

Control Valves for Forklift

Forklift Control Valves - Automatic control systems were initially established more than two thousand years ago. The ancient water clock of Ktesibios in Alexandria Egypt dating to the 3rd century B.C. is believed to be the first feedback control machine 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 popular design, this successful equipment was being made in the same manner in Baghdad when the Mongols captured the city in 1258 A.D.

Through history, various automatic devices have been used to be able to accomplish specific tasks or to simply entertain. A common European design through the seventeenth and eighteenth centuries was the automata. This tool was an example of "open-loop" control, consisting dancing figures that would repeat the same job over and over.

Closed loop or feedback controlled devices include the temperature regulator common on furnaces. This was developed during the year 1620 and attributed to Drebbel. Another example is the centrifugal fly ball governor developed during the year 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 demonstrated by the fly ball governor. He made use of differential equations to be able to describe the control system. This paper exhibited the importance and helpfulness of mathematical methods and models in relation to understanding complicated phenomena. It even signaled the beginning 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.

Within the following one hundred years control theory made huge strides. New developments in mathematical techniques made it feasible to more accurately control considerably more dynamic systems as opposed to the first fly ball governor. These updated techniques comprise different developments in optimal control during the 1950s and 1960s, followed by advancement in stochastic, robust, optimal and adaptive control methods during the 1970s and the 1980s.

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

At first, control engineering was performed 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 described with control theory methods. Today, control engineering has emerged as a unique practice.

The very first controls had current outputs represented with a voltage control input. So as to implement electrical control systems, the proper 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 really efficient mechanical controller that is still often used by some hydro factories. In the long run, process control systems became obtainable before modern power electronics. These process controls systems were normally used in industrial applications and were devised by mechanical engineers utilizing hydraulic and pneumatic control devices, a lot of which are still being utilized these days.