Threading Internal Holes

To cut an internal thread, select the tap with the proper thread size. Use the Tap & Drill Selection Chart to select the proper drill for the correct hole. This is important for the development of proper threads. An oversized hole results in reduced thread depth. An undersized hole may result in tap breakage. Drill the hole at a right angle to the surface.

Secure the tap in the tap handle and start the tap in the drilled hole at a right angle to the surface. Turn the tap clockwise and cut a number of threads. Check to be sure that the tap remains at a right angle to the surface. After a few turns, the metal chips will fall into the flute and may cause the tap to jam. At this point, or as the turning action becomes difficult, reverse the tap 1/4 –1/2 turn to free up the chips. Lubrication with a cutting oil aids; in the taping process, keeps the threading area cool, and helps keep the chips from jamming up the threading area. Continue the threading process of moving forward, moving backward, and cleaning out the metal chips until the hole is completed.

Tapping Through Holes using **Spiral Point Taps**:
(Designed for machine use or by hand)
These taps have straight flutes supplemented by angular cutting faces at the lead. They push the chips ahead of the tap leaving the flutes clear of chips allowing the threading oil to lubricate the area being cut. They have a plug chamfer.

Tapping Through Holes using **Hand Taps**:
(For use by hand or slow machine use)
Starting Tap: **Taper Tap** - This is the best tap to start the threading process. It has 8—10 chamfered threads at the start.
2nd. Tap: **Plug Tap**— This tap will continue the threading process and can be used to the end of the hole. It has 3—5 chamfered threads. If only one tap is to be used, the plug tap is preferred.
3rd. Tap: **Bottoming Tap**— This tap is used for finishing off the taping process or for blind holes. It has 1—2 chamfered threads.

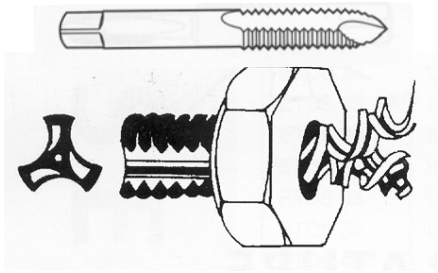
Tapping Blind Holes:
Use the Taper Tap or Plug Tap to start taping blind holes. Then switch to the Bottoming Tap to finish the hole. Take in drilling to provide clearance at the bottom for chips to fall

Creating External Threads

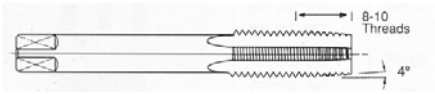
To thread rod or pipe, Select the die with the proper thread size. The diameter of the material to be threaded must be no lager than the desired thread or preferably undersized by .005 - .010". Oversized work will damage the die and make turning difficult. Slightly undersized work will allow for easier thread formation.

Secure the die into a die stock. The chamfered side of the die is used for starting the threading operation. Always bevel the face of the work to be threaded. This allows for the threading to start easier. Start the die in a clockwise rotation. Cut a number of threads. Be sure that the die remains at a right angle to the work. After a few threads, the metal chips may cause the die to jam. At this point, reverse the Die 1/4 –1/2 turn, remove the metal chips. Continue the threading process, moving forward, moving backward until the hole is completed. Lubrication with cutting oil is essential to proper thread formation. Use it liberally in the threading process.

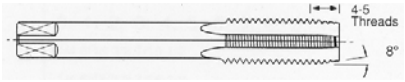
Spiral Point Taps (Gun Taps)



Taper Tap (Starter)



Plug Tap (second)



Bottoming Tap