

- 5 A motor is used to move bricks vertically upwards, as shown in Fig. 5.1.

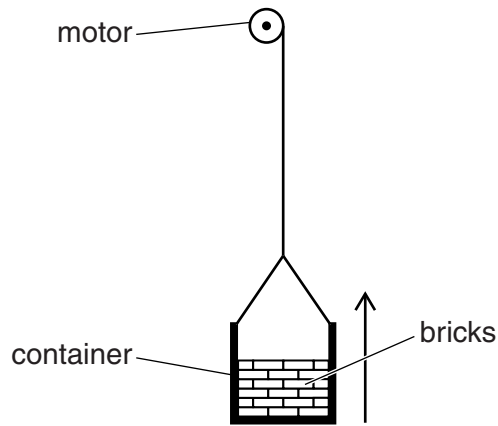


Fig. 5.1

The bricks start from rest and accelerate for 2.0 s. The bricks then travel at a constant speed of 0.64 ms^{-1} for 25 s. Finally the bricks are brought to rest in a further 3.0 s.

The total mass of the bricks is 25 kg.

- (a)** Determine the change in kinetic energy of the bricks

- (i)** in the first 2.0 s,

change in kinetic energy = J [2]

- (ii)** in the next 25 s,

change in kinetic energy = J [1]

- (iii)** in the final 3.0 s.

change in kinetic energy = J [1]

- (b) The bricks are in a container. The weight of the container and bricks is 350 N.

Calculate, for the lifting of the bricks and container when travelling at constant speed,

- (i) the gain in potential energy,

energy gain = J [3]

- (ii) the power required.

power = W [2]