	316
7/8	0.455	700 †	700 †	700 †	457	292
1 1/8	0.655	700 †	700 †	700 †	388	248
1 3/8	0.884	700 †	700 †	700 †	344	220
1 5/8	1.14	650^	650^	650^	320	205
2 1/8	1.75	550^	550^	550^	285	182
2 5/8	2.48	500^	500^	500^	263	168
3 1/8	3.33	450^	450^	450^	249	159
3 5/8	4.29	450^	450^	450^	238	152
4 1/8	5.38	400^	400^	400^	230	147
5 1/8	7.61	229	229	215	211	135
6 1/8	10.2	213	213	201	196	125
8 1/8	19.3	230	230	216	212	135

Tables give computed allowable stress at indicated temperatures for copper tube that has been annealed either through brazing or an annealing furnace.

† UL Recognized to 700 PSI (select sizes)
^ Rated in accordance with UL 207 Performance Testing

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COPPER TUBE DATA

REFRIGERATION SERVICE TUBE

STREAMLINE® dehydrated and nitrogen purged and sealed copper tube is of a consistent annealed temper, bright and thoroughly dried and packaged in individual cartons. Each carton is clearly labeled showing size and length.

Tube is manufactured in accordance with ASTM B280 and ANSI B9.1, refrigeration industry standards. For special lengths and sizes not listed please consult your local Mueller Streamline representative.

COILS

SIZE	RATED INTERNAL WORKING PRESSURE (PSIG)				50 FEET		SHIP INFO	100 FOOT	
O.D.	150°F	200°F	350°F	400°F	COIL DIA	WT/COIL	COIL/MSTR	COL DIA	WT/COIL
1/8	2613	2459	2049	1537	10 3/4	1.74	10	17	3.48
3/16	1645	1548	1290	968	11 3/4	2.88	10	18 5/8	5.76
1/4	1195	1125	938	703	13 1/2	4.02	10	18 5/8	8.04
5/16	1017	957	798	598	15 1/2	5.45	10	19 7/8	10.90
3/8	836	787	656	492	17	6.70	10	21 7/8	13.40
1/2	700 †	700 †	485	363	19 7/8	9.10	5	25	18.20
5/8	700 †	700 †	412	309	21 1/4	12.55	5	25 1/4	25.10
3/4	700 †	700 †	341	256	23 1/4	15.25	3	29	30.50
7/8	700 †	700 †	388	291	27 1/4	22.75	3	32 1/4	45.50
1 1/8	700 †	700 †	330	247	34 1/2	32.75	-	38 1/2	65.50
1 3/8	625	625	293	219	45	44.20	-	45	88.40
1 5/8	625	625	272	204	45	57.00	-	49	114.00

† UL Recognized to 700 PSI (select sizes)

TECHNICAL DATA

All ratings listed for types K, L, M, DWV and refrigeration service tube in the preceding charts are calculated for tube in the annealed condition. These values should be used when soldering, brazing or welding is employed for joining components in a system. While the ratings for hard drawn tube are substantially higher, they should only be used for systems using properly designed flare or compression mechanical joints, since joining by any heating process might anneal (soften) the tube.

In designing a system, careful consideration should also be given to joint ratings as well as those of the components.

We believe HVACR connections should be made by brazing (using filler metals that melt above 800°F), which is primarily because solder alloys may not be suitable to high vibration and aggressive thermal-cycling environments.

Streamline® copper tube meets many HVACR codes including, but not limited to:
ASME B31.5
ASHRAE 15

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COPPER TUBE AND SOLDER/BRAZE TYPE FITTINGS

1. Cut tube square with the cutter and remove burrs

2. Clean outside end of copper tube thoroughly with sand cloth or sandpaper equal depth of fitting. Leave no dark spots.

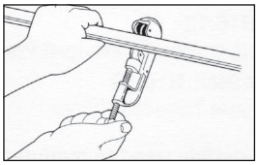
3. Clean inside of fitting carefully to tube stop with wire brush. Note: Sand cloth or sandpaper may also be used.

4. Using a brush, apply light uniform coat of flux to the outside of the tube and inside of the fitting.

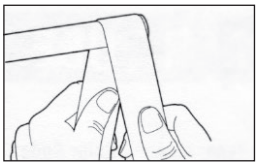
5. Slip tube into fitting to tube stop. Turn tube back and forth once or twice to distribute flux evenly.

6. Apply heat uniformly around the fitting with torch. When filler metal melts upon contact with heated fitting, the proper soldering temperature has been reached. Remove flame and feed filler metal slightly off center at the bottom of the joint. Proceed across the bottom of the fitting and up to the top center position. Return to the starting point, and then proceed up the incomplete side to the top, again, overlapping the filler metal. Wipe off surplus solder with a piece of cloth.

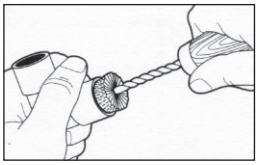
CAUTION: Do not overheat the joint or direct the flame into the face of the fitting cup. Overheating could burn the flux, which will destroy its effectiveness and the solder will not enter the joint properly.



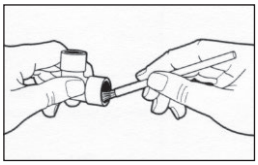
1. Cut tube to length & remove burrs.



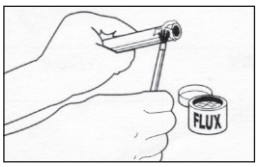
2. Clean outside of tube with sandpaper or sand cloth.



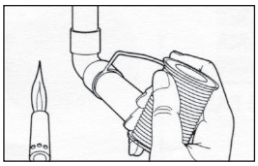
3. Clean inside of fitting with wire brush, sand cloth or sandpaper.



4. Apply flux thoroughly to inside of fitting.



5. Apply flux thoroughly to outside of tube - assemble tube and fitting.



6. Apply heat with torch. When filler metal melts upon contact with heated fitting, the proper temp for soldering has been reached. Remove flame & feed filler metal to the joint at one or two points until a ring of solder appears at the end of the fitting.

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