

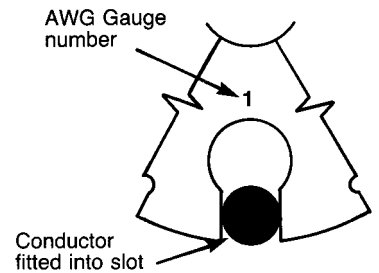
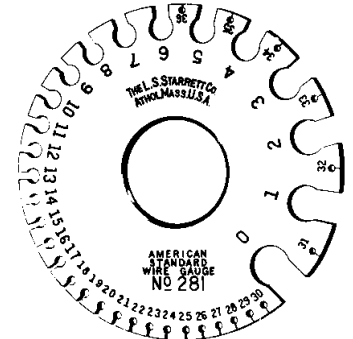


Electrical Wire Sizes and Proper Stripping Methods

Wire Sizes

The American Standard Wire Gauge or AWG is a standard wire sizing method used worldwide. The diagram to the right is a standard wire gauge. Different wire sizes are required in order to handle different amounts of current. For a large, current drawing circuit or one requiring very little resistance to current flow, larger wire size is used. A small wire having a standard gauge size of #36 AWG would be similar to a size of a hair, while a very large wire such as the thickness of a regular pencil would approximately equivalent to a wire gauge size of #1 AWG.

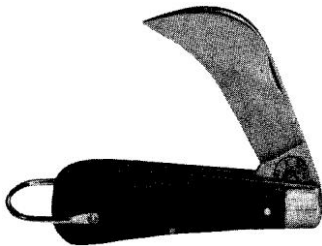
It is important to understand that larger wires have less resistance than smaller wires, and that longer vs. shorter wires have more resistance. (i.e. a #18 AWG conductor with a diameter of 0.040" will have 0.651 Ω per 100'). From these two points you can see that the correct wire size for different circuits is necessary, in order to keep wire from heating up, unnecessarily. Below is a sample of some common wire sizes used in industry.



AWG Number	18	16	14	12	10	8	6	4	2	0	00
Approximate Area	•	•	•	•	•	•	•	•	•	•	•

Purpose of Wire Stripping Properly

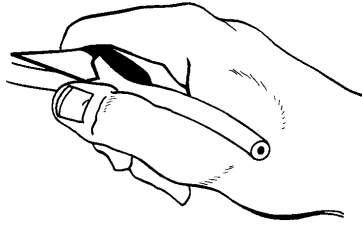
Wire is as good as its weakest point. This means that if you nick a #18 AWG while stripping, it will only be good enough to handle, at best, the next wire size down. In this case a # 16 AWG, because once you nick the wire you decrease the size of the wire at that one spot, and therefore the resistance will go up for that point in the circuit. Imagine you are watering your lawn and you step on the hose, what happens? The amount of water flowing through decreases because of the resistance you have created with you foot. The same is true for conductors with deep scratches or nicks. Knives will strip wire without any nicks, when proper method is used. Stripping wire using a knife is an industry standard when stripping any large conductors/cables. It is important that the knife is not too sharp, as it will catch on the copper.





Wire Stripping Steps Using a knife:

Generally, you will need at least 1 ½ - 4" or 4 - 10 cm of wire stripped off of end, depending on type of joint required.



1. Hold the knife close to your chest at a 30° angle to the wire.
2. Thumb should be on the opposite side of the wire across from the knife.
3. Slightly pull knife, while cutting to produce a slight saw movement.
4. Once through the insulation, your knife will glide over the conductor.
5. Cut away one strip of insulation, then rotate the wire, and continue until finished.
6. Aim insulation pieces down to floor to maximize safety of others around you.

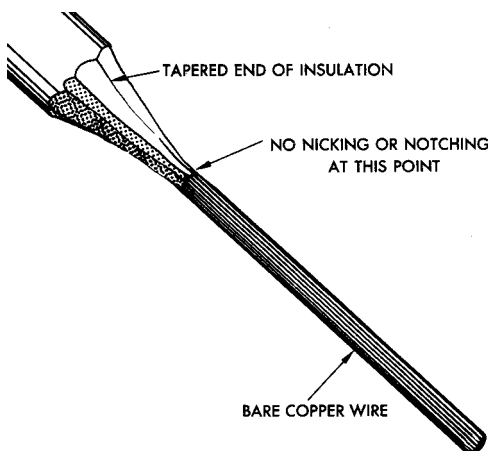
Wire Stripping Steps Using a Wire Stripper

Wire strippers are pretty simple, allowing you to quickly and effortlessly strip the insulation off of wire. They are more common than the knife, but are limited to specific size range. That common range is from #20 AWG to #10 AWG wire sizes. If you put the wire you are stripping, in the wrong stripping slot the wire will get nicked for sure.



1. Check to see what size wire you have.
2. Slide wire in to the right size wire slot and strip no more than 1" or 3 cm at a time.
3. Rotate wire stripper half a turn, then pull off, then leverage insulation off with hands.
4. Taking too much insulation off all at once will tend to jam, making it difficult to slide off and therefore damaging the conductor.
5. Aim the insulation piece down to the floor, for safety concerns of others.

Practical Project



You will need 6 pieces, any colour, of solid #14 AWG wire all cut 7" or 18 cm long. Three wires must be stripped using only the knife and the other three must be stripped using only the wire stripper. Strip off 1" or 2.5 cm from each of the ends. In the middle of two of your wires, strip off ½" or 1.2 cm. Ensure that all measurements are correct and that there is no nicks or deep scratches on any of the wires stripped off.