

Control Valve for Forklift

Control Valves for Forklift - The earliest mechanized control systems were being utilized more than two thousand years ago. In Alexandria Egypt, the ancient Ktesibios water clock built in the 3rd century is thought to be the first feedback control machine on record. This clock kept time by means of regulating the water level inside a vessel and the water flow from the vessel. A common design, this successful machine was being made in the same manner in Baghdad when the Mongols captured the city in 1258 A.D.

Through history, a variety of automatic machines have been used so as to simply entertain or to accomplish specific tasks. A popular European style through the seventeenth and eighteenth centuries was the automata. This particular machine was an example of "open-loop" control, comprising dancing figures which would repeat the same job again and again.

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

The Maxwell electromagnetic field equations, discovered by J.C. Maxwell wrote a paper in the year 1868 "On Governors," which was able to explaining the exhibited by the fly ball governor. In order to explain the control system, he made use of differential equations. This paper demonstrated the usefulness and importance of mathematical models and methods in relation to understanding complex phenomena. It likewise signaled the beginning of mathematical control and systems theory. Previous elements of control theory had appeared before but not as dramatically and as convincingly as in Maxwell's analysis.

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 include various developments in optimal control during the 1950s and 1960s, followed by advancement in robust, stochastic, optimal and adaptive control methods in 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.

Initially, control engineering was performed as a part of mechanical engineering. Also, control theory was first studied as part of electrical engineering because electrical circuits could often be simply described with control theory techniques. Today, control engineering has emerged as a unique practice.

The very first control relationships had a current output which was represented with a voltage control input. Since the correct technology to be able to implement electrical control systems was unavailable at that time, designers left with the choice of slow responding mechanical systems and less efficient systems. The governor is a really effective mechanical controller which is still normally utilized by some hydro factories. Ultimately, process control systems became available before modern power electronics. These process controls systems were usually utilized in industrial applications and were devised by mechanical engineers utilizing pneumatic and hydraulic control machines, many of which are still being used at present.