

## TAP NOMENCLATURE

### Bottoming Tap

A tap having a chamfer length of 1-2 threads.

### Chamfer

The tapering of the threads at the front end of each land of a chaser, tap or die by cutting away and relieving the crest of the first few teeth to distribute the cutting action over several teeth.

### Chamfer Angle

The angle formed between the chamfer and the axis of the tap or die by cutting away the relieving the crest of the first few teeth to distribute the cutting action over several teeth

### Crest

The surface of the thread which joins the flanks of the thread and it's farthest from the cylinder or cone from which the thread projects

### Flank

The part of a helical thread surface which connects the crest and the root and which is theoretically a straight line in an axial plane section.

### Flute

The longitudinal channel formed in a tap to create cutting edges on the thread profile and to provide chip spaces and cutting fluid passage.

### Hand of Threads

A thread when viewed axially, winds in a clockwise and receding direction for LEFT-HAND THREADS and counter clockwise and receding direction for RIGHT-HAND THREADS

### Hook, Chordal

A concave face having an angle of inclination specified between a chord passing through the root and crest of a thread form at the cutting face, and a radial line through the crest at the cutting edge.

### Hook, Tangential

A concave face having an angle of inclination specified between a line tangent to the hook surface at the cutting edge and a radial line to the same point.

### Hook Angle

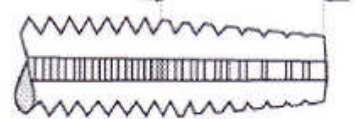
The angle of inclination of a concave face usually specifies either as CHORDAL HOOK or TANGENTIAL HOOK

### Interrupted Thread Tap

A tap having an odd number of lands with alternative teeth in the thread helix removed. In some cases alternative teeth are removed only for a portion of the thread length.

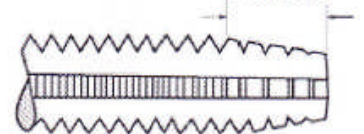
Tap Chamfers

Taper Chamfer  
7 - 10 Threads



*Taper (7 to 10 pitches): The taper chamfer has the longest standard chamfer ensuring easier starting. It requires less tapping torque because of more working teeth.*

Plug Chamfer  
3 - 5 Threads



*Plug (3 to 5 pitches): The most common chamfer for use by hand or machine in through hole or blind holes. This chamfer is more efficient than a bottoming or modified-bottoming chamfer.*

Bottoming Chamfer  
1 - 2 Threads



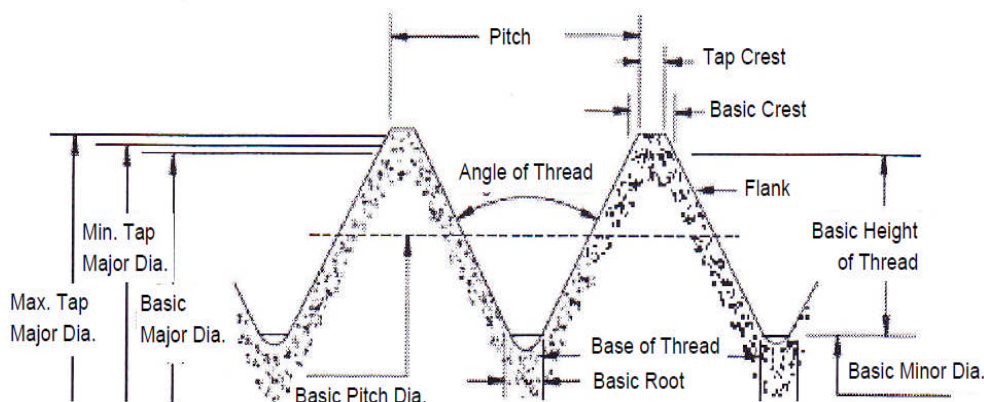
*Bottoming (1 to 2 Pitches): For threading close to the bottom of blind holes, the bottoming chamfer is the least efficient chamfer available.*

Modified Bottoming Chamfer  
2 - 2½ Threads



*Modified-Bottoming (2 to 2.1/2 Pitches): This short chamfer allows for threading close to the bottom of blind holes. Due to the slightly longer chamfer and more working teeth, this chamfer is more efficient than a bottoming chamfer.*

Illustration of Tap Terms



## TAP NOMENCLATURE

### Land

One of the threaded sections between the flutes of a tap

### Lead of Thread

The distance a screw thread advances axially in one complete turn. On a single start tap the lead and pitch are identical. In a multiple start tap the lead is the multiple of the pitch

### Major Diameter

The diameter of the major cylinder or cone, at a given position on the axis that bounds the roots of an external thread or the crests of an internal thread

### Minor Diameter

The diameter of the minor cylinder or cone, at a given position on the axis that bounds the roots of an external thread or the crests of an internal thread

### Pitch Diameter

The diameter of an imaginary cylinder or cone, at a given point on the axis, of such a diameter and location of its axis that its surface would pass through the thread in such a manner as to make the thread ridge and the thread groove equal and, therefore, is located equidistant between the sharp major and minor cylinders or cones of a given thread form. On a theoretically perfect thread, these widths are equal to one half of the basic pitch (measured parallel to the axis.) See illustration below.

### Plug Tap

A tap with 3 to 5 chamfered threads.

### Spiral Point

The angular fluting in the cutting face of the land at the chamfered end. It is formed at an angle with respect to the tap axis of opposite hand to that of rotation. Its length is usually greater than the chamfer length and its angle with respect to the tap axis is usually great enough to direct the chips ahead of the tap. The tap may or may not have longitudinal lines.

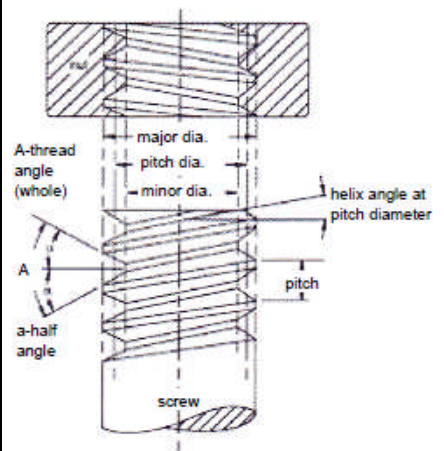
### Square

Four driving flats parallel to the axis on a tap shank forming a square or square with round corners.

### Taper Tap

A tap having a chamfer length of 7 to 10 threads

Screw Thread Tolerances



It is generally recognized that, in mass production, it is impossible to reproduce in exact detail the theoretically perfect product as laid out on the drawing board. The allowed slight variation between theoretically perfect products is called the TOLERANCE.

### Allowance

An intentional difference in correlated dimensions of mating parts. It is the minimum clearance or maximum interference between such parts.

### Angle of Thread

The angle included between a flank of the thread measured in an axial plane.

### Half Angle of Thread

The angle included between a flank of the thread and the normal 90 degree to the axis, measured in an axial plane.

### Lead of Thread

The distance a screw thread advances axially in one turn. On a single-thread screw the lead and pitch are identical. On a double thread the lead is 2X pitch, on a triple lead is 3X pitch, etc.

### Major Diameter

The largest diameter of a straight screw thread.

### Pitch

The distance from a point on a screw thread to a corresponding point on the next thread measured parallel to the axis.

The pitch in inches =  $\frac{1}{\text{No. of threads per inch}}$

