

Characteristics of Carnot's reversible Engine

- (i) The efficiency depends upon the temperature of the heat source & the heat sink.
- (ii) The efficiency is independent of the nature of the working substance.
- (iii) The reversible engines working between the same two temperature have the same efficiency.
- (iv) As $T_1 - T_2 < T_1$, the efficiency of a Carnot's engine is always less than one.

Condition for 100% efficiency: -

For the engine to be 100% efficient T_2 the sink temp. must be 0K, which is not possible in practice.

Hence the efficiency even of an ideal Carnot's engine is less than one. We can say that it is not possible to extract heat from

a body and convert the whole of it into work.

Source, sink and working

substance in a steam engine.

In steam engine, the source is the boiler producing super heat steam, super heated steam is the working substance and the sink is the atmosphere.

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