

Control Valve for Forklift

Forklift Control Valve - Automatic control systems were first developed more than 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 device on record. This particular 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 equipment was being made in a similar manner in Baghdad when the Mongols captured the city in 1258 A.D.

Various automatic equipment all through history, have been used in order to complete specific jobs. A popular desing utilized throughout the 17th and 18th centuries in Europe, was the automata. This machine was an example of "open-loop" control, featuring dancing figures which would repeat the same job over and over.

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

J.C. Maxwell, who discovered the Maxwell electromagnetic field equations, wrote a paper in 1868 "On Governors," that could explain the instabilities demonstrated by the fly ball governor. He utilized differential equations to explain the control system. This paper exhibited the importance and helpfulness of mathematical methods and models 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 by not as dramatically and as convincingly as in Maxwell's analysis.

New developments in mathematical techniques and new control theories made it possible to more precisely control more dynamic systems compared to the first model fly ball governor. These updated methods include various developments in optimal control in the 1950s and 1960s, followed by advancement in stochastic, robust, adaptive and optimal control techniques during the 1970s and the 1980s.

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

In the beginning, control engineering was performed as just a part of mechanical engineering. Control theories were at first studied with electrical engineering as electrical circuits can simply be explained with control theory techniques. Today, control engineering has emerged as a unique discipline.

The first control relationships had a current output which was represented with a voltage control input. Because the correct technology in order 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 efficient mechanical controller that is still usually used by various hydro plants. Eventually, process control systems became offered prior to modern power electronics. These process controls systems were normally utilized in industrial applications and were devised by mechanical engineers making use of hydraulic and pneumatic control devices, many of which are still being used today.