

Internal Expanding Rim Clutches

At its same instant, the internal expanding rim clutch transmits Torque due to the expansion of internal rim as shown fig.

Three elements of internal expanding rim clutches are:

- ✓ The rubbing friction surface
- ✓ The means of transmitting the Torque to and from the surfaces
- ✓ The actuating Mechanism

It is understood that the engagement or disengagement of external and internal rim is achieved by using a suitable actuating Mechanism. The outer dia of the internal rim is slightly lower than the inner dia of the external rim. As the internal rim rotates, it expands. The actuating force is controlled by a suitable actuating Mechanism. Because of this expansion of internal rim, it is engaged with external rim.

For the disengagement of the two rims, the actuating force is applied on the internal rim in the opposite direction. As the internal rim contracts, it automatically disengage from external rim.

Types of internal expanding rim clutches:

- ✓ Expanding - wing clutch
- ✓ Centrifugal clutch

iii) Magnetic clutch

iv) Hydraulic and Pneumatic clutches.

External Contracting Rim clutches:-

The construction, arrangement and working of external contracting rim clutches are similar to the internal expanding rim clutches except that the actuating force is provided by the contracting external rim instead of expanding internal rim.

An external contracting clutch that is engaged by expanding the flexible tube with compressed air.

It also consists of three elements: the mating frictional surface, the means of transmitting the torque to and from the surfaces, and the actuating mechanism.

Classification of Actuating Mechanisms:-

- ✓ Solenoids
- ✓ Levers, linkages, toggle device
- ✓ Linkages with spring loading
- ✓ Hydraulic and pneumatic devices

Working:

→ It is understood that the external rim is rigidly bolted with the outer casing. Whenever the compressed air is fed into the flexible tube, the external rim contracts. The contraction of external rim provides the required clamping force.