

Control Valve for Forklift

Forklift Control Valve - 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 third century is believed to be the very first feedback control equipment on record. This clock kept time by regulating the water level in a vessel and the water flow from the vessel. A common design, this successful tool was being made in the same manner in Baghdad when the Mongols captured the city in 1258 A.D.

Throughout history, different automatic equipments have been utilized so as to simply entertain or to accomplish specific tasks. A popular European design in the 17th and 18th centuries was the automata. This particular device was an example of "open-loop" control, comprising dancing figures which will repeat the same task repeatedly.

Feedback or likewise known as "closed-loop" automatic control devices comprise the temperature regulator seen on a furnace. This was developed during 1620 and attributed to Drebbel. Another example is the centrifugal fly ball governor developed in the year 1788 by James Watt and used for regulating steam engine speed.

J.C. Maxwell, who discovered the Maxwell electromagnetic field equations, wrote a paper in the year 1868 "On Governors," that could clarify the instabilities exhibited by the fly ball governor. He made use of differential equations to be able to describe the control system. This paper demonstrated the importance and helpfulness 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 study.

New developments in mathematical techniques and new control theories made it possible to more accurately control more dynamic systems as opposed to the first model fly ball governor. These updated techniques consist of different developments in optimal control in the 1950s and 1960s, followed by progress in robust, stochastic, optimal and adaptive control methods in the 1970s and the 1980s.

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

In the beginning, control engineering was carried out as just a part of mechanical engineering. Control theories were at first studied with electrical engineering for the reason that electrical circuits could simply be explained with control theory methods. Currently, control engineering has emerged as a unique discipline.

The very first control relationships had a current output that was represented with a voltage control input. For the reason that 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 very efficient mechanical controller which is still normally utilized by some hydro plants. Eventually, process control systems became obtainable before modern power electronics. These process control systems were often utilized in industrial applications and were devised by mechanical engineers utilizing pneumatic and hydraulic control machines, many of which are still being used these days.