

Control Valve for Forklift

Forklift Control Valve - The first automated control systems were being utilized over two thousand years ago. In Alexandria Egypt, the ancient Ktesibios water clock built in the 3rd century is thought to be the very first feedback control tool on record. This clock kept time by way of regulating the water level inside a vessel and the water flow from the vessel. A common style, this successful device was being made in the same manner in Baghdad when the Mongols captured the city in 1258 A.D.

Various automatic devices throughout history, have been utilized to complete particular jobs. A common desing utilized through the 17th and 18th centuries in Europe, was the automata. This piece of equipment was an example of "open-loop" control, featuring dancing figures which will repeat the same job repeatedly.

Feedback or also known as "closed-loop" automatic control machines include the temperature regulator seen on a furnace. This was actually developed during 1620 and accredited to Drebbel. Another example is the centrifugal fly ball governor developed in 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 describe the instabilities demonstrated by the fly ball governor. He utilized differential equations in order to explain the control system. This paper exhibited the usefulness and importance of mathematical models and methods in relation to understanding complicated phenomena. It also signaled the beginning of systems theory and mathematical control. Previous elements of control theory had appeared before by not as dramatically and as convincingly as in Maxwell's study.

New developments in mathematical techniques and new control theories made it possible to more accurately control more dynamic systems compared to the original model fly ball governor. These updated methods include various developments in optimal control in 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 make cleaner auto engines, cleaner and more efficient chemical processes and have helped make communication and space travel satellites possible.

Initially, control engineering was practiced as a part of mechanical engineering. Additionally, control theory was initially 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 discipline.

The very first controls had current outputs represented with a voltage control input. To implement electrical control systems, the proper technology was unavailable at that time, the designers were left with less efficient systems and the option of slow responding mechanical systems. The governor is a really efficient mechanical controller which is still often used by several hydro factories. In the long run, process control systems became accessible prior to modern power electronics. These process controls systems were usually utilized in industrial applications and were devised by mechanical engineers using pneumatic and hydraulic control machines, many of which are still being utilized these days.