Surroundings

Mass (m_1, m_2, m_3 and m_4)

System

A_x (cross sectional area)

P_1, V_1, T_1 and N_1

Reservoir at T_1

Irreversible work

(real)

Infinitesimal change in mass (dm)

Surroundings

System

A_x (cross sectional area)

P_1, V_1, T_1 and N_1

Reservoir at T_1

Reversible work

(hypothetical best case)