

Engines

An engine, also known as a motor, is a device that changes energy into useful mechanical motion. Motors that convert heat energy into motion are referred to as engines. Engines are available in many types like for example internal and external combustion. An internal combustion engine typically burns a fuel along with air and the resulting hot gases are utilized for generating power. Steam engines are an illustration of external combustion engines. They use heat so as to generate motion using a separate working fluid.

To be able to create a mechanical motion via different electromagnetic fields, the electric motor should take and create electrical energy. This particular type of engine is very common. Other kinds of engine could function making use of non-combustive chemical reactions and some would use springs and be driven through elastic energy. Pneumatic motors and [parts](#) are driven through compressed air. There are other designs based on the application needed.

Internal combustion engines or ICEs

Internal combustion occurs when the combustion of the fuel combines together with an oxidizer inside the combustion chamber. Inside the IC engine, higher temperatures will result in direct force to certain engine components like for instance the turbine blades, nozzles or pistons. This force generates useful mechanical energy by way of moving the component over a distance. Typically, an ICE has intermittent combustion as seen in the popular 2- and 4-stroke piston engines and the Wankel rotary engine. Nearly all jet engines, gas turbines and rocket engines fall into a second class of internal combustion engines referred to as continuous combustion, that takes place on the same previous principal described.

External combustion engines like for instance steam or Sterling engines differ very much from internal combustion engines. External combustion engines, wherein the energy is delivered to a working fluid like for example pressurized water, liquid sodium and hot water or air that are heated in some sort of boiler. The working fluid is not combined with, consisting of or contaminated by combustion products.

The designs of ICEs available today come along with various weaknesses and strengths. An internal combustion engine powered by an energy dense fuel will deliver efficient power-to-weight ratio. Although ICEs have been successful in many stationary utilization, their real strength lies in mobile applications. Internal combustion engines dominate the power supply utilized for vehicles like for instance cars, boats and forklifts. Some hand-held power gadgets utilize either battery power or ICE devices.

External combustion engines

An external combustion engine uses a heat engine where a working fluid, like for example steam in steam engine or gas in a Stirling engine, is heated by combustion of an external source. This particular combustion occurs through a heat exchanger or through the engine wall. The fluid expands and acts upon the engine mechanism which generates motion. Then, the fluid is cooled, and either compressed and reused or thrown, and cool fluid is pulled in.

Burning fuel with the aid of an oxidizer to be able to supply the heat is called "combustion." External thermal engines may be of similar use and configuration but utilize a heat supply from sources like for example nuclear, exothermic, geothermal or solar reactions not involving combustion.

Working fluid could be of any constitution, even if gas is the most common working fluid. From time to time a single-phase liquid is occasionally used. In Organic Rankine Cycle or in the case of the steam engine, the working fluid adjusts phases between gas and liquid.