

8 TIPS FOR TAPS AND EVEN DIES

An integral part of metalworking is cutting threads for, and onto, bolts and machine screws. For this we use taps and dies. A tap is a screw-like tool that makes internal threads in a smooth hole, while a die makes external threads on a smooth shaft. There is a plethora of these tools available on the market. As with any work, success depends on the proper use of these tools and setting up the job correctly.



STARTER PLUG BOTTOMING



1	<p>TYPES OF TAPS: There are three types of taps: Starter, Plug and Bottoming. The most common, Plug tap, is good for both starting and finishing the threads in a through hole and a blind hole. The Starter tap has the longest taper point for easier, straighter starting. The Bottoming tap has a slight taper and the cutters start closer to the point. It works best for threading blind holes that are shallow. All three types of taps are handy to have for threading with precision and ease.</p>
2	<p>BUYING: Taps and dies should be bought one at a time as you need them. Avoid buying a massive set because you likely won't use most of the tools. Spend the extra few dollars on quality tools and proper tap and die holders.</p>
3	<p>WORK SLOWLY AND DELIBERATELY: The best way to tap by hand is the two steps forward one step back method. Turn forward one-third to one-half turn, or until you feel substantial resistance. Then turn it back about one-quarter or until you feel it ease off. When going very deep you will have to unscrew the tap to clean out the chips at frequent intervals.</p>
4	<p>CORRECT HOLE SIZE IS KEY: The most important part of tapping is to drill the correct size of hole for the tap you are using. This information will be available where you buy the tap. A hole that is too small will, more often than not, end with a broken tap. An oversized hole won't affect the tap, but will result in shallow threads that will strip easily. When buying taps buy the appropriate drill as well. Keep this drill with the tap and use it for this purpose only. Use of dull drills can cause improper hole sizes or even a hardening of the metal that can cause a poor tap.</p>
5	<p>ESSENTIAL LUBRICATION: Always use some sort of cutting lubrication. There are special cutting oils available but you can get away with motor oil, sometimes used, or even kerosene for aluminum when tapping by hand. When using a machine with taps and dies use proper cutting oils.</p>
6	<p>AVOID BREAKAGE: The most common way that a tap is broken is because it was bent, not twisted properly. Use a proper tap holder not an adjustable wrench that usually puts more pressure on one side of the tap. Make sure that the chips are cleaned out frequently because too many in the hole can cause the tap to bind and it may break if forced. As well, badly drilled holes cause uneven threads and may result in breakage of the tap.</p>
7	<p>WHEN A TAP BREAKS: A tap will eventually break for you. Taps are extremely hard but they are brittle. The smaller the tap the easier it is to break it. When one is in a hole it can be extremely difficult, if not impossible, to remove it completely. You usually can't drill it out because the tap is frequently harder than the drill bit. Sometimes you can weld a piece of metal to it to back the broken tap out. It is best to be very careful and not break any taps.</p>
8	<p>JUST FOR DIES: Before using a die, chamfer the bolt, about 45 degrees, so that the die will start cutting properly. Make sure the die is set squarely and evenly. Failure to set everything up evenly will result in uneven threads, chipping and an improper work piece.</p>