

Control Valve for Forklift

Forklift Control Valve - Automatic control systems were primarily created over 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 machine was being made in the same fashion in Baghdad when the Mongols captured the city in 1258 A.D.

Throughout history, a variety of automatic devices have been utilized to accomplish specific tasks or to simply entertain. A popular European design in the seventeenth and eighteenth centuries was the automata. This particular device was an example of "open-loop" control, featuring dancing figures that would repeat the same task again and again.

Closed loop or also called feedback controlled machines consist of the temperature regulator common on furnaces. This was developed in 1620 and accredited 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," that was able to describing the exhibited by the fly ball governor. So as to explain the control system, he used differential equations. This paper demonstrated the usefulness and importance of mathematical models and methods in relation to comprehending complicated phenomena. It likewise signaled the beginning of mathematical control and systems theory. Previous elements of control theory had appeared earlier by not as convincingly and as dramatically as in Maxwell's study.

New developments in mathematical techniques and new control theories made it possible to more accurately control more dynamic systems compared to the initial model fly ball governor. These updated techniques comprise various developments in optimal control in the 1950s and 1960s, followed by advancement in robust, stochastic, optimal and adaptive control methods during the 1970s and the 1980s.

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

Originally, control engineering was practiced as just a part of mechanical engineering. Control theories were firstly studied with electrical engineering since electrical circuits could simply be described with control theory methods. Today, control engineering has emerged as a unique discipline.

The very first controls had current outputs represented with a voltage control input. To be able to implement electrical control systems, the correct technology was unavailable then, the designers were left with less efficient systems and the choice of slow responding mechanical systems. The governor is a very effective mechanical controller that is still usually utilized by some hydro plants. In the long run, process control systems became obtainable previous to modern power electronics. These process controls systems were often used in industrial applications and were devised by mechanical engineers making use of pneumatic and hydraulic control devices, lots of which are still being used nowadays.