

Procedure

Step 1: Draw psychrometric chart

Step 2: Find state values

Step 3: Find $\dot{m}_a$

Step 4: Find $\dot{m}_1$ and w_1

Step 5: Find $\dot{m}_4$ and $\dot{m}_5$

Step 6: Find $\dot{m}_{H_2O}$ and Q_{out}

Step 7: Find Q_{in}