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Question:

Explain steep and creep phenomenon in belts.

Answer:

Slip of Belt:- Ans:- When driver pulley rotates firm grip between its surface and the belt. This firm grip between pulley and belt is because of friction and known as frictional grip. If this frictional grip becomes insufficient to transmit the motion of pulley to belt. Then there will be. 1) Forward motion of driver pulley without carrying belt called as slip on driving side.

2) Some forward motion of belt without carrying driven pulley this is called as slip on driver side. The difference between linear speed of rim of pulley and belt on the pulley is known as slip of belt. The velocity ratio considering slip is given by:-

a) Neglecting Thickness of Belt and Considering Slip:-

$$\frac{N_2}{N_1} = \frac{d_1}{d_2} \left[1 - \frac{5}{100} \right]$$

b) Considering Thickness:-

$$\frac{N_2}{N_1} = \frac{d_1 + t}{d_2 + t} \left[1 - \frac{5}{100} \right]$$

Creep of Belt:- The belt moves from driving pulley is known as

Tight side and belt moves from driving pulley to driver pulley as slack side.

Tension on both i.e. on tight sides and slack side is not equal ($T_1 > T_2$). The belt material is elastic material which elongates more on Tight side than the slack side resulting in unequal stretching on both sides of drive. A certain portion of belt when passes from slack side to tight side extends and certain portion of belt when contracts, passes from tight side to slack side because of relative motion. The relative motion between belt and pulley surface due to unequal stretching of two sides of drives is known as creep.
