

Control Valve for Forklift

Control Valve for Forklift - The earliest automated control systems were being utilized over two thousand years ago. In Alexandria Egypt, the ancient Ktesibios water clock constructed in the 3rd century is considered to be the first feedback control equipment on record. This clock kept time by way of regulating the water level in 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.

Throughout history, different automatic equipments have been used so as to simply entertain or to accomplish specific tasks. A popular European style all through the seventeenth and eighteenth centuries was the automata. This machine was an example of "open-loop" control, featuring dancing figures that will repeat the same task again and again.

Closed loop or also called feedback controlled machines comprise the temperature regulator common on furnaces. This was developed during 1620 and accredited to Drebbel. One more example is the centrifugal fly ball governor developed in 1788 by James Watt and used for regulating the speed of steam engines.

J.C. Maxwell, who discovered the Maxwell electromagnetic field equations, wrote a paper in the year 1868 "On Governors," which could clarify the instabilities exhibited by the fly ball governor. He made use of differential equations in order to explain the control system. This paper demonstrated the usefulness and importance of mathematical models and methods in relation to understanding complicated phenomena. It also signaled the beginning of mathematical control and systems theory. 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 accurately control more dynamic systems than the initial model fly ball governor. These updated techniques consist of various developments in optimal control in the 1950s and 1960s, followed by progress in stochastic, robust, adaptive and optimal control methods during the 1970s and the 1980s.

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

Originally, control engineering was carried out as just a part of mechanical engineering. Control theories were firstly studied with electrical engineering because electrical circuits can simply be described with control theory techniques. Nowadays, control engineering has emerged as a unique discipline.

The first controls had current outputs represented with a voltage control input. So as to implement electrical control systems, the correct technology was unavailable at that moment, the designers were left with less efficient systems and the choice of slow responding mechanical systems. The governor is a very effective mechanical controller which is still normally utilized by some hydro factories. In the long run, process control systems became available before modern power electronics. These process controls systems were normally used in industrial applications and were devised by mechanical engineers using pneumatic and hydraulic control machines, many of which are still being utilized today.