

Square thread

Question:

Explain different forms of threads with their relative advantages and applications.

Answer:

Square threads

Square threads are the most commonly used thread form for the power screws. Following table gives you various thread forms and comparisons.

Screw Form	Characteristic	Application
Sq. Thread	No side thrust Higher efficiency	Used for general purpose power transmission
Trapezoidal Threads	Stronger than square threads Easy to manufacture Wear compensation	Used for higher power transmission
ACME threads	Stronger than square threads Easy to manufacture Wear compensation	Used for higher power transmission
Buttress threads	Can bear very heavy load in one direction	Used to handle heavy forces in one direction, like in truck jack

Sq. threads Advantages and disadvantages

The advantages of sq. threads are as follows:

- 1) Efficiency of sq. threads is more than trapezoidal threads
- 2) There is no side thrust or radial pressure.

The disadvantages of sq. threads are,

- 1) Sq. threads are difficult to manufacture than trapezoidal threads.
- 2) The wear of sq. threads can not be compensated as it can be done in trapezoidal.
- 3) The thread thickness at core is less than trapezoidal, hence sq. threads have less load carrying capacity.

Square threads and other forms diagrams

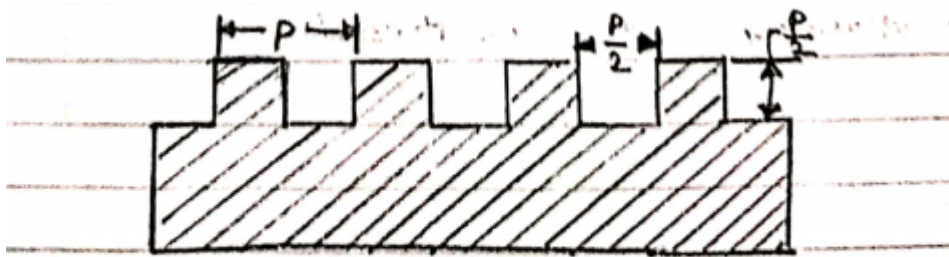


Fig: Square Threads.

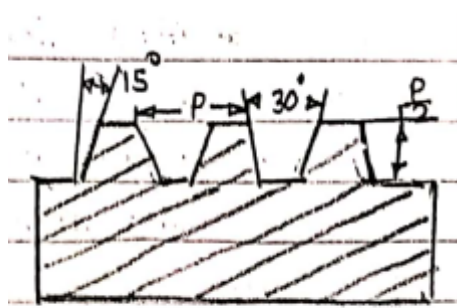


Fig: Trapezoidal Threads.

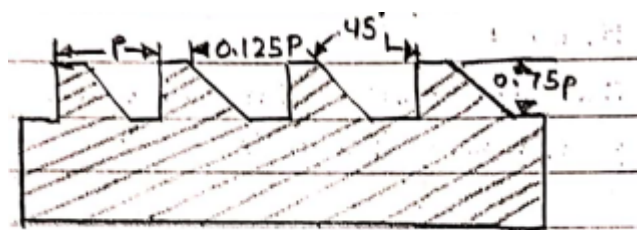
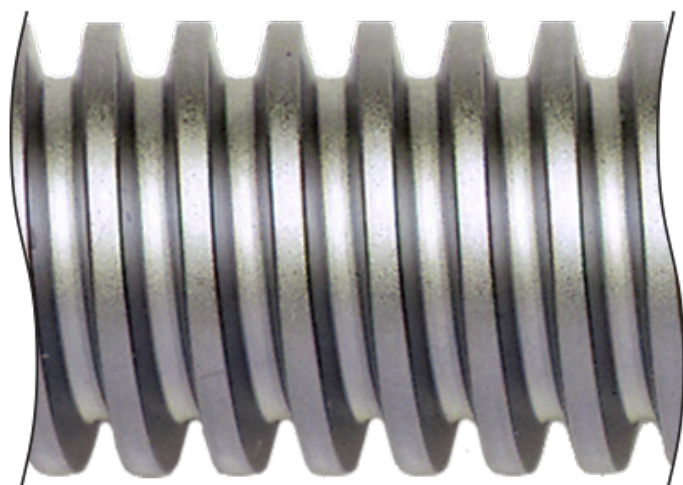
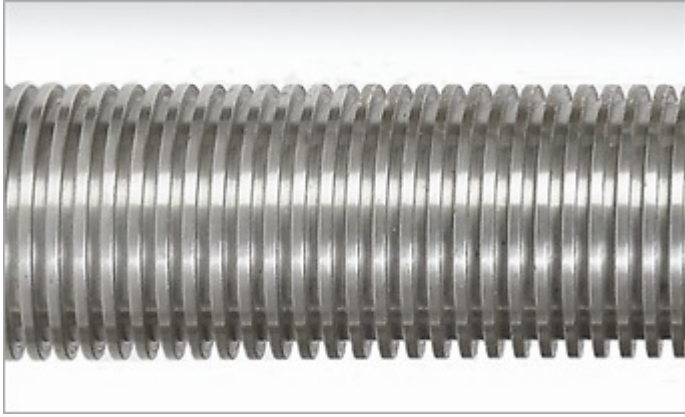


Fig: Buttress Threads.



Fig: Acme Threads.





Sq. threads are preferred over v threads why?

Sq. threads are preferred in power transmission over v threads because of the following reasons,

- 1) Sq. threads have maximum efficiency in power transmission
- 2) Sq. threads have noiseless operation.
- 3) Sq. threads have no side thrust.

So these advantages are the main requirements of application of square threads in power transmission. Hence sq. threads are preferred over v or trapezoidal threads.

Comparison of square threads and v threads

Point	Sq. threads	Trapezoidal threads
Efficiency	More	Less
Side thrust	No	Yes
Manufacturing	Difficult {single point tool}	Easy {Multi Point tool}
Strength	Less {less area at root}	More {more area at root}
Wear	Can not be compensated	Can be compensated

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