

Control Valves for Forklift

Forklift Control Valve - 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 very first feedback control equipment on record. This particular clock kept time by way of regulating the water level inside a vessel and the water flow from the vessel. A common style, this successful equipment was being made in a similar manner in Baghdad when the Mongols captured the city in 1258 A.D.

Different automatic equipment throughout history, have been used to complete certain tasks. A common desing utilized during the seventeenth and eighteenth centuries in Europe, was the automata. This particular machine was an example of "open-loop" control, consisting dancing figures that would repeat the same job over and over.

Closed loop or feedback controlled tools include the temperature regulator common on furnaces. This was actually developed during 1620 and attributed to Drebbel. Another example is the centrifugal fly ball governor developed in the year 1788 by James Watt and utilized for regulating steam engine speed.

The Maxwell electromagnetic field equations, discovered by J.C. Maxwell wrote a paper in the year 1868 "On Governors," which was able to explaining the exhibited by the fly ball governor. So as to describe the control system, he utilized differential equations. This paper exhibited the usefulness and importance of mathematical models and methods in relation to understanding complicated phenomena. It even signaled the beginning of systems theory and mathematical control. Previous elements of control theory had appeared earlier by not as convincingly and as dramatically as in Maxwell's analysis.

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 methods comprise various developments in optimal control in the 1950s and 1960s, followed by advancement in stochastic, robust, adaptive and optimal control methods during the 1970s and the 1980s.

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

Initially, control engineering was carried out as a part of mechanical engineering. As well, control theory was first studied as part of electrical engineering because electrical circuits can often be simply explained with control theory techniques. Today, control engineering has emerged as a unique practice.

The first controls had current outputs represented with a voltage control input. In order to implement electrical control systems, the correct technology was unavailable then, the designers were left with less efficient systems and the option of slow responding mechanical systems. The governor is a very effective mechanical controller that is still usually utilized by several hydro factories. Eventually, process control systems became offered prior to modern power electronics. These process controls systems were usually utilized in industrial applications and were devised by mechanical engineers using hydraulic and pneumatic control equipments, a lot of which are still being used today.