

Thermodynamic Process Design

Designing a thermodynamic process in general involves moving heat between two or perhaps many more places, making some of those places hot or cold, and possibly accomplishing other tasks at the same time, such as making an engine do work.

Examples of common thermodynamic processes include refrigeration. Here heat is moved from inside an insulated space to an outside area. The inside space is thus made cold, while the outside surroundings have to absorb the resulting waste heat.

Another example would be a closed cycle steam engine. Here water is boiled into steam by adding heat, possibly from a fire. The resulting steam pushes on something like a piston, to accomplish mechanical work. In the process the steam gives up some of its heat. The cooler steam is then condensed back into liquid water, by rejecting heat to the surroundings. The water is then sent back to the boiler to repeat the process.

We can invent for you many such processes using specialized thermodynamic design knowledge and tools. Some processes may be unique and thus patentable. Some may be novel enough and useful enough to serve as the basis for a new product, or even an industry.

The key lies in the ability to take a customer's description of a desired outcome, and translate that into the language of thermodynamics, and then design a thermodynamic process that achieves that outcome. Of course some outcomes are unattainable, such as the perpetual motion machine.

A secondary key lies in knowing what thermodynamic machines are available to be used in a customer's process. Examples from refrigeration for instance include compressors, thermal expansion valves, condensing coils, and so forth. We have experience with many such devices.

You can call upon us to design a thermodynamic process that will achieve your desired goal. We will do our very best to create such a result.