

Forklift Control Valve

Forklift Control Valve - The first automated control systems were being used more than two thousand years ago. In Alexandria, Egypt, the ancient Ktesibios water clock constructed in the 3rd century is believed to be the very first feedback control tool on record. This particular clock kept time by regulating the water level inside a vessel and the water flow from the vessel. A common style, this successful tool was being made in a similar fashion in Baghdad when the Mongols captured the city in 1258 A.D.

Through history, a variety of automatic tools have been utilized in order to simply entertain or to accomplish specific tasks. A common European style throughout the 17th and 18th centuries was the automata. This tool was an example of "open-loop" control, comprising dancing figures which would repeat the same task repeatedly.

Closed loop or feedback controlled equipments consist of the temperature regulator common on furnaces. This was developed in the year 1620 and accredited to Drebbel. Another example is the centrifugal fly ball governor developed during 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 can describe the instabilities demonstrated by the fly ball governor. He utilized differential equations to be able to describe the control system. This paper demonstrated the usefulness and importance of mathematical models and methods in relation to understanding complex phenomena. It also signaled the beginning of systems theory and mathematical control. Previous elements of control theory had appeared earlier but not as convincingly and as dramatically as in Maxwell's analysis.

Within the following one hundred years control theory made huge strides. New developments in mathematical methods made it possible to more accurately control significantly more dynamic systems as opposed to the first fly ball governor. These updated methods comprise various developments in optimal control during the 1950s and 1960s, followed by development in stochastic, robust, 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 communication and space travel satellites possible.

Originally, control engineering was carried out as just a part of mechanical engineering. Control theories were firstly studied with electrical engineering as electrical circuits could simply be explained with control theory techniques. Currently, control engineering has emerged as a unique discipline.

The very first controls had current outputs represented with a voltage control input. So as to implement electrical control systems, the right 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 normally used by some hydro plants. Eventually, process control systems became accessible previous to modern power electronics. These process controls systems were normally utilized in industrial applications and were devised by mechanical engineers using pneumatic and hydraulic control machines, many of which are still being utilized these days.