

Work Without Entropy

It is stated that work is entropy free. Sometimes it is claimed that work will not change the entropy of a fluid flowing through a steady-state adiabatic device with a single inlet and outlet. Is this claim right?

Answer: Only for a reversible process.

Explanation: The claim that work will not change the entropy of a fluid flowing through a steady-state adiabatic device with single inlet and outlet is true only if the process is also reversible. Since no real process is reversible, there will be an entropy increase in real processes in the fluid during the adiabatic process in devices such as pumps, compressors and turbines.