

The slope of an isentroop in a Ts diagram is zero.

The slope of an isentroop in a Ts-diagram is given by: $\left(\frac{\partial T}{\partial s}\right)_s$.

This partial derivative goes to infinity as the infinitesimal change ∂s is zero for a constant s. This means a vertical line.

Note: an isotherm in a Ts-diagram is given by $\left(\frac{\partial T}{\partial s}\right)_T$. It describes a change in T at a constant T. That is zero, therefore the isotherm has a slope 0. This is a horizontal line.