

Title: Reversible vs quasistatic process

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A reversible process is one that can be made to retrace its path by differential changes in the environment. Such a process must therefore also be quasi-static. Note, however, that a quasi-static ...

A process is quasistatic if at every point in the process the system is in equilibrium with itself. A process is reversible if it is quasistatic and at every point in the process the system is in equilibrium with its ...

Here I can make an example of a quasi-static process but not reversible: when we very slowly bend a steel bar till it yields, the process is quasi-static but irreversible.

$y$   $V(S)$  (or equivalently  $S(V)$ ) that one takes in going fr. m (1) to (2). Such quasistatic processes are also said to be reversible. If in going from (1) to (2) the system has absorbed heat  $Q$  and done work  $W$ , ...

While all reversible processes are quasi-static, most authors do not require a general quasi-static process to maintain equilibrium between system and surroundings and avoid dissipation, which are defining characteristics of a reversible process. For example, quasi-static compression of a system by a piston subject to friction is irreversible; although the system is always in internal thermal equilibrium, the friction ensures the generation of dissipative entropy, which goes against the definition of reversibility. Any en...

- A system undergoing a reversible process is no more than differentially removed from an equilibrium state
- the system passes through a set of equilibrium states.

In thermodynamics, every reversible process is quasi-static, but not every quasi-static process is reversible. Irreversible processes can exhibit quasi-static characteristics under certain ...

So a process being quasi-static is necessary for it to be reversible, but it is not sufficient. To see this, suppose we have a large imbalance between two adjacent systems. For example, one ...

Reversible vs irreversible processes: reversible processes don't change the total entropy, so  $S = 0$ . Quasistatic

# Reversible vs quasistatic process

processes are processes that proceed slowly enough that the system is in internal ...

Reversible processes are quasi-static, and most quasi-static processes are reversible, but there are a few special cases that aren't. But the idea of a reversible process is something that happens so slowly.

While all reversible processes are quasi-static, most authors do not require a general quasi-static process to maintain equilibrium between system and surroundings and avoid dissipation, [4] which ...

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