

19 A conveyor belt is driven at velocity  $v$  by a motor. Sand drops vertically on to the belt at a rate of  $m \text{ kg s}^{-1}$ .

What is the additional power needed to keep the conveyor belt moving at a steady speed when the sand starts to fall on it?

**A**  $\frac{1}{2}mv$

**B**  $mv$

**C**  $\frac{1}{2}mv^2$

**D**  $mv^2$