

Control Valves for Forklift

Forklift Control Valve - The first automated control systems were being utilized more than two thousand years ago. In Alexandria, Egypt, the ancient Ktesibios water clock built in the third century is considered to be the first feedback control machine on record. This clock kept time by regulating the water level within a vessel and the water flow from the vessel. A popular story, this successful device was being made in a similar manner in Baghdad when the Mongols captured the city in 1258 A.D.

Different automatic devices all through history, have been used to carry out certain jobs. A popular design used through the 17th and 18th centuries in Europe, was the automata. This particular tool was an example of "open-loop" control, comprising dancing figures that would repeat the same job again and again.

Closed loop or also called feedback controlled equipments consist of the temperature regulator common on furnaces. This was actually developed during 1620 and accredited to Drebbel. Another example is the centrifugal fly ball governor developed during the year 1788 by James Watt and utilized for regulating the speed of steam engines.

J.C. Maxwell, who discovered the Maxwell electromagnetic field equations, wrote a paper in the year 1868 "On Governors," which can explain the instabilities exhibited by the fly ball governor. He utilized differential equations to be able to describe the control system. This paper demonstrated the importance and helpfulness of mathematical models and methods in relation to understanding complex phenomena. It likewise signaled the start of mathematical control and systems theory. Previous elements of control theory had appeared before but not as convincingly and as dramatically as in Maxwell's analysis.

Within the following 100 years control theory made huge strides. New developments in mathematical methods made it possible to more accurately control significantly more dynamic systems as opposed to the original fly ball governor. These updated techniques comprise different developments in optimal control in the 1950s and 1960s, followed by progress in stochastic, robust, optimal and adaptive control methods during the 1970s and the 1980s.

New applications and technology of control methodology has helped make cleaner engines, with more efficient and cleaner methods helped make communication satellites and even traveling in space possible.

Originally, control engineering was practiced as just a part of mechanical engineering. Control theories were at first studied with electrical engineering since electrical circuits could simply be explained with control theory techniques. At present, control engineering has emerged as a unique discipline.

The very first control relationships had a current output which was represented with a voltage control input. As the right technology to be able to implement electrical control systems was unavailable at that moment, designers left with the choice of slow responding mechanical systems and less efficient systems. The governor is a very efficient mechanical controller that is still often used by various hydro factories. Eventually, process control systems became offered before modern power electronics. These process controls systems were often utilized in industrial applications and were devised by mechanical engineers making use of pneumatic and hydraulic control devices, many of which are still being used these days.