

Forklift Control Valves

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

Different automatic equipment through history, have been utilized to accomplish certain tasks. A common desing used all through the 17th and 18th centuries in Europe, was the automata. This particular piece of equipment was an example of "open-loop" control, consisting dancing figures which will repeat the same task repeatedly.

Feedback or "closed-loop" automatic control machines consist of the temperature regulator seen on a furnace. This was developed in 1620 and accredited to Drebbel. Another example is the centrifugal fly ball governor developed during 1788 by James Watt and utilized for regulating steam engine speed.

J.C. Maxwell, who discovered the Maxwell electromagnetic field equations, wrote a paper in 1868 "On Governors," that was able to describe the instabilities exhibited by the fly ball governor. He used differential equations in order to describe the control system. This paper demonstrated the usefulness and importance of mathematical models and methods in relation to comprehending complicated phenomena. It also signaled the beginning of mathematical control and systems theory. Previous elements of control theory had appeared before by not as convincingly and as dramatically as in Maxwell's analysis.

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

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

Originally, control engineering was practiced as just a part of mechanical engineering. Control theories were firstly studied with electrical engineering since electrical circuits can simply be explained 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. In order to implement electrical control systems, the right technology was unavailable then, 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 normally utilized by some hydro plants. Eventually, process control systems became available prior to modern power electronics. These process controls systems were often utilized in industrial applications and were devised by mechanical engineers making use of hydraulic and pneumatic control machines, many of which are still being utilized these days.