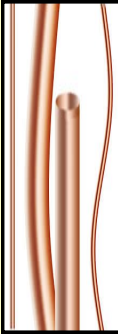


Copper Tubing and Pipe

This guide shows the difference in the types of copper tubing and pie available, and suggestions for what they are most commonly used. As in many circumstances, your application for the copper may differ from the manufacturer's suggested uses. It is important to check your application requirements and compare with the product specifications to ensure safe operation and installation.

Copper tubing or pipe comes in two forms- rigid and soft.
Each has their benefits based on the application they are being used for.



Rigid Copper Pipe

Rigid copper is a popular choice for water lines. It is joined using a sweat (soldered), roll grooved, compression or crimped/pressed connection. Rigid copper cannot be bent, using fittings like elbows and tee's make it possible to route pipe around obstacles and branch off into different directions.

Soft Copper Tubing

Soft (or ductile) copper tubing can be bent easily to travel around obstacles in the path of the tubing. It can be joined by any of the four methods used for rigid copper, and it is the only type of copper tubing suitable for flare connections. Soft copper is the most popular choice for refrigerant lines in split system air conditioners and heat pumps.



Type K has the thickest wall section of the three types of pressure rated tubing and pipe and is commonly used for deep underground burial such as under sidewalks and streets. In the United States it usually has green colored printing. Type K copper is available in soft annealed forms of rolled copper and rigid hard copper pipe.

Type L has a thinner wall section, and is used in residential and commercial water supply and pressure applications. In the United States it usually has blue colored printing. Type L copper is available in both soft and rigid.

Type M has an even thinner wall section than Types K and L, and is used in residential and commercial water supply and pressure applications. In the United States it usually has red colored printing. Type M copper is available in rigid pipe style only.

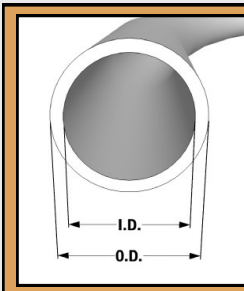
ACR The American refrigeration industry uses different copper pipe called ACR (air conditioning and refrigeration field services) pipe, which is manufactured without processing oils that would be incompatible with the oils used to lubricate the compressors in the AC system.

It is sized directly by its outside diameter (OD) and a type letter indicating wall thickness, either type A or D. 1 inch Type L copper tube and 1-1/8 inch type D ACR tube are exactly the same size with different nominal size designations.



Wrot (wrought) copper is made of 85% copper and no more than 15% Zinc and are rated for seamless copper water tubing. Wrot copper fittings and pipe are rated at four times the burst pressure of L copper for high pressure systems. Wrot copper is widely accepted for residential plumbing systems and is often referred to as DWV piping. Its always best to check local code to ensure you can use Wrot copper on your plumbing project.

Nominal Pipe Size (ins)	Type K Copper Diameter (ins)		Type L Copper Diameter (ins)		Type M Copper Diameter (ins)		Pipe Sizing Criteria		
	Outside	Inside	Outside	Inside	Outside	Inside	Velocity Ft/sec	Loss in PD'/100'	Flow GPM
0.25	0.375	0.305	0.375	0.315					
0.38	0.5	0.402	0.5	0.43	0.5	0.45	1.0	3	0.5
0.50	0.625	0.527	0.625	0.545	0.625	0.569	1.5	3	1
0.75	0.875	0.745	0.875	0.785	0.875	0.811	2.0	3	3
1.00	1.125	0.995	1.125	1.025	1.125	1.055	2.5	3	7
1.25	1.375	1.245	1.375	1.265	1.375	1.291	3.0	3	12
1.50	1.625	1.481	1.625	1.505	1.625	1.527	3.5	3	17
2.00	2.125	1.959	2.125	1.985	2.125	2.009	4.0	3	35
2.50	2.625	2.435	2.625	2.465	2.625	2.495	4.5	3	70
3.00	3.125	2.907	3.125	2.945	3.125	2.981	5.0	3	110
3.50	3.625	3.385	3.625	3.425	3.625	3.459	5.5	3	160
4.00	4.125	3.857	4.125	3.905	4.125	3.935	6.0	2.5	225
5.00	5.125	4.805	5.125	4.875	5.125	4.907	6.5	2.5	380
6.00	6.125	5.741	6.125	5.845	6.125	5.881	7.0	2.2	575
8.00	8.125	7.583	8.125	7.725	8.125	7.785	7.5	1.9	1105
10.00	10.125	9.449	10.125	9.625	10.125	9.701	8.0	1.5	1835
12.00	12.125	11.315	12.125	11.565	12.125	11.617	8.5	1	2800



Remember, the nominal listed size for pipe is most commonly the actual inside diameter, while the nominal listed size for tubing is the actual outside diameter.



If you are still having difficulty choosing a Copper Tube or Pipe please contact us at askzoro@zoro.com or 855-289-9676

Information sources include W.W. Grainger, Charlotte Pipe, Zurn Industries

Product Compliance and Suitability.

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