CRAFTSMAN THREAD CUTTING TOOLS

Craftsman taps and dies are precision tools made to the specifications prescribed by the Tap and Die Division of the Metal Cutting Institute. They are manufactured to "cut thread" tolerances to give Class II threads on completed threaded parts. They are manufactured from the highest quality tool steels, properly heat treated and tempered to assure you of the highest quality thread cutting tools.

American Standard Taps and Dies are designated according to the Metal Cutting Institute Standard System of Marking as follows:

- — Nominal size such as a fraction or number representing the major diameter of the thread.
- — Number of threads per inch.
- — Symbol to identify the thread types.

The three thread types sold by Sears are:

N.C. — National Course and sometimes referred to as (U.S.S.) United States Standard.
N.F. — National Fine and sometimes referred to as (S.A.E.) Society of Automotive Engineering.
N.P.T. — National Pipe Taper

Example:

Size or Diameter		Threads per inch		Symbol
1/4"	—	20	—	NC
10	—	32	—	NF
1/8"	—	27	—	N P.T.

Metric Taps and Dies are designated as follows:
— A number representing the major diameter of the thread.
— The symbol MM indicating metric.
— A number which is the pitch (or distance from the crest of one thread to crest of the next thread) of the thread in millimeters.

Example:

Size or Diameter	Symbol	Pitch
4	MM	.70
8	MM	1.25
*1/8"	B.S.P	. 28

*Pipe taps in Craftsman sets are designated similar to National Pipe Threads: Diameter, threads per inch, and symbol B.S.P. (British Standard Pipe).

The most widely used tap is the general purpose plug tap provided with a 3 to 5 thread chamfer. As sold by Sears, these taps are designed with the correct cutting edges to produce accurate threads in most materials. They are available in the coarse (NC), fine (NF) and metric (M) series.

Taper pipe taps are designed and used for producing threads in pipe fittings, although there are numerous oth[illegible]pplications. The chief characteristic is the tapered thre[illegible]ich is necessary to secure tight joints in pipe fittings.

WHAT A TAP IS — WHAT A TAP DOES

A tap is a precision tool used in the cutting of an internal thread such as in a nut (Fig. 1). Just as a drill removes material to make a hole, a tap cuts material away to form a thread.

Fig. 1

Craftsman taps are called "plug" taps and perform about 95% of all tapping jobs.

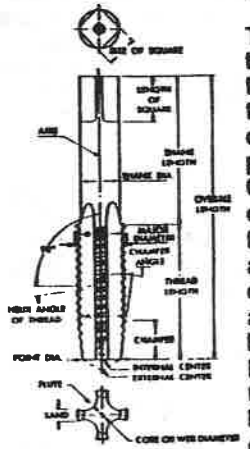

Fig. 2

There are three basic types of hand taps: i.e., "taper", "plug", and "bottom" taps. The difference in these is the length of the chamfer (see Fig. 2) on the starting end of the tap. "Taper" taps are chamfered for the first 6-8 threads. This makes starting easier but prevents threading close to the bottom of a hole. "Plug" taps are chamfered 3-5 threads from the end. This is the optimum for starting and being able to tap close to the bottom of a hole. "Bottoming" taps have a very short chamfer, 1 1/2 to 3 threads, and will tap as close to the bottom of a hole as practical; however, to do this requires starting the thread with a plug or taper tap first.

TOOLS REQUIRED TO MAKE A THREADED HOLE

A tap of the correct size and thread form, a tap wrench, proper drill size or hole size and lubricating or cutting oil. For general work the No. 4 wrench is used on tap sizes through 1/2" American Standard and 12 MM. The No. 6 wrench is used on tap sizes through 3/4" American Standard and 18 MM metric. For smaller size taps and in confined areas, the T-handle (Fig. 3) wrench is used.

The correct drill or hole size is of great importance in producing satisfactory threads. The Tap Drill Chart (page 4) provides a ready reference table of the correct drill sizes. Use of a smaller drill than specified does not provide a stronger or tighter thread. It only serves to overload the tap and cause undue breakage. Lubrication of the tap while cutting threads is important in producing smooth threads and maintaining long tap life. Refer to the lubr ication section of this booklet for recommendations.

Fig. 3