

Control Valve for Forklift

Forklift Control Valve - The earliest mechanized control systems were being used more than two thousand years ago. In Alexandria, Egypt, the ancient Ktesibios water clock constructed in the third century is believed 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 device was being made in a similar fashion in Baghdad when the Mongols captured the city in 1258 A.D.

Throughout history, various automatic tools have been utilized so as to accomplish specific tasks or to simply entertain. A popular European style all through the 17th and 18th centuries was the automata. This device was an example of "open-loop" control, comprising dancing figures that would repeat the same task repeatedly.

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

The Maxwell electromagnetic field equations, discovered by J.C. Maxwell wrote a paper in 1868 "On Governors," that was able to explain the exhibited by the fly ball governor. To be able to describe the control system, he utilized differential equations. This paper demonstrated the importance and helpfulness of mathematical models and methods in relation to comprehending complicated phenomena. It even 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 analysis.

Within the following 100 years control theory made huge strides. New developments in mathematical techniques made it possible to more precisely control considerably more dynamic systems compared to the first fly ball governor. These updated techniques include different developments in optimal control during the 1950s and 1960s, followed by development in robust, stochastic, optimal and adaptive control methods during the 1970s and the 1980s.

New technology and applications of control methodology has helped make cleaner engines, with cleaner and more efficient methods helped make communication satellites and even traveling in space possible.

In the beginning, control engineering was practiced as a part of mechanical engineering. Moreover, control theory was initially studied as part of electrical engineering as electrical circuits could often be simply described with control theory techniques. Currently, control engineering has emerged as a unique practice.

The very first controls had current outputs represented with a voltage control input. 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 that is still usually utilized by several hydro plants. Eventually, process control systems became available previous to modern power electronics. These process controls systems were normally utilized in industrial applications and were devised by mechanical engineers using hydraulic and pneumatic control machines, a lot of which are still being used nowadays.