

Control Valve for Forklift

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

Through history, different automatic tools have been utilized to be able to accomplish specific tasks or to simply entertain. A popular European design throughout the 17th and 18th centuries was the automata. This piece of equipment was an example of "open-loop" control, featuring dancing figures that will repeat the same task again and again.

Closed loop or feedback controlled tools comprise the temperature regulator common on furnaces. This was actually developed in the year 1620 and accredited to Drebbel. One more example is the centrifugal fly ball governor developed in 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 1868 "On Governors," that 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 comprehending complex phenomena. It also signaled the start 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 analysis.

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

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

In the beginning, control engineering was practiced as just a part of mechanical engineering. Control theories were originally studied with electrical engineering as electrical circuits can 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 implement electrical control systems, the correct technology was unavailable at that time, the designers were left with less efficient systems and the choice of slow responding mechanical systems. The governor is a very effective mechanical controller which is still normally used by several hydro plants. Ultimately, process control systems became offered previous to modern power electronics. These process controls systems were usually utilized in industrial applications and were devised by mechanical engineers using pneumatic and hydraulic control equipments, many of which are still being used these days.