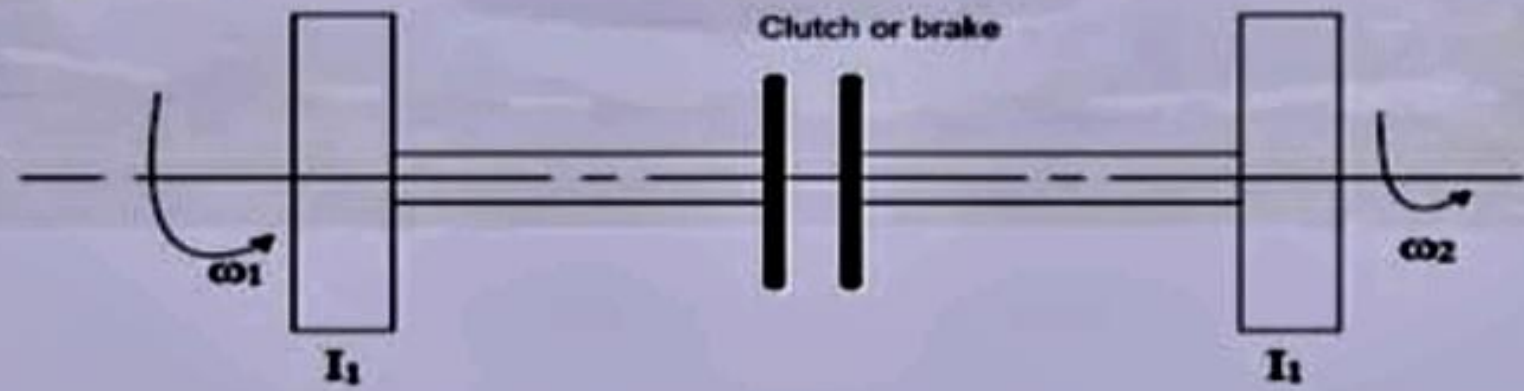


Clutch Introduction

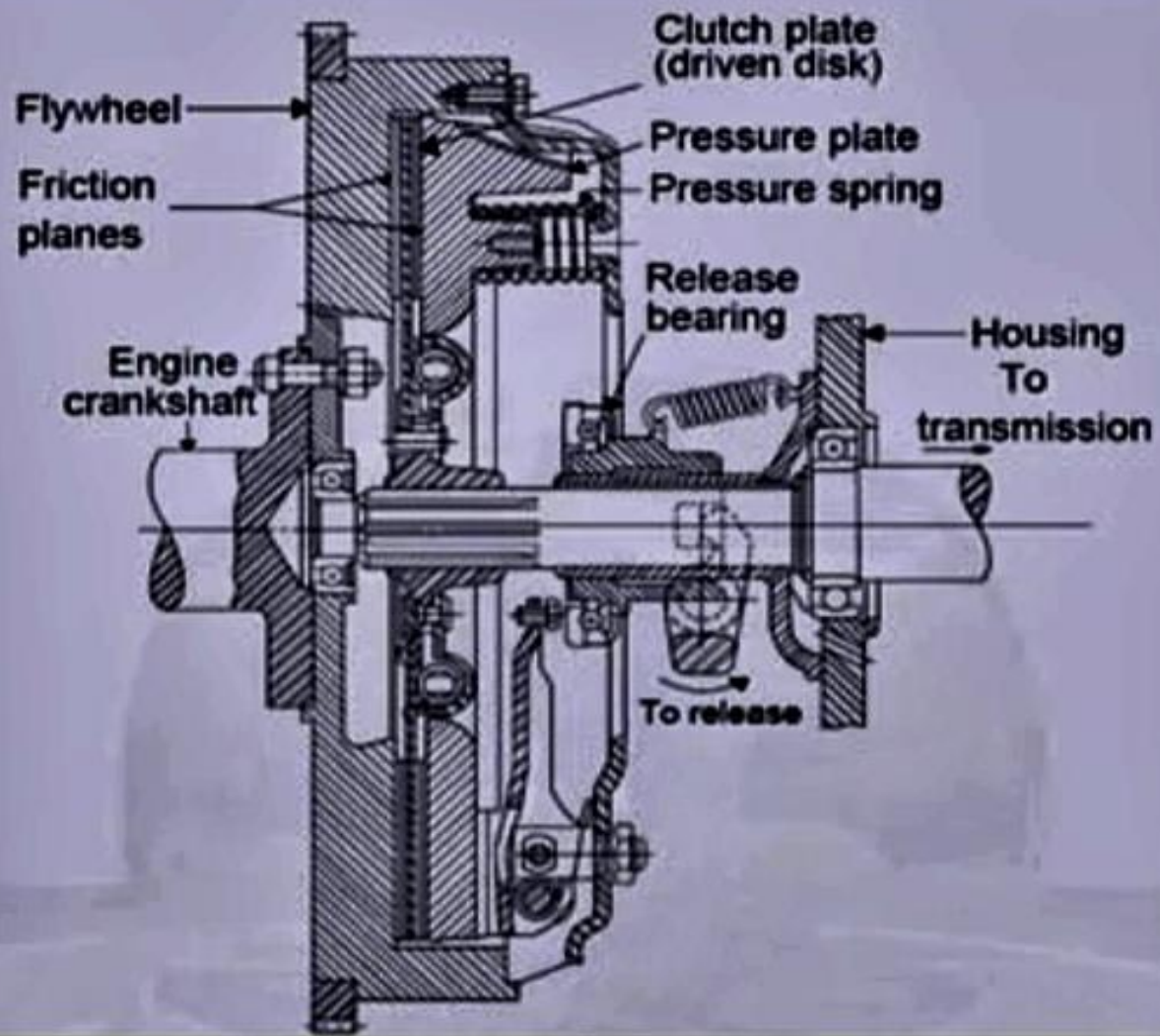
-
- A *Clutch* is a machine member used to connect the driving shaft to a driven shaft, so that the driven shaft may be started or stopped at will, without stopping the driving shaft.
 - A clutch thus provides an interruptible connection between two rotating shafts.
 - Clutches allow a high inertia load to be started with a small power.
 - A popularly known application of clutch is in automotive vehicles where it is used to connect the engine and the gear box. Here the clutch enables to crank and start the engine disengaging the transmission Disengage the transmission and change the gear to alter the torque on the wheels.
 - Clutches are also used extensively in production machinery of all types

Mechanical Model

Two inertia's I_1 and I_2 and traveling at the respective angular velocities ω_1 and ω_2 , and one of which may be zero, are to be brought to the same speed by engaging. Slippage occurs because the two elements are running at different speeds and energy is dissipated during actuation, resulting in temperature rise.



Dynamic Representation of Clutch or Brake

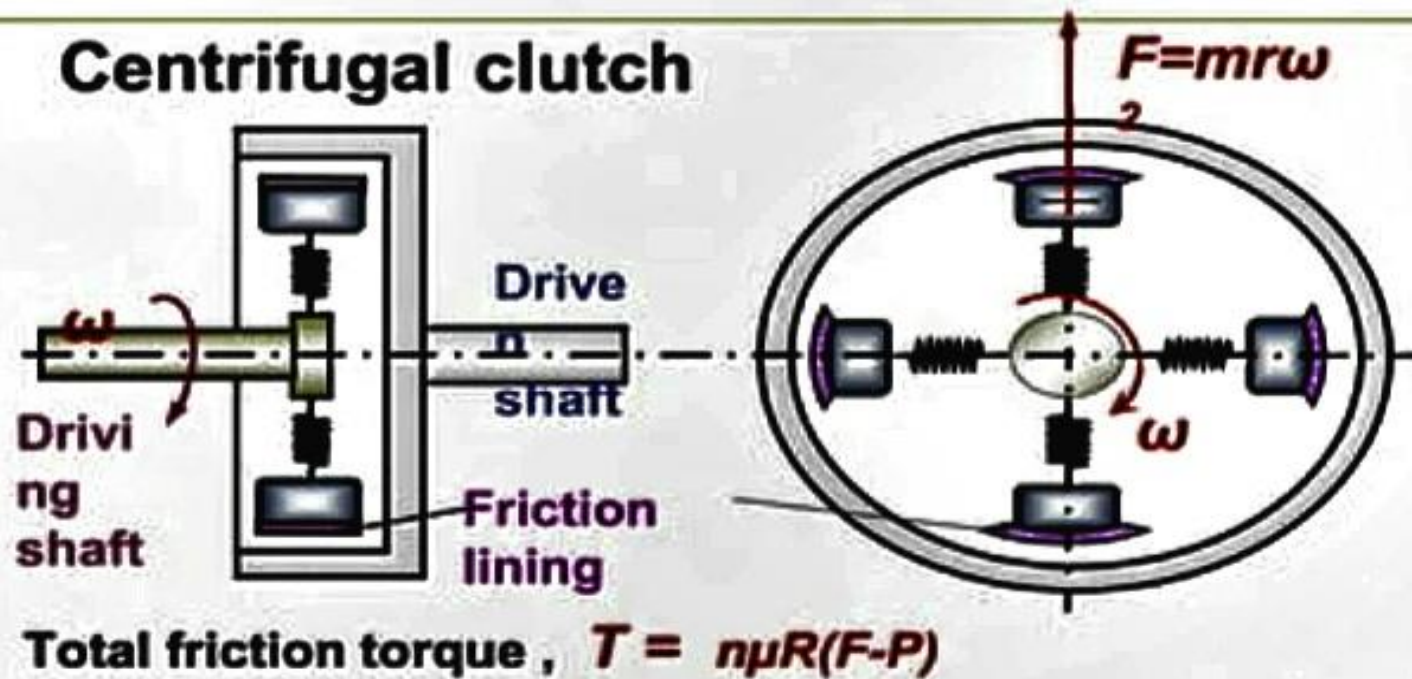


CENTRIFUGAL CLUTCH

- A centrifugal clutch is a clutch that uses centrifugal force to connect two concentric shafts, with the driving shaft nested inside the driven shaft.
- It consists of number of shoe on the inside of a rim of pulley. The outer surface of pulley is covered with friction material.
- These shoes are moves radially in guides.



Operation of Centrifugal Clutch



Operation of Centrifugal Clutch_(CONTD.)

- As the speed of the shaft increase, the centrifugal force on the shoes increase.
- When the centrifugal force is less than the spring force, the shoes remain in the same position as when the driving shaft was stationary, but when the centrifugal force is equal to the spring force, the shoes are just floating.
- When the centrifugal force exceeds the spring force, the shoes move outward and come into contact with the driven member presses against it.

Advantages of Centrifugal Clutch

- This type of mechanical clutch is automatic, so no kind of control mechanism is necessary.
- Centrifugal clutch is fairly cheap compare to normal type on clutch.
- It prevents engine from stalling in other words minimizes engine braking force.
- It is very helpful in various speed ranges compare to direct drive system.

Disadvantages of Centrifugal Clutch

- This clutch is not appropriate for transferring significant torque or power because they can slip if loaded heavily.
- Sometimes the centrifugal clutch do not engage or disengage reliably and therefore can cause a safety hazard.
- Some loss in hose power to rear wheel due to friction pads or shoes movement.

A decorative card with a light blue background and a white border. A horizontal line is drawn across the middle. In the center, there is a yellow sticky note pinned with two red pushpins. The note has the text "Thank you!" written in black cursive. The note is surrounded by green floral and butterfly illustrations. Two black tabs are visible on the left and right sides of the card.

Thank you!