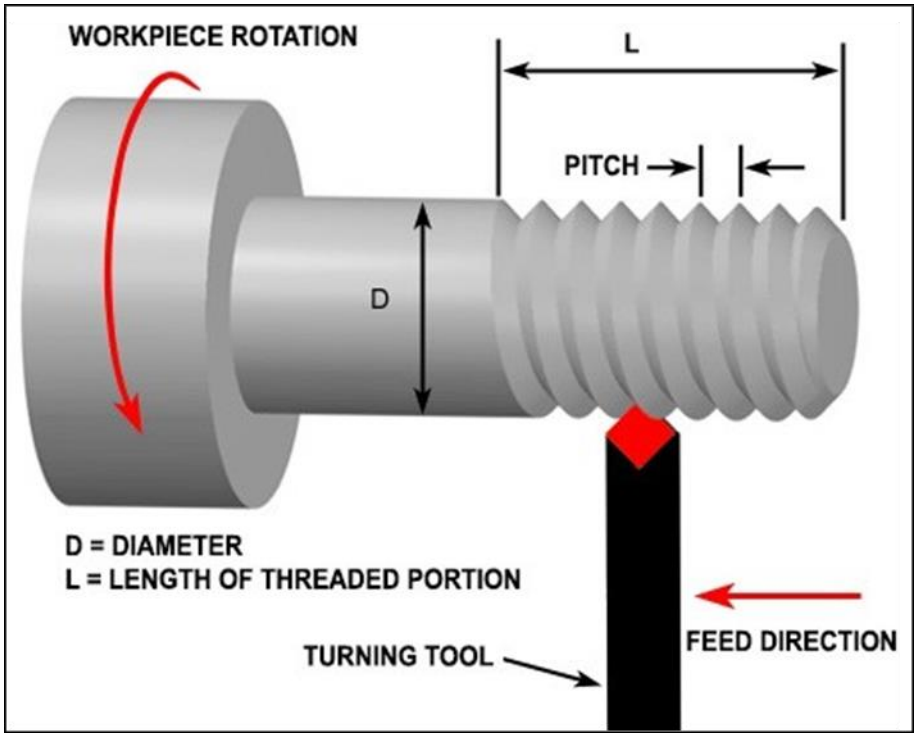
To obtain Right hand screw threaded workpiece of given dimensions.

Apparatus:

Lathe machine, vernier caliper, MS rod.

Figure:



Theory

A thread is a ridge of uniform section in the form of a helix on the internal or external surface of a cylinder (IFI description) or it could be described as a sloping plane curled around a cylinder.

External threads are on bolts or screws.

Internal threads are on nuts.

Nomenclature of Threads

Major (nominal) diameter

The major diameter can be measured with a simple caliper rule or slot gauge

accurately enough to determine the nominal diameter. A bolt or screw is measured at the crests; a nut is measured at the thread roots

Effective (pitch) diameter

The effective diameter, minor diameter, flank angle and pitch require specialist measurement equipment for technical accuracy. However, simple measurement at the thread crests will be accurate enough for most practical purposes in measuring pitch and determining thread.

For imperial threads, UNC, UNF, BSW and BSF, pitch is expressed in numbers of threads per inch, e.g. 1/4 -20 UNC, the 20 being 20 threads per inch or 20 TPI. For metric and BA threads, the pitch is a single thread measured and expressed in millimetres, e.g. M10 x 1.5, the 1.5 being 1.5 mm from the same point on two adjacent threads.

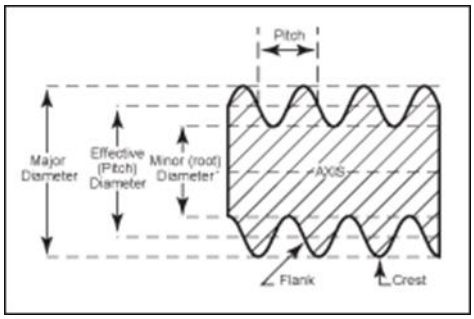
Pitch

Pitch specification would be necessary when referring to metric fine threads which are not covered by Australian Standards and where several different pitches are possible internationally. Also, when specifying 1" -14 TPI UNF, which is the common international standard versus Australian standard 1" - 12 TPI UNF. 1" - 14 TPI UNF is also sometimes referred to as 1" - SAE and whilst not absolutely correct, this description may assist in recognition.

Note that in metric and unified, the crests and the roots theoretically should be flat; however, in practice, to aid manufacture and fit, they are rounded inside a maximum outline.

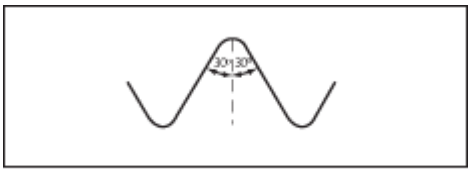
o Flank

o Crest



Thread Angles

Machine screw threads are symmetrical - the angle on both flanks being the same - refer to illustration.



Unified and Metric

BSW and BSF are 27.5° a total thread angle of 55°

Because the pitch of some threads is common in the same diameters, it is possible to mate them, e.g. BSW and UNC all diameters except 1/2 (where UNC is 13 TPI, BSW is 12 TPI), can be mated together. However, because the thread angles and the profiles differ, the 'fit' will be loose and the mechanical requirements of the fastener will not be achievable. Therefore, mixture of thread forms must be avoided.

Procedure

- Clamp workpiece in chuck and reduce spindle speed.
- Select Whitworth system of threads and levers according to desire TPI.
- Give depth of cut to cross slide and engage half lock nut lever.

Observations & Calculations

Sr. No	Length to be threaded	TPI\Pitch	Major Diameter	Minor Diameter
	mm	mm	mm	mm
1.				
2.				
3.				

Questions

What is difference between Left- and Right-handed screw threaded?

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Write different methods for obtaining screw threaded?

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How EDM (electro discharging machining) works?

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Why rpms are low in case of threading?

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What are different types of threads?

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Comments on

Effect of Material on chip formation?

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