Forklift Control Valve

Forklift Control Valve - Automatic control systems were initially developed more than two thousand years ago. The ancient water clock of Ktesibios in Alexandria Egypt dating to the 3rd century B.C. is thought to be the first feedback control device on record. This particular clock kept time by way of regulating the water level within a vessel and the water flow from the vessel. A common design, this successful device was being made in the same manner in Baghdad when the Mongols captured the city in 1258 A.D.

Different automatic tools all through history, have been utilized in order to carry out particular jobs. A common desing used throughout the 17th and 18th centuries in Europe, was the automata. This piece of equipment was an example of "open-loop" control, featuring dancing figures that would repeat the same task repeatedly.

Feedback or "closed-loop" automatic control tools comprise the temperature regulator found on a furnace. This was actually developed in the year 1620 and accredited to Drebbel. Another example is the centrifugal fly ball governor developed during 1788 by James Watt and used for regulating the speed of steam engines.

The Maxwell electromagnetic field equations, discovered by J.C. Maxwell wrote a paper in 1868 "On Governors," that was able to describing the exhibited by the fly ball governor. So as to explain the control system, he made use of differential equations. This paper exhibited the usefulness and importance of mathematical methods and models in relation to comprehending complicated phenomena. It even signaled the beginning of mathematical control and systems theory. Previous elements of control theory had appeared before by not as dramatically and as convincingly as in Maxwell's analysis.

Within the next 100 years control theory made huge strides. New developments in mathematical techniques made it feasible to more precisely control significantly more dynamic systems compared to the original fly ball governor. These updated methods consist of various developments in optimal control during the 1950s and 1960s, followed by development in stochastic, robust, adaptive and optimal control techniques in the 1970s and the 1980s.

New applications and technology of control methodology have helped make cleaner auto engines, more efficient and cleaner chemical processes and have helped make space travel and communication satellites possible.

Primarily, control engineering was performed as a part of mechanical engineering. Additionally, control theory was first studied as part of electrical engineering since electrical circuits could often be simply explained with control theory methods. Currently, control engineering has emerged as a unique discipline.

The first controls had current outputs represented with a voltage control input. To implement electrical control systems, the correct technology was unavailable at that time, the designers were left with less efficient systems and the alternative of slow responding mechanical systems. The governor is a very efficient mechanical controller which is still often utilized by various hydro plants. Ultimately, process control systems became accessible prior to modern power electronics. These process controls systems were often used in industrial applications and were devised by mechanical engineers utilizing hydraulic and pneumatic control equipments, many of which are still being used these days.