

## Heat Engine

The term "Heat Engine" is a general term used to describe any device which can convert thermal energy into mechanical energy. There are endless common examples of these, which include gasoline engines, diesel engines, steam engines, rankine engines, stirling engines, and many other less well known types. It is understood that usually the engine produces its power by rotating a shaft, which is a convenient means of turning gears, car wheels, generators, and so forth.

Often the engines are labeled according to the thermodynamic cycle they employ, which in turn is often named after its inventor. Thus the stirling engine is named after the stirling cycle, which was made practical many years ago by the Rev. Stirling, as one example. Other more exotic cycles are less easily described and less well known, but all describe a thermodynamic process of converting heat to mechanical work.

Many heat engine cycles appear superficially similar when plotted on paper, but as usual in such cases the differences lie in the details. Many engine cycles differ by details which would not even be noticed by the casual reader, but are vitally important none the less. One of our chief areas of specialization lies in the creation of heat engine cycles which are similar to others, but unique in vital details.

This allows us to tailor an engine design to a specific set of requirements that a customer may present to us. For instance, there may be limitations on the amount or temperature of the heat available for use. Efficiency may be a primary concern, or in other cases where waste heat is used, may be of almost no concern. In some cases the intent may be as much about getting rid of the waste heat productively as it is about the amount of power produced.

Some circumstances, for example at power plants, limit the waste heat that may be discharged to the surroundings. In this case a relatively inefficient engine may be used to absorb the unwanted exhaust heat and at the same time produce the added benefit of producing some amount of useful power.

In other cases, efficiency may be of paramount concern. Here the design details will have to be very different.

We have much practical experience in these areas, and will be happy to tailor an engine cycle and an engine design to your specific needs.

Please contact us for more information in this area.