

Control Valves for Forklift

Forklift Control Valves - Automatic control systems were primarily established 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 very first feedback control equipment on record. This particular clock kept time by way of regulating the water level within a vessel and the water flow from the vessel. A common style, this successful equipment was being made in the same fashion in Baghdad when the Mongols captured the city in 1258 A.D.

A variety of automatic machines through history, have been used in order to accomplish particular jobs. A popular desing utilized in the seventeenth and eighteenth centuries in Europe, was the automata. This piece of equipment was an example of "open-loop" control, consisting dancing figures that would repeat the same job again and again.

Closed loop or otherwise called feedback controlled equipments include the temperature regulator common on furnaces. This was developed during the year 1620 and accredited to Drebbel. One more example is the centrifugal fly ball governor developed in 1788 by James Watt and utilized for regulating steam engine speed.

J.C. Maxwell, who discovered the Maxwell electromagnetic field equations, wrote a paper in 1868 "On Governors," which was able to describe the instabilities exhibited by the fly ball governor. He used differential equations to describe the control system. This paper demonstrated the usefulness and importance 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 convincingly and as dramatically as in Maxwell's analysis.

In the following 100 years control theory made huge strides. New developments in mathematical techniques made it possible to more accurately control significantly more dynamic systems than the original fly ball governor. These updated techniques include various developments in optimal control during the 1950s and 1960s, followed by progress in robust, stochastic, adaptive and optimal control techniques in the 1970s and the 1980s.

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

Initially, control engineering was practiced as a part of mechanical engineering. In addition, control theory was first studied as part of electrical engineering as electrical circuits can often be simply explained with control theory methods. Currently, 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 correct technology to implement electrical control systems was unavailable at that time, designers left with the option of slow responding mechanical systems and less efficient systems. The governor is a really effective mechanical controller which is still usually utilized by several hydro factories. Eventually, process control systems became accessible prior to modern power electronics. These process controls systems were usually used in industrial applications and were devised by mechanical engineers utilizing pneumatic and hydraulic control equipments, a lot of which are still being used today.