

Forklift Control Valves

Forklift Control Valve - Automatic control systems were first developed over two thousand years ago. The ancient water clock of Ktesibios in Alexandria Egypt dating to the third century B.C. is thought to be the first feedback control tool on record. This clock kept time by 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 manner in Baghdad when the Mongols captured the city in 1258 A.D.

Different automatic tools through history, have been utilized to be able to complete certain jobs. A popular style utilized through the seventeenth and eighteenth centuries in Europe, was the automata. This device was an example of "open-loop" control, comprising dancing figures which would repeat the same task over and over.

Closed loop or likewise called feedback controlled equipments consist of 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 used for regulating steam engine speed.

J.C. Maxwell, who discovered the Maxwell electromagnetic field equations, wrote a paper in 1868 "On Governors," which could clarify the instabilities demonstrated by the fly ball governor. He utilized differential equations so as to explain the control system. This paper demonstrated the importance and helpfulness of mathematical methods and models in relation to understanding complex phenomena. It also signaled the beginning of mathematical control and systems theory. Previous elements of control theory had appeared earlier but not as convincingly and as dramatically as in Maxwell's analysis.

Within 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 as opposed to the original fly ball governor. These updated techniques consist of various developments in optimal control in the 1950s and 1960s, followed by advancement in stochastic, robust, optimal and adaptive control methods in the 1970s and the 1980s.

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

In the beginning, control engineering was performed as just a part of mechanical engineering. Control theories were at first studied with electrical engineering since electrical circuits can simply be described with control theory techniques. 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 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 very efficient mechanical controller which is still often utilized by some hydro plants. Ultimately, process control systems became accessible previous to modern power electronics. These process controls systems were normally used in industrial applications and were devised by mechanical engineers making use of pneumatic and hydraulic control devices, lots of which are still being utilized at present.