

2. Rankine cycle

Ex1: Draw the schematic diagram of power plant, draw the every process on the T/s diagram. Point energy input and output from/to the system. Define the efficiency of the system.

Ex2: Consider power plant described above. The Power plant is working with the RC where the steam flow to the turbine have 3MPa and 350C. the pressure in the condenser is 75kPa. Describe the pressure, temperature, enthalpy, entropy in each characteristic point. Find the efficiency of the RC.

	T	p	h
1			
2			
3			
4			

Ex3: Recalculate power plant described above. BUT :The Power plant is working with the RC where the steam flow to the turbine have 3 MPa and 350 C. the pressure in the condenser is **10 kPa**. Describe the pressure, temperature, enthalpy, entropy in each characteristic point. Find the efficiency of the RC.

	T	p	h
1			
2			
3			
4			

Ex4: Recalculate power plant described above. BUT :The Power plant is working with the RC where the steam flow to the turbine have 3MPa and **600 C**. the pressure in the condenser is **10 kPa**. Describe the pressure, temperature, enthalpy, entropy in each characteristic point. Find the efficiency of the RC.

	T	p	h
1			
2			
3			
4			

Ex5: Recalculate power plant described above. BUT :The Power plant is working with the RC where the steam flow to the turbine have **15 MPa** and **600 C**. the pressure in the condenser is **10 kPa**. Describe the pressure, temperature, enthalpy, entropy in each characteristic point. Find the efficiency of the RC.

	T	p	h
1			
2			
3			
4			

Ex6: Compare the results from previous calculation, how the changing the parameters of whole power plant can influence on final efficiency. Determine the conclusion. Check what is the maximum Carnot cycle efficiency for the last considered example.

	Description	%
Ex1		
Ex2		
Ex3		
Ex4		