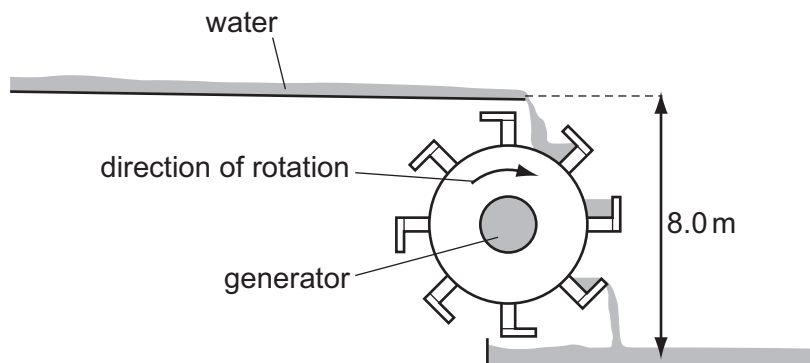


- 18 The diagram shows the design of a water wheel which drives a generator to produce electrical energy. The flow rate of the water is 200 kg s^{-1} . The generator supplies a current of 32 A at a voltage of 230 V .



Ignoring any changes in kinetic energy of the water, what is the efficiency of the system?

- A** 14 % **B** 16 % **C** 22 % **D** 47 %
- 19 A car engine exerts an average force of 500 N in moving the car 1.0 km in 200 s .
What is the average power developed by the engine?
- A** 2.5 W **B** 2.5 kW **C** 100 kW **D** 100 MW
- 20 A mass of gas enclosed in a cylinder by a piston is heated gently. At the same time, the piston is moved so that the pressure remains constant.
- As a result of this, what will **not** occur?
- A** The average velocity of the molecules will increase.
B The mean separation of the molecules will increase.
C The molecules will travel greater distances between collisions.
D The number of collisions per second of the molecules on the piston will increase.

Space for working