

## Inventors for LC Engineering

**Blaise Pascal** - Pascal's earliest work was in the natural and applied sciences where he made important contributions to the construction of mechanical calculators, the study of fluids, and clarified the concepts of pressure and vacuum by generalizing the work of Evangelista Torricelli. Pascal also wrote powerfully in defense of the scientific method.

**Dugald Clerk** - The two-stroke spark ignition engine is an old, and reasonably simple technology. Sometimes called the Clerk Cycle engine, the concept was patented in 1881 by Sir Dugald Clerk. In contrast to the four-stroke or Otto Cycle engine, which produces a power stroke on every fourth stroke, the two-stroke or Clerk Cycle engine provides a power stroke for every other stroke.

**Leo Baekeland** - One of the earliest synthetics that transformed the material basis of modern life was Bakelite, a polymeric plastic made from phenol and formaldehyde. Leo Hendrik Baekeland (1863–1944) invented Bakelite in 1907, and his inventive and entrepreneurial genius also propelled him into several other new chemical technological ventures at the turn of the 20th century.

**Robert Boyle** - Boyle fixed the amount of gas and its temperature during his investigation. He found that when he manipulated the pressure that the volume responded in the opposite direction. For example, when Boyle increased the pressure on a gas sample the volume would decrease. Mathematically,  $PV = \text{constant value}$  if the gas is behaving as an Ideal Gas. A practical math expression of Boyle's findings is as follows:

$$P_1V_1 = P_2V_2$$

**Gottlieb Daimler** - In 1885, Gottlieb Daimler (together with his design partner Wilhelm Maybach) took Otto's internal combustion engine a step further and patented what is generally recognized as the prototype of the modern gas engine. Daimler's connection to Otto was a direct one; Daimler worked as technical director of Deutz Gasmotorenfabrik, which Nikolaus Otto co-owned in 1872. There is some controversy as to who built the first motorcycle Otto or Daimler.

**Daniel Bernoulli** - was a Dutch-born member of the Swiss mathematical family. His most important work considered the basic properties of fluid flow, pressure, density and velocity, and gave the Bernoulli principle.

**Theodore Maiman** - is an American physicist who invented the first operable laser device

**Charles Parsons** - was an Irish engineer, best known for his invention of the steam turbine.

**Eli Whitney** - is credited with creating the first cotton gin in 1793

**German Sommeiller** - He directed the construction of the Fréjus Rail Tunnel between France and Italy, also known as the Mont Cenis Tunnel. This was the first of a series of major tunnels built in the late 19th century to connect northern and southern Europe through the Alps. Sommeiller pioneered the use of pneumatic drilling and dynamite to achieve record-breaking excavation speeds. This 12.8-km tunnel was completed on December 26, 1870, 11 years ahead of schedule. It remained the longest tunnel in the world until the opening of the Gotthard Rail Tunnel in 1882.

**Jack Kilby** - was a notable American electrical engineer who co-won the Nobel Prize in physics in 2000. He invented the integrated circuit in 1958 while working at Texas Instruments (TI) at about six months before Robert Noyce made the same invention at Fairchild Semiconductor

**Chester Carlson** - was an American, inventor, and patent attorney born in Seattle, Washington. He invented the process of instant copying which he called electrophotography, and which was subsequently named xerography and commercialized by the Haloid Corporation. His invention did more than make him a millionaire many times over -- it transformed copyright law and the way people work. The changes xerography has brought about continue to reverberate, and have made possible many other inventions such as the laser printer

**Gustaf Dahlen** – Software development, programming codes, languages

**Wilhelm Roentgen** - was a German physicist who lived between 1845-1923. His accidental discovery of x-rays in 1895 changed the fields of physics and medicine.

**Henry Maudsley** – Centre lathe development

**Ivan Sikorsky** – Helicopter, vertical lift.