

## Forklift Control Valves

Forklift Control Valve - Automatic control systems were initially created over 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 very first feedback control machine on record. This particular clock kept time by regulating the water level inside a vessel and the water flow from the vessel. A common style, this successful equipment was being made in the same fashion in Baghdad when the Mongols captured the city in 1258 A.D.

Through history, various automatic devices have been utilized in order to simply entertain or to accomplish specific tasks. A common European style through the seventeenth and eighteenth centuries was the automata. This particular device was an example of "open-loop" control, comprising dancing figures that will repeat the same task again and again.

Closed loop or feedback controlled machines include the temperature regulator common on furnaces. This was actually developed during 1620 and attributed to Drebbel. Another example is the centrifugal fly ball governor developed during the year 1788 by James Watt and used for regulating steam engine speed.

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

New control theories and new developments in mathematical techniques made it possible to more accurately control more dynamic systems as opposed to the first model fly ball governor. These updated techniques include various developments in optimal control in the 1950s and 1960s, followed by progress in robust, stochastic, optimal and adaptive control methods during the 1970s and the 1980s.

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

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

The very first controls had current outputs represented with a voltage control input. So as to implement electrical control systems, the correct technology was unavailable at that time, the designers were left with less efficient systems and the choice of slow responding mechanical systems. The governor is a very efficient mechanical controller that is still often used by some hydro plants. In the long run, process control systems became offered previous to modern power electronics. These process controls systems were usually utilized in industrial applications and were devised by mechanical engineers using pneumatic and hydraulic control machines, many of which are still being utilized today.