

## Forklift Control Valves

Control Valves for Forklift - The first automatic control systems were being used over two thousand years ago. In Alexandria Egypt, the ancient Ktesibios water clock built in the 3rd century is thought to be the very first feedback control tool on record. This clock kept time by regulating the water level in a vessel and the water flow from the vessel. A popular design, this successful tool was being made in the same manner in Baghdad when the Mongols captured the city in 1258 A.D.

A variety of automatic machines all through history, have been utilized to be able to carry out specific jobs. A popular style used through the seventeenth and eighteenth centuries in Europe, was the automata. This particular machine was an example of "open-loop" control, consisting dancing figures which will repeat the same job over and over.

Closed loop or feedback controlled machines include the temperature regulator common on furnaces. This was developed in 1620 and attributed to Drebbel. Another example is the centrifugal fly ball governor developed in 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 the year 1868 "On Governors," which was able to describing the exhibited by the fly ball governor. To explain the control system, he used differential equations. This paper exhibited the usefulness and importance of mathematical methods and models in relation to comprehending complex phenomena. It also signaled the start of systems theory and mathematical control. Previous elements of control theory had appeared before by not as dramatically and as convincingly as in Maxwell's study.

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

Primarily, control engineering was practiced as a part of mechanical engineering. What's more, control theory was first studied as part of electrical engineering since electrical circuits could often be simply described with control theory methods. Today, control engineering has emerged as a unique discipline.

The first controls had current outputs represented with a voltage control input. To be able to implement electrical control systems, the right technology was unavailable at that time, the designers were left with less efficient systems and the option of slow responding mechanical systems. The governor is a very efficient mechanical controller that is still usually utilized by some hydro plants. Eventually, process control systems became accessible previous to 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, lots of which are still being utilized these days.