

Answer on Question #71024-Physics-Molecular Physics-Thermodynamics

In an air compressor the compression takes place at a constant internal energy and 50 kJ of heat are rejected to the cooling water for every kilogram of air. Calculate the work input for the compression stroke per kilogram of air

Solution

The work input is

$$W = \Delta U + Q.$$

The compression takes place at a constant internal energy:

$$\Delta U = 0$$

$$W = Q = 50 \text{ kJ.}$$

Answer: 50 kJ.

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