

TAPS FAQ

1) What is Thread Tap?

- Thread tap is used for producing internal threads.



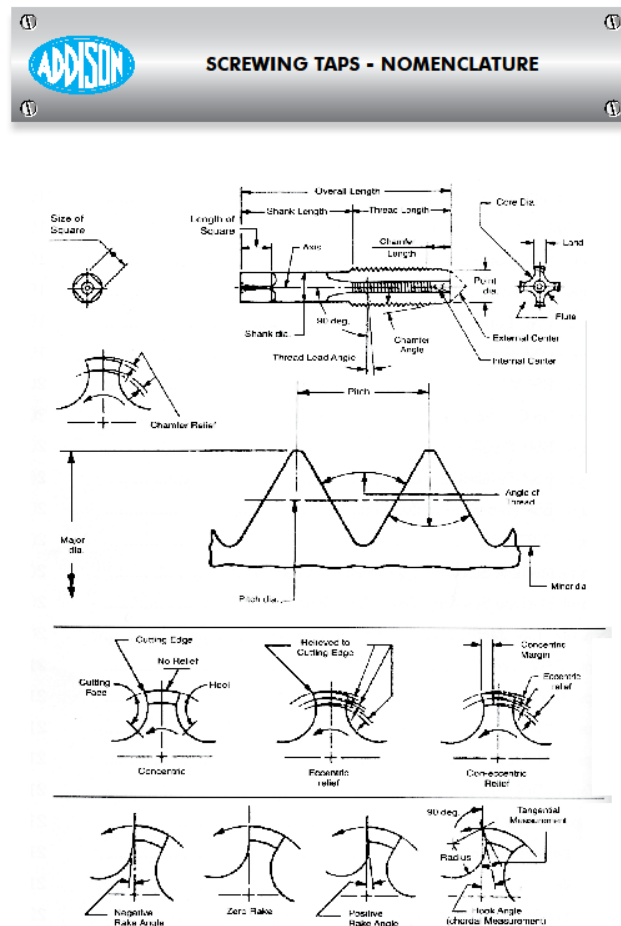
2) What are the methods of producing internal Threads?

- Thread tapping
- Thread turning
- Thread milling

3) What is the advantage of using Taps for internal threading?

- Faster processing
- Good process reliability
- Better Quality
- Low production costs per thread
- Suitable for Mass production

4) What is the nomenclature of Taps?



5) What are the elements of a Tap?

- Body
- Shank
- Tang
- Land
- Flutes
- Heel
- Cutting Face
- Chamfer
- Chamfer Angle
- Crest
- Flank
- Hand
- Chordal Hook
- Tangential Hook
- Hook Angle
- Lead
- Major Diameter
- Minor Diameter
- Pitch Diameter
- Spiral Point
- Square
- Angle of Thread
- Half Angle Thread

6) What is Body of a Tap?

- It is the main part of the tap on which threads are cut.

7) What is Shank of a Tap?

- The part above the body is called the shank.

8) What is Tang of a Tap?

- The part above the shank is called the tang. It is square in shape and tap is rotated by holding it in a tap handle.

9) What is Flutes of a Tap & its purpose?

- On the entire body of tap the grooves cut on the space between two lands, are called flutes.
- These are made in length from top to bottom
- The particles of metal cut while cutting threads are coming out of these flutes and these are also used for supplying lubricant inside.

10) What is Heel of a Tap?

- The tilted part behind the threads cut on the land is called the heel.

11) What is Cutting Face of a Tap?

- The face of the cutting tool against which the material is moved is called the cutting face.

12) What is Chamfer in a Tap?

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

13) What is Chamfer Angle?

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

14) What is Crest in a Tap?

- 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

15) What is 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.

16) What is 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

17) What is Chordal Hook?

- 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.

18) What is Tangential Hook?

- 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.

19) What is Hook Angle?

- The angle of inclination of a concave face usually specifies either as Chordal Hook or is Tangential Hook

20) What is Land?

- One of the threaded sections between the flutes of a tap

21) What is the 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

22) What is Major Diameter?

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

23) What is Minor Diameter?

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

24) What is 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.)

25) What is 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.

26) What is Square?

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

27) What is Angle of Thread?

- The angle included between flanks of the thread measured in an axial plane.

28) What is 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.

29) What Is 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.

30) What are different Types of Thread Taps?

- Hand tap
- Machine Tap
- Form Taps
- Nip Taps
- Machine Screw Tap
- Gas Tap
- Master Tap
- Extension Tap
- Bend Shank Tap
- Stay Bolt Tap
- Interrupted Thread Tap
- Plug Tap

31) What are different kinds of machine taps?

- Straight Flute Tap
- Spiral Point Tap
- Spiral Flute Tap

32) What are straight flute tap and its application?

- Flute are straight along the axis of the body
- Chips move away from bottom of the hole
- Suitable for Through holes tapping



33) What are Spiral Point Tap and its application?

- Flutes are straight along the axis of the body.
- It has a slanted angular gash in each flute on the front end of the taps flute at the cutting chamfer to manage the chips.
- Chips move away from bottom of the hole
- Suitable for tapping threads in through holes.



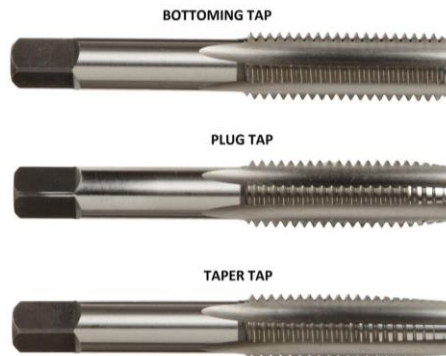
34) What are Spiral Flute Tap and its applications?

- Flutes are wrapping around the Tap's axis in a spiral or helical configuration.
- Chips are moves out of the hole toward the tap shank and opposite of the tapping direction.
- Suitable for tapping threads in blind holes.



35) What is Hand Tap?

- Hand Taps are used for cutting internal threads by manually with Tap wrench.
- Hand Taps consist of a set of three Taps



36) What is Taper Tap in Hand Tap Set and its purpose?

- In Taper Tap 8 to 10 threads are rubbed and chamfered on the lower side.
- The lower end of this tap is equal to the tap size (pilot) drill.
- Taper Tap is easily set in the drill holes and performs the job of starting a thread.



37) What is Plug Tap in Hand Tap Set and its purpose?

- It is also known as a second tap.
- Chamfered to 3 ~ 5 threads is made on the lower side.
- It is used to provide proper depth and shape to threads that have been made by the taper tap.
- If threads are to be cut through the drill holes then only these two taps are used.



38) What is bottoming Tap in Hand Tap Set and its purpose?

- It is also known as Finishing Tap.
- It is the third tap of the hand tap set.
- It is used after using the Taper and Plug Tap.
- Besides, it is also used for cleaning and finishing the threads which are cut through the entire drill.
- Chamfered at its end for on one or one and a half threads.



39) What is Gas Tap?

- It is used for cutting gas-type threads, for fitting at places where any liquid or gas passes through the pipes and no leak is allowed.
- In this type of tap 1 ½ threads towards the lower portion are chamfered and there is some taper in the body length.
- It is ¾ taper per foot to avoid gas/liquid does not leak.



40) What is Machine Tap?

- Machine taps are used for cutting internal threads with a tap drill machine.
- Machine Taps are used by holding them in a special holder.
- It is necessary to have reverse speed in the drill machine so that tap can be extracted from the job easily after completing the thread.



41) What is Machine Screw Tap?

- Taps with which threads are cut in the holes of less than ¼ diameters are called Machine Screw Taps.
- Two or four threads are chamfered on the lower side.



42) What is Form Tap?

- It is also known as Flute less Tap, Roll Taps, and cold forming taps.
- They form threads by displacing material without producing chips.
- Better thread gauging and avoids oversize threading
- This type of taps is used to cut threads like the thread rolling process in soft metals like aluminum, brass, copper, lead, stainless steel, carbon steel, cast steel, leaded steel and zinc as well as other mild steels and medium alloys.
- It does not cut any material.
- One distinguishing feature of this tap is that there are no flutes in this tap but threads are cut on its entire body.



43) What is 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.



44) What is an appropriate size of the hole for the tap?

- Before driving the tap for cutting internal threads of a job, a hole of appropriate size is to be done with drill bit.
- The size of the drill should be equal to the core diameter of the tap.
- If the size of the drill is greater the threads, it would not form proper threads.
- If the size of the drill is less. There would be difficulty in cutting threads and there would be a danger of the tap being broken.

45) What is recommended drill hole size for various Thread sizes?

- Recommended hole size for various Thread Tap Sizes are as follows.

Tap size	Pitch	Drill size (mm)
M1.6 x 0.35	0.35	1,25mm
M2 x 0.4	0.4	1,6mm
M2.5 x 0.45	0.45	2,05mm
M3 x 0.5	0.5	2,5mm
M3.5 x 0.6	0.6	2,9mm
M4 x 0.7	0.7	3,3mm
M5 x 0.8	0.8	4,2mm
M6 x 1	1	5mm
M8 x 1.25	1.25	6,8mm
M8 x 1	1	7mm
M10 x 1.5	1.5	8,5mm
M10 x 1.25	1.25	8,8mm
M12 x 1.75	1.75	10,2mm
M12 x 1.25	1.25	10,8mm
M14 x 2	2	12mm
M14 x 1.5	1.5	12,5mm
M16 x 2	2	14mm
M16 x 1.5	1.5	14,5mm
M18 x 2.5	2.5	15,5mm
M18 x 1.5	1.5	16,5mm
M20 x 2.5	2.5	17,5mm
M20 x 1.5	1.5	18,5mm
M22 x 2.5	2.5	19,5mm
M22 x 1.5	1.5	20,5mm
M24 x 3	3	21mm
M24 x 2	2	22mm
M27 x 3	3	24mm
M27 x 2	2	25mm

46) What is Tap Handle & its types?

- Tap Handle is also known as Tap wrench.
- Tap handle is used to hold and rotate the Hand Tap to cut threads in a work piece.
- Tap handles are of three types:
 - a) Solid Tap Handle
 - b) Adjustable Tap Handle
 - c) "T" Type Handle

47) What is Solid Tap Handle?

- Solid tap handle is made solid on both sides handles are fixed for convenience.
- In the middle rectangular part, two separate rectangular grooves are cut across the tap.
- Taps of two sizes can be hold and used in these.



Solid Tap Handle

48) What is Adjustable Tap Handle?

- An adjustable tap in the middle part, a set of two pieces there which are held by the adjusting screw, and taps of different sizes can be hold and used.



Adjustable Tap Handle

49) What is “T” Type Tap Handle?

- It is in fact a kind of chuck in which three jaws is fitted.
- Different types of small taps are held in this chuck.
- A hole is bored on the upper side of its shank and a rod is put across, with its help the tap tied to the rod can be easily rotated.



50) What are all different Tap Tolerance standards?

- Standard Tolerance is ISO Class 2; 6H; 2B; Zone 3.
- Other Tolerance like ISO Class 1, ISO Class 3, 4H, 5H, 7H, 4G, 6G, 1B, 3B, Zone 1, Zone2, Zone4
- Special tolerances will be maintained as per request of customer

51) What are all the different Thread Patterns?

Applications	Symbol	Basic Profile	Applications	Symbol	Basic Profile	Applications	Symbol	Basic Profile	Applications	Symbol	Basic Profile
Metric Thread	M		Parallel Thread for Pipe	Internal Thread G(PF) Rp(PS) External Thread G(PF)		Taper Thread for Pipe	Internal Thread Rc(PT) (BSPT) External Thread R(PT) (BSPT)		Unified Thread	UN UNC UNF UNEF	
Whitworth Thread	W BSW BSP		Thread for Aerospace Instruments	UNJ		American Taper Thread for Pipe	NPT		American Taper Thread for Pipe	NPTF	

52) What are the Precautions to be taken while hand tapping?

- Tap drill hole of appropriate size is essential before tapping.
- Tap should be properly cleaned before using the tap.
- Use tap handle according to the tap.
- Keep equal pressure of the hand on both ends of the tap handle.
- Tap should be moved forward and backward and we should prevent any jolts.
- Tap should be cleaned properly after use and kept safely.

53) When it is difficult to cut internal threads?

- If the size of the drill is less there would be difficulty in cutting threads and there would be a danger of the tap being broken.

54) When threads are not forms properly?

- If the size of the drill is greater the threads would not be of the proper depth. Thus, it is essential that the drill should be of proper size.
- The size of a drill is called a tap size drill.

55) What are the causes for Taps breakage during hand tapping?

- Incorrect /wrong selection of pilot drill
- Incorrect / Wrong sequential use of Taps
- Inappropriate tap for work material
- Unequal application of force
- Insufficient work holding

56) What are the causes for Taps breakage during machine tapping?

- Incorrect /wrong selection of pilot drill
- Incorrect / Wrong spindle speed and feed setting in the Tapping Machine
- Insufficient work holding