

Chapter 1.6

Graphical representation of properties

When is a graph a chart?

- Graphs plot the relationship between two component characteristics.
- A chart has the relationship between the two component characteristics but also plots lines of other variables on top of them
- In this way a 2D chart can represent more 'dimensions' of the system – e.g. we might have a chart of T vs s , but if we don't know the pressure then it is limiting – plotting constant pressure lines on helps to navigate

Three charts of significance

- Temperature vs. entropy chart for steam

This is the chart that you look at in the consolidation session – it has use in demonstrating power cycles. Plots of constant pressure are shown on it to locate points in the chart to extract other data.

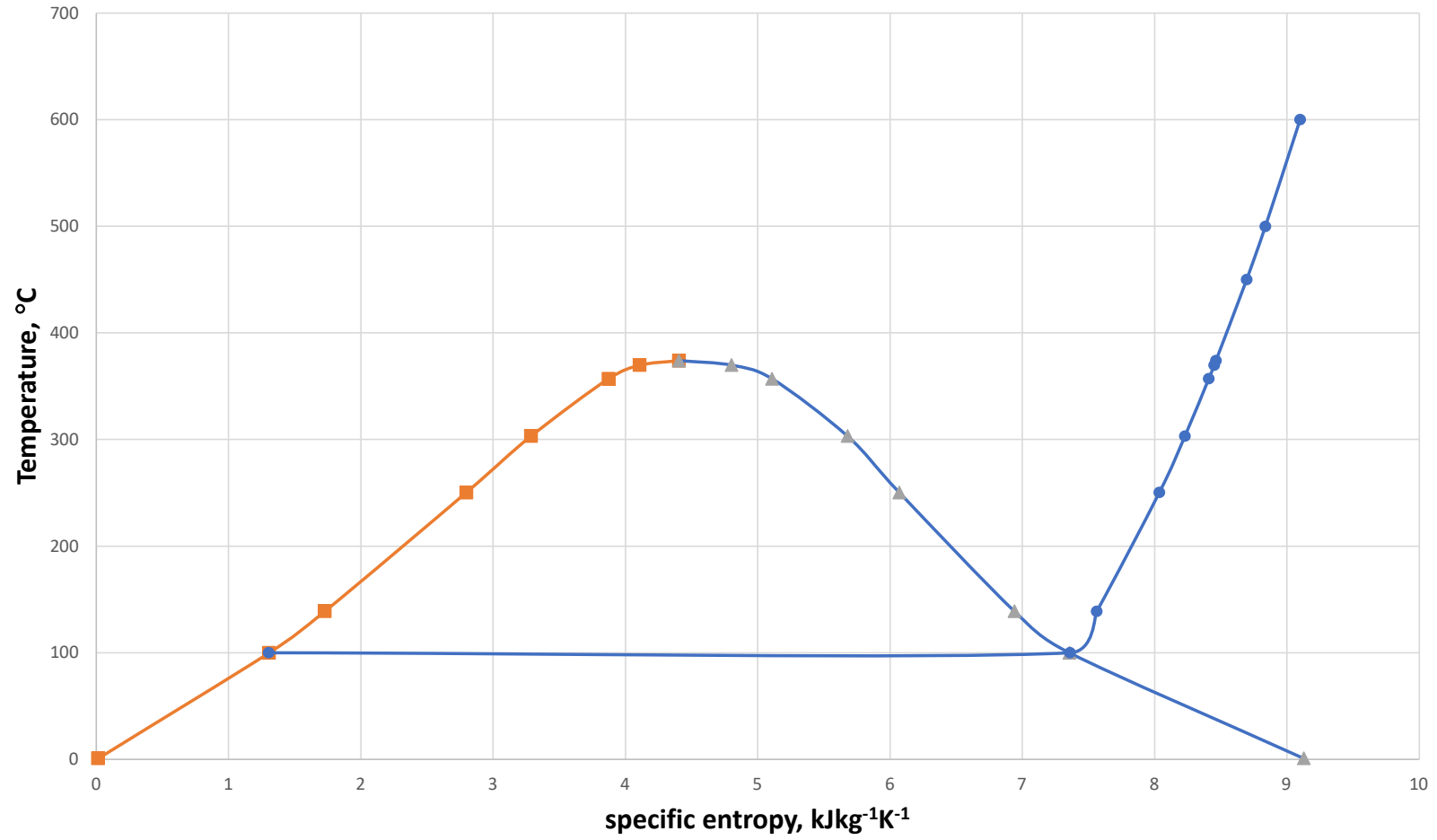
- Enthalpy vs. entropy chart for steam

This chart is very important for vapour power cycles of steam power. Plots of constant pressure and constant temperature help to find the energy of steam at particular operating points.

- Pressure vs. enthalpy chart for refrigerant R134a

This chart is very important for the refrigeration cycles section. Plots of constant temperature are shown on it to locate the energy of the refrigerant at specific operating points.

Temperature vs. specific entropy



specific enthalpy vs. specific entropy

