

Control Valve for Forklift

Forklift Control Valve - Automatic control systems were primarily established 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 first feedback control equipment on record. This clock kept time by means of regulating the water level within a vessel and the water flow from the vessel. A popular style, this successful tool was being made in the same fashion in Baghdad when the Mongols captured the city in 1258 A.D.

All through history, various automatic machines have been used to be able to simply entertain or to accomplish specific tasks. A popular European design during the seventeenth and eighteenth centuries was the automata. This device was an example of "open-loop" control, consisting dancing figures that would repeat the same job over and over.

Closed loop or also called feedback controlled devices consist of the temperature regulator common on furnaces. This was actually developed during the year 1620 and attributed to Drebbel. One more example is the centrifugal fly ball governor developed during 1788 by James Watt and used for regulating the speed of steam engines.

J.C. Maxwell, who discovered the Maxwell electromagnetic field equations, wrote a paper in the year 1868 "On Governors," which can describe the instabilities exhibited by the fly ball governor. He made use of differential equations to be able to explain the control system. This paper demonstrated the usefulness and importance of mathematical models and methods in relation to understanding complex 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.

In the next 100 years control theory made huge strides. New developments in mathematical methods made it possible to more accurately control significantly more dynamic systems compared to the first fly ball governor. These updated methods include different developments in optimal control during the 1950s and 1960s, followed by progress in robust, stochastic, adaptive and optimal control methods during the 1970s and the 1980s.

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

At first, control engineering was practiced as a part of mechanical engineering. As well, control theory was initially studied as part of electrical engineering in view of the fact that electrical circuits could often be simply described with control theory methods. Currently, control engineering has emerged as a unique practice.

The first controls had current outputs represented with a voltage control input. To be able to implement electrical control systems, the proper technology was unavailable at that moment, the designers were left with less efficient systems and the choice of slow responding mechanical systems. The governor is a very effective mechanical controller which is still normally used by several hydro factories. Ultimately, process control systems became available before modern power electronics. These process controls systems were often utilized in industrial applications and were devised by mechanical engineers using hydraulic and pneumatic control equipments, lots of which are still being used at present.