

(ii)

GIVEN sys. w/ 1 kg of H<sub>2</sub>O  
 → Power cycle.

\* Process 1-2: isovol  $\dot{Q}_{in}$   $P_1 = 5 \text{ bar}, T_1 = 160^\circ\text{C} \rightarrow P_2 = 10 \text{ bar}, T_2$

\* Process 2-3: isobar  $\dot{Q}_{out} \rightarrow T_3 = T_{sat3}$

\* Process 3-4: isovol  $\dot{Q}_{out} \rightarrow T_4 = 160^\circ\text{C}$

\* Process 4-1: isotherm expansion w/  $Q_{in} = 815.8 \text{ kJ}$

FIND

- (a) sketch T-v & p-v diagrams  
 (b) W & Q for each process.

ASSUMP

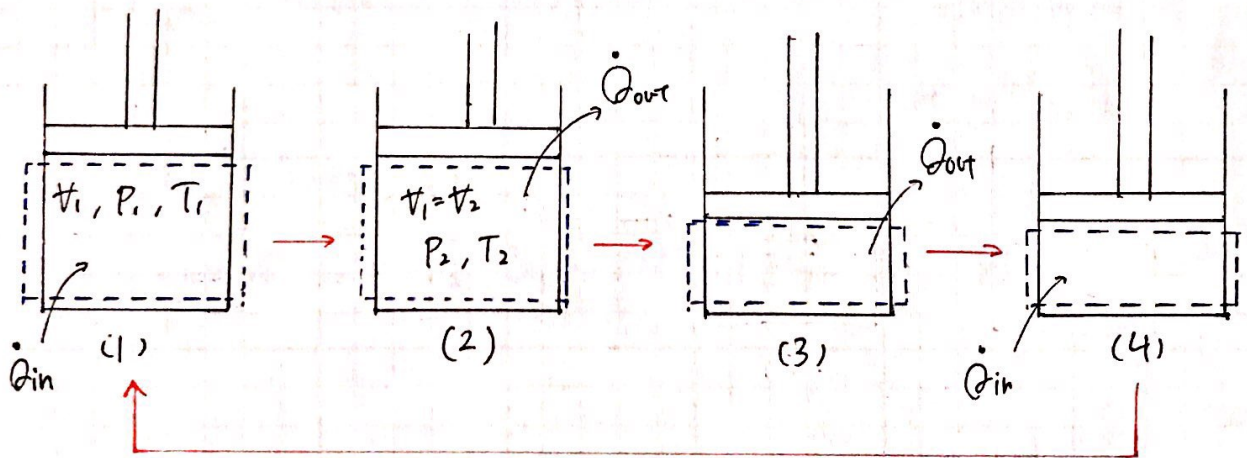
- Quasiequilibrium
- closed sys.
- PE = KE = 0

EQN

$$\frac{dm}{dt}|_{sys} = \dot{m}_{in} - \dot{m}_{out}$$

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

$$W = \int P dV$$

EEDSOLN