

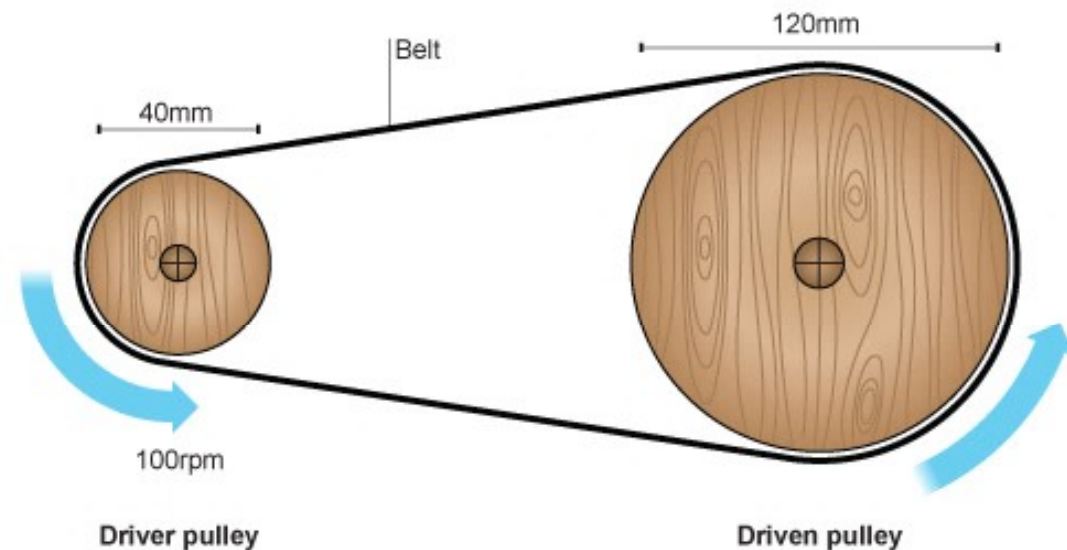
Mechanical Drawing I

Code: MAE217

Pulleys

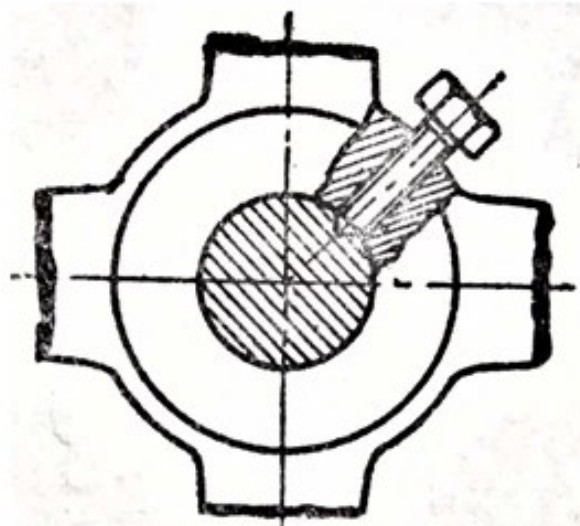
Pulleys:

Pulleys are used for transmission of power from one shaft to another by means of belts or ropes. They are made of cast iron, wrought iron, steel or wood.

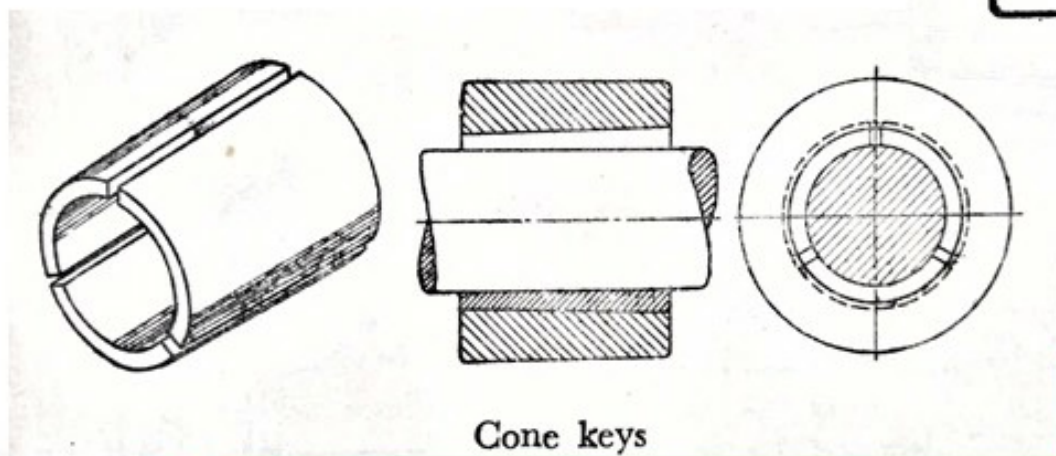
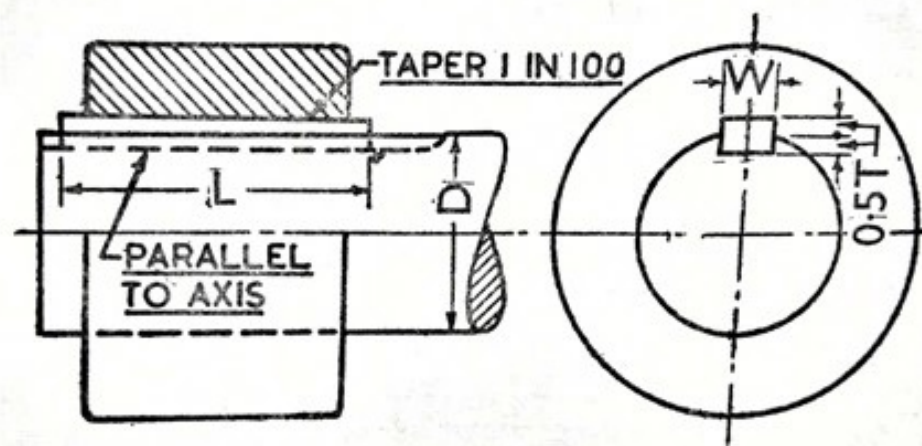


Methods of fixing a pulley:

The three methods of mounting a pulley rigidly on a shaft are: a key, cone keys and set-screw.



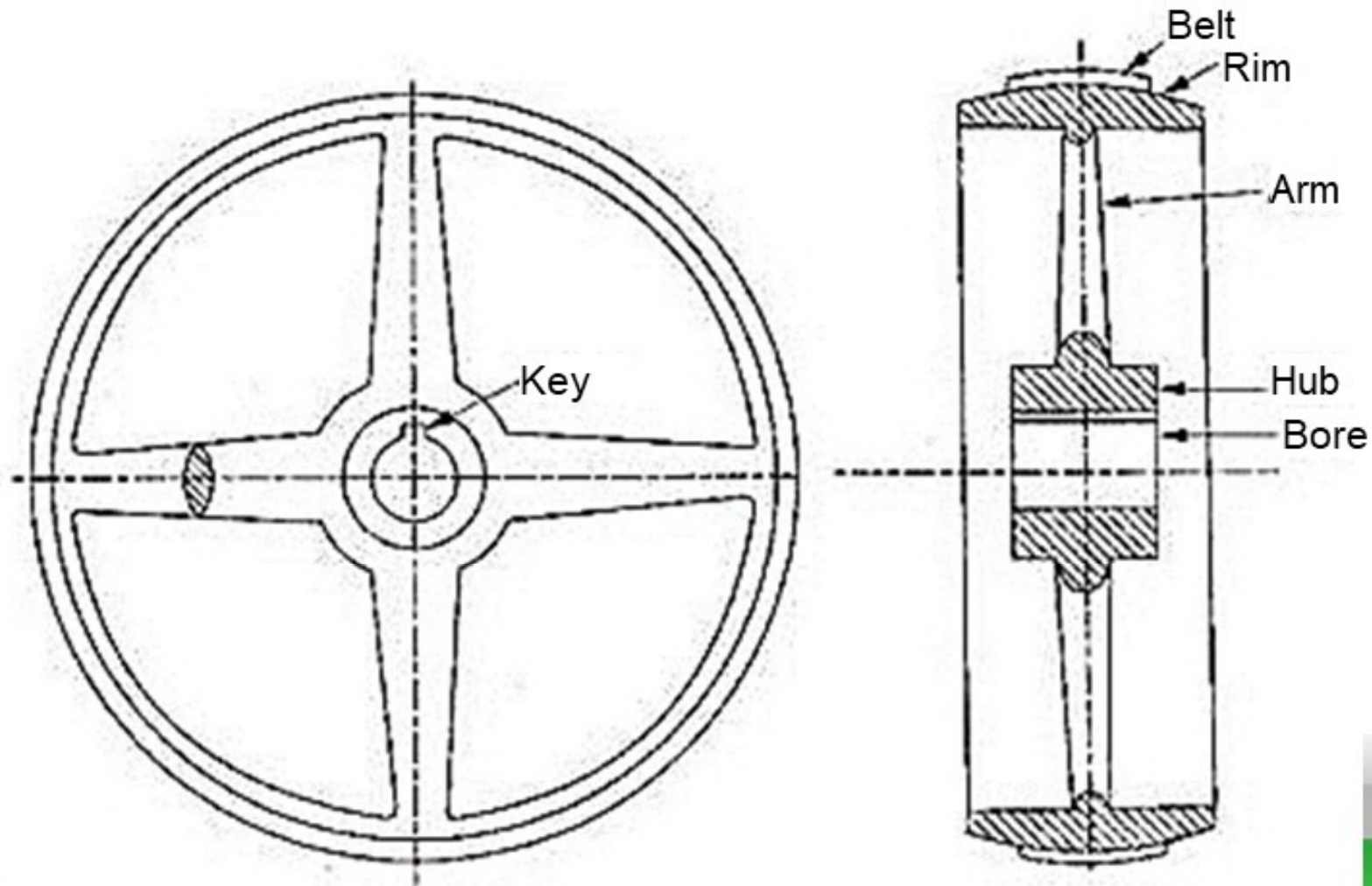
If D is the diameter of the shaft,
 Width of key, $W = \frac{1}{4}D + 2 \text{ mm}$
 Nominal thickness, $T = \frac{2}{3}W$.



Key: $W \times T$
 Keyway: $W \times T/2$

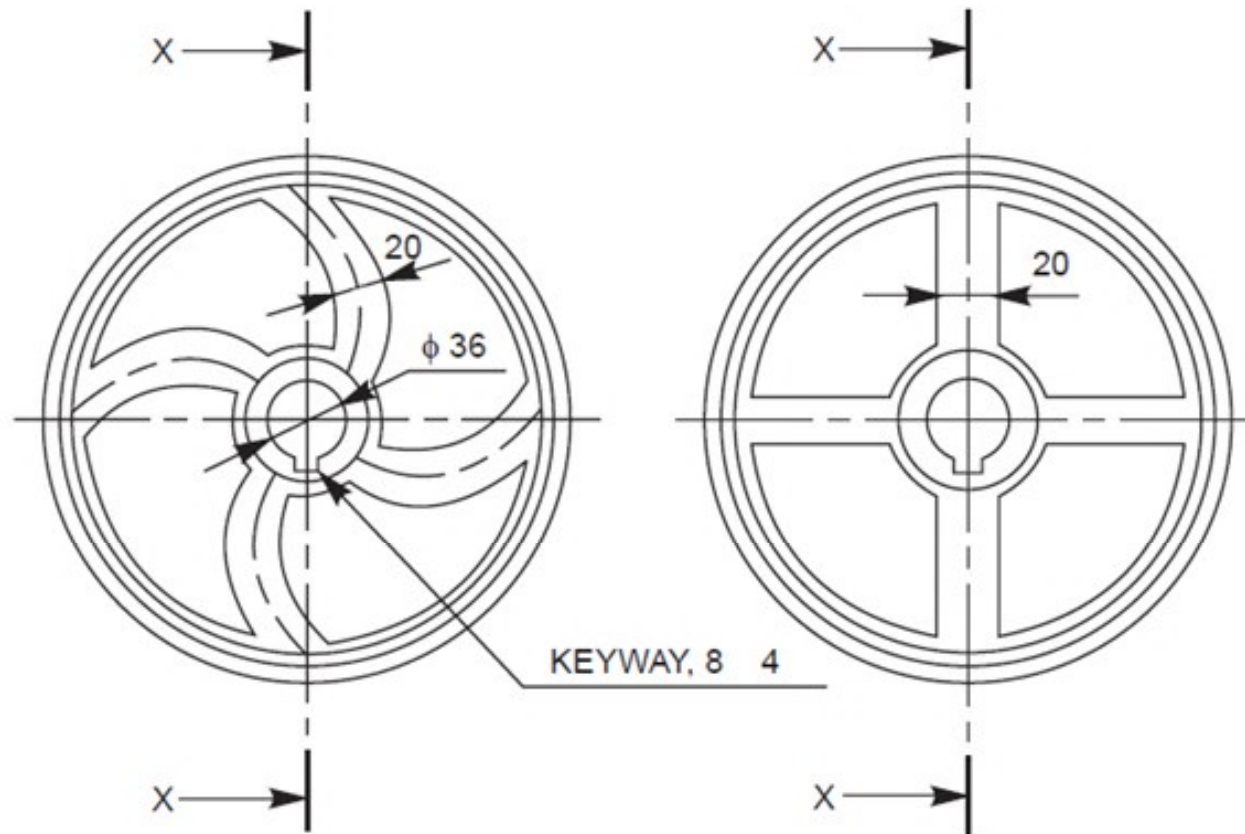
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Belt pulley is generally made convex. The curvature tends to keep the belt in the middle of the rim.



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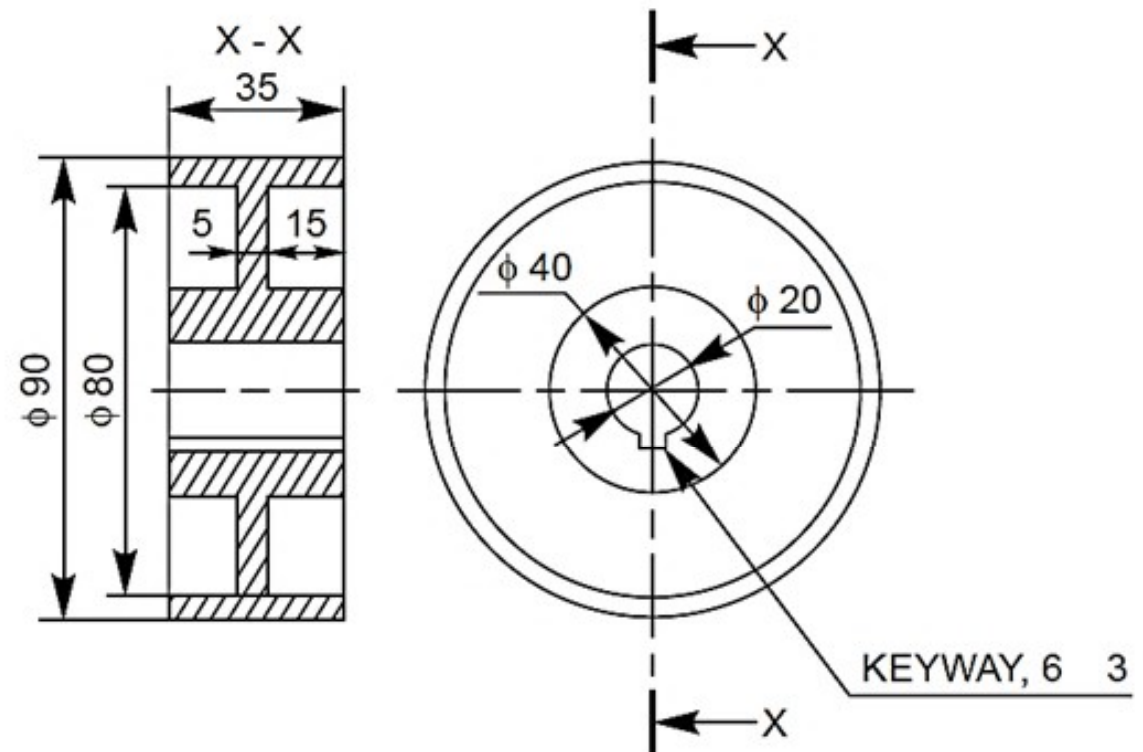
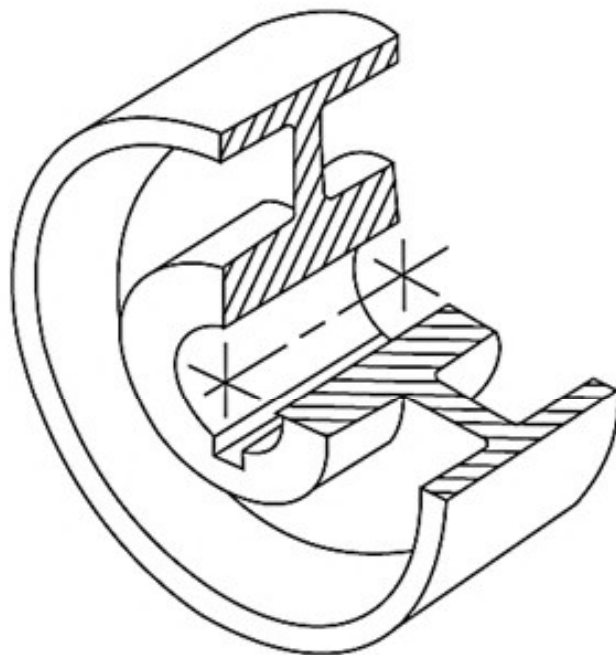
When the rim is kept flat, its usually provided with flanges at the sides to prevent the belt from slipping off.



Pulley with a Web:

When the diameter of a pulley is relatively small, the hub and rim of the pulley are connected with a web, which is in the form of a disc.

To make the pulley light in weight, holes may be provided in the web.

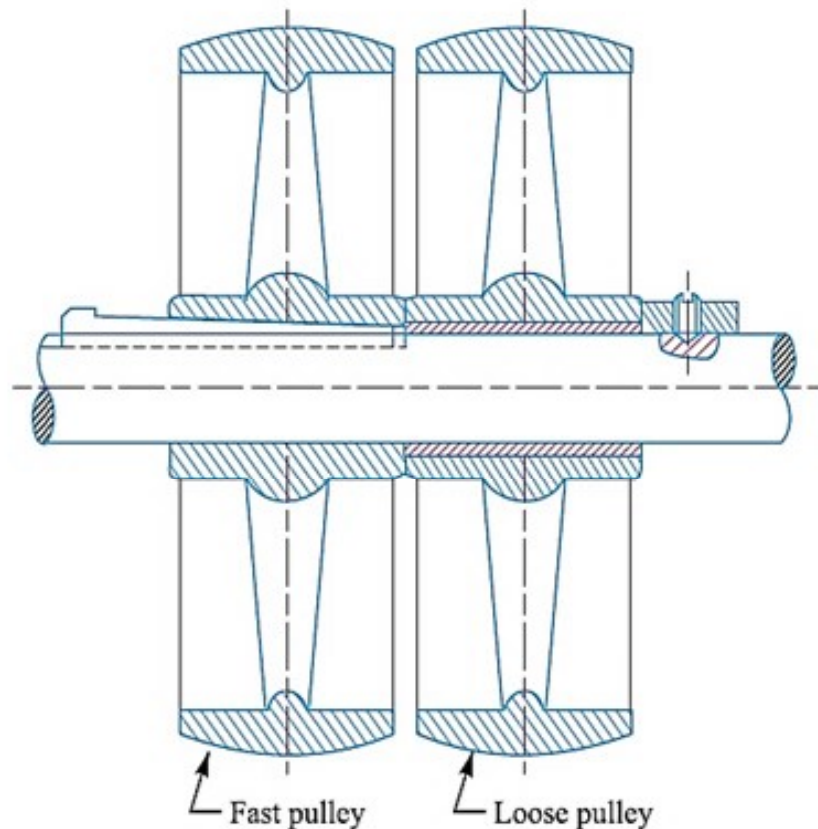


Fast and loose pulleys:

Fast pulley: A pulley rigidly attached to a shaft.

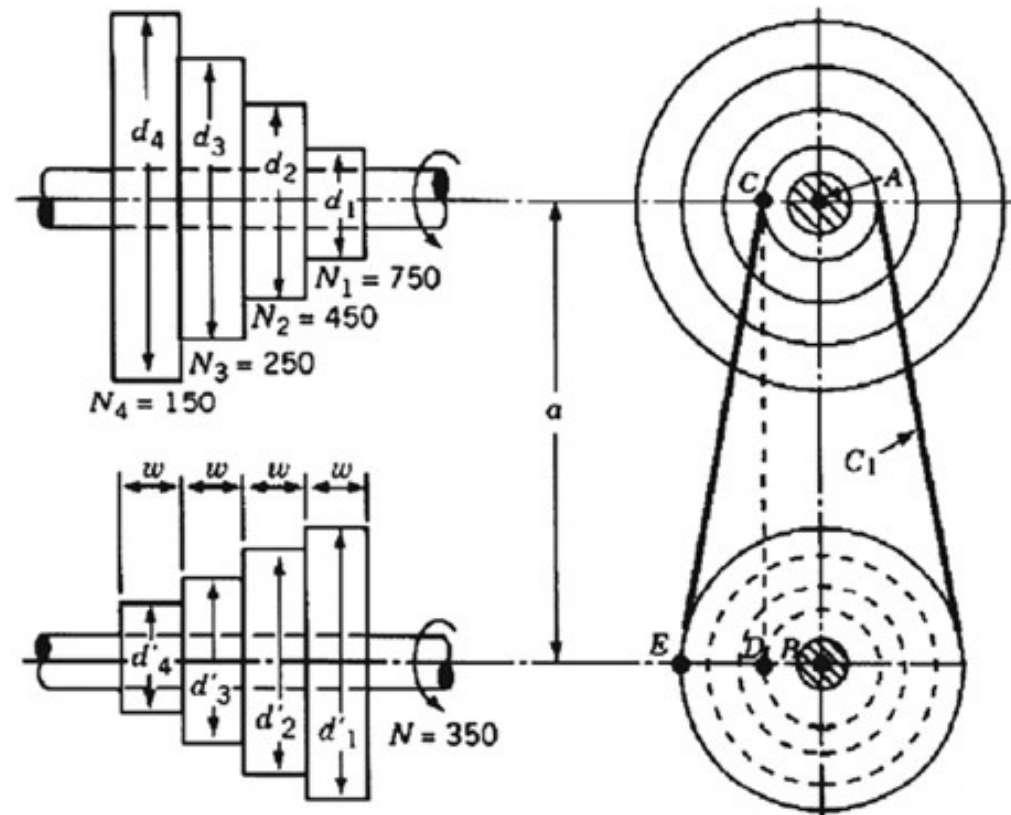
Loose pulley runs freely on the shaft.

So, the machine can be easily stopped or started whenever required.



Step cone pulley (speed cone):

To drive the machine spindle at different speeds, the stepped pulleys (speed cone) are fixed on the spindle and the counter shaft in reverse position.



Split pulleys:

Large-size cast iron pulleys and fly-wheels are made in halves which are bolted together at the hub and the rim.



V-Belt pulley:

These pulleys have one or more v-groove to carry v-belts which are made of rubber and fibre and moulded as endless loops.



Rope pulleys:

Rope pulleys are grooved to carry one or more ropes to shafts at different heights and at varying distances.

