

Control Valve for Forklift

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

Throughout history, different automatic machines have been utilized to accomplish specific tasks or to simply entertain. A popular European design during the seventeenth and eighteenth centuries was the automata. This device was an example of "open-loop" control, featuring dancing figures which will repeat the same task over and over.

Closed loop or likewise called feedback controlled machines consist of the temperature regulator common on furnaces. This was actually developed in the year 1620 and accredited to Drebbel. Another example is the centrifugal fly ball governor developed in 1788 by James Watt and used for regulating steam engine speed.

The Maxwell electromagnetic field equations, discovered by J.C. Maxwell wrote a paper in the year 1868 "On Governors," which was able to describing the exhibited by the fly ball governor. So as to explain the control system, he utilized differential equations. This paper exhibited the importance and helpfulness of mathematical models and methods in relation to comprehending complicated phenomena. It also signaled the beginning of systems theory and mathematical control. Previous elements of control theory had appeared earlier 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 precisely control more dynamic systems as opposed to the original model fly ball governor. These updated methods comprise various developments in optimal control in the 1950s and 1960s, followed by development in stochastic, robust, optimal and adaptive control techniques in the 1970s and the 1980s.

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

Primarily, control engineering was practiced as a part of mechanical engineering. Furthermore, control theory was first studied as part of electrical engineering as electrical circuits can often be simply described with control theory techniques. Nowadays, control engineering has emerged as a unique practice.

The first control partnerships had a current output which was represented with a voltage control input. For the reason that the correct technology to implement electrical control systems was unavailable then, designers left with the alternative of slow responding mechanical systems and less efficient systems. The governor is a very effective mechanical controller which is still often utilized by some hydro factories. Eventually, process control systems became available previous to modern power electronics. These process controls systems were often used in industrial applications and were devised by mechanical engineers utilizing hydraulic and pneumatic control devices, many of which are still being utilized nowadays.