Forklift Control Valves

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

Through history, a variety of automatic equipments have been used to simply entertain or to accomplish specific tasks. A popular European style in the 17th and 18th centuries was the automata. This particular device was an example of "open-loop" control, comprising dancing figures which would repeat the same job over and over.

Feedback or "closed-loop" automatic control equipments comprise the temperature regulator seen on a furnace. This was actually developed during 1620 and attributed 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," which can clarify the instabilities exhibited by the fly ball governor. He used differential equations so as to describe the control system. This paper demonstrated the importance and helpfulness of mathematical models and methods in relation to understanding complicated phenomena. It even signaled the start 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 study.

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

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

In the beginning, control engineering was carried out as a part of mechanical engineering. As well, control theory was initially studied as part of electrical engineering since electrical circuits can often be simply described with control theory techniques. Today, control engineering has emerged as a unique discipline.

The first controls had current outputs represented with a voltage control input. So as to implement electrical control systems, the proper technology was unavailable at that moment, the designers were left with less efficient systems and the option of slow responding mechanical systems. The governor is a very effective mechanical controller that is still often used by various hydro factories. In the long run, process control systems became accessible prior to modern power electronics. These process controls systems were normally used in industrial applications and were devised by mechanical engineers utilizing hydraulic and pneumatic control devices, lots of which are still being utilized at present.