

Control Valve for Forklift

Forklift Control Valve - Automatic control systems were primarily 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 tool on record. This clock kept time by regulating the water level inside a vessel and the water flow from the vessel. A popular design, this successful machine was being made in the same fashion in Baghdad when the Mongols captured the city in 1258 A.D.

Various automatic machines throughout history, have been used in order to complete specific tasks. A popular style used all through the 17th and 18th centuries in Europe, was the automata. This particular tool was an example of "open-loop" control, comprising dancing figures that 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 1620 and accredited to Drebbel. Another example is the centrifugal fly ball governor developed in the year 1788 by James Watt and used for regulating the speed of steam engines.

The Maxwell electromagnetic field equations, discovered by J.C. Maxwell wrote a paper in the year 1868 "On Governors," that was able to describing the exhibited by the fly ball governor. To be able to describe the control system, he used differential equations. This paper exhibited the importance and helpfulness of mathematical models and methods in relation to understanding complex phenomena. It also signaled the start 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.

In the next 100 years control theory made huge strides. New developments in mathematical methods made it feasible to more accurately control considerably more dynamic systems than the first fly ball governor. These updated techniques 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 produce cleaner auto engines, cleaner and more efficient chemical methods and have helped make communication and space travel satellites possible.

At first, control engineering was practiced as just a part of mechanical engineering. Control theories were initially studied with electrical engineering as electrical circuits could simply be explained with control theory techniques. At present, control engineering has emerged as a unique practice.

The first control relationships had a current output which was represented with a voltage control input. In view of the fact that the right technology to be able to implement electrical control systems was unavailable at that time, designers left with the alternative of slow responding mechanical systems and less efficient systems. The governor is a very efficient mechanical controller that is still normally utilized by various hydro factories. In the long run, process control systems became offered previous to modern power electronics. These process controls systems were often utilized in industrial applications and were devised by mechanical engineers utilizing hydraulic and pneumatic control devices, many of which are still being utilized today.