

Any compression which has a constant temperature or zero temperature difference is the isothermal compression process. These processes are very slow, as the system needs time to maintain a constant temperature. For example, heating a jar filled with water with a sliding lid. The losses are ignored here as the ideal isothermal compression process is impossible to achieve.

The pressure volume curve of an isothermal compression process can be represented as



The temperature entropy curve of the same process can be represented as



The above two curves represent the isothermal process where the temperature is constant and the pressure is increasing or the volume is decreasing. The work done is taken to be negative here as the system needs to work for the process of compression. The work done by a system is a positive quantity as it is a convention and vice versa.

Conclusion

Isothermal compression is the thermodynamic process of decreasing the volume or increasing the pressure when the temperature of the system is constant. The process maintains the state of thermal equilibrium. We

Isothermal Compression

USA, UK, Canada, Australia

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Improving refrigerat

Thermodynamic system

Isothermal compressi

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