

Note: These products are intended for light duty use on mild steel and common non-ferrous metals. Extra care should be taken when threading the reactive metals. Lubrication is essential. Use light weight tools that help transmit the "feel" of the work. These operations call for a steady and light touch. Do not force the process.

## DEFINITIONS

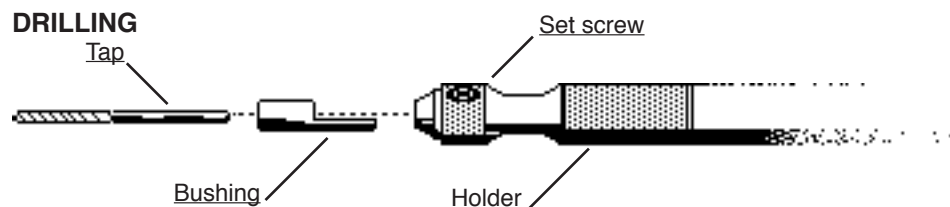
**Basic O.D. of threads.** The theoretical outside diameter of a given thread. Tap threads measure slightly over basic and screw threads slightly under.

**Clearance drill.** A drill bit that cuts a hole just big enough for a screw to pass through without engaging the threads.

**Tap drill.** A drill bit that cuts a hole the best size for tapping.

**Tapping.** Cutting threads inside a hole with a **tap**.

**Threading.** Cutting outside threads on a rod with a **die**.



Drilling is the initial operation on most tapping jobs. First decide what size tap you wish to use. Refer to the table on page 3 and select the proper size drill. Do not substitute drill sizes, a slight difference may lead to a broken tap. Apply cutting oil to the drill bit and part being drilled.

## TAPPING

Mount the part vertically in a vise. This permits tapping to be done in a horizontal direction. Insert the correct bushing, with the cut-away end first, in the holder. Slip the tap into the bushing and secure with the set screw.

Dip the tap in cutting oil and start turning it clockwise into the drilled hole. Hold the tap straight and level at all times. Reverse the tap a half turn at frequent intervals to break chips and prevent clogging. A gentle rocking motion works well.

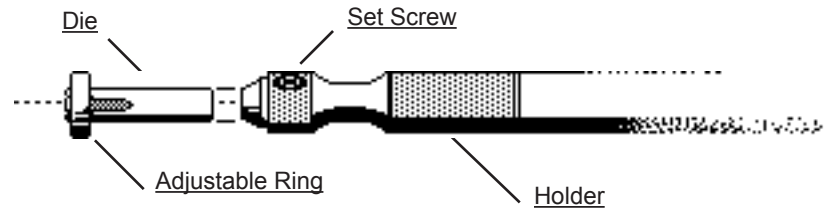
If the hole is deep, remove the tap after 4 or 5 turns. Wipe off the chips and apply more oil. Countersinking the hole with a slightly larger bit will make starting the tap easier. Avoid forcing the tap!

## THREADING

Measure the diameter of the rod to be threaded. Use the table on page 3 to select the die with the Basic O.D. that matches. Differences of one or two thousandths are acceptable. The rod can be cut down by filing or turning if it is too large.

Lock the part horizontally in a vise with the end projecting just enough for the threads. Chamfer the end slightly with a fine file or cup bur.

Load the die into the holder and lock it with the set screw. Do not over tighten the set screw. The result will be stripped threads.\* Check the position of the adjustable ring and set it all the way out at the end of the die. Apply lubrication to the die and the part. Start cutting the thread with the ring set so the jaws are their most open. After the thread is started the ring is slid down narrowing the jaws. Test your threads until they fit smoothly into a nut or into a threaded hole. Pressing the ring down too far can cause breakage. Reapply lubrication as you go.



TAP SIZE	BASIC OUTSIDE DIA.	CLEARANCE DRILL	TAP DRILL
00-90	.047" (17 to 18ga )	#55/1.25mm	#62/0.97mm
0-80	.060"(14 to 15ga )	#52/1.61mm	#55/1.30mm
1-72	.073"(13ga)	#48/1.93mm	#53/1.50mm
2-56	.085"(11 to12ga)	#43/2.26mm	#50/1.78mm

Table #1

\* If you have problems with the die slipping in the holder grind a small flat spot on the die to make a seat for the set screw.



## INSTRUCTIONS

### E-Z TAPS AND DIES

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