

## Forklift Control Valves

Forklift Control Valve - The first automatic control systems were being used more than two thousand years ago. In Alexandria Egypt, the ancient Ktesibios water clock constructed in the third century is considered to be the first feedback control equipment on record. This particular clock kept time by means of regulating the water level in a vessel and the water flow from the vessel. A common design, this successful tool was being made in a similar way in Baghdad when the Mongols captured the city in 1258 A.D.

Throughout history, different automatic machines have been utilized so as to simply entertain or to accomplish specific tasks. A common European style through the seventeenth and eighteenth centuries was the automata. This machine was an example of "open-loop" control, comprising dancing figures that would repeat the same job over and over.

Feedback or otherwise known as "closed-loop" automatic control tools consist of the temperature regulator seen on a furnace. This was actually developed in 1620 and attributed 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 the year 1868 "On Governors," that was able to describe the instabilities exhibited by the fly ball governor. He made use of differential equations in order to describe the control system. This paper demonstrated the usefulness and importance of mathematical models and methods in relation to understanding complicated phenomena. It also signaled the start of mathematical control and systems theory. Previous elements of control theory had appeared before but not as convincingly and as dramatically as in Maxwell's study.

Within the next one hundred years control theory made huge strides. New developments in mathematical methods made it feasible to more precisely control considerably more dynamic systems than the original fly ball governor. These updated methods comprise various developments in optimal control during the 1950s and 1960s, followed by advancement in stochastic, robust, optimal and adaptive control techniques during the 1970s and the 1980s.

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

Initially, control engineering was performed as just a part of mechanical engineering. Control theories were firstly studied with electrical engineering for the reason that electrical circuits can simply be explained with control theory techniques. Nowadays, 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 right technology was unavailable at that moment, the designers were left with less efficient systems and the alternative of slow responding mechanical systems. The governor is a very effective mechanical controller that is still usually used by several hydro factories. In the long run, process control systems became offered before modern power electronics. These process control systems were often used in industrial applications and were devised by mechanical engineers using hydraulic and pneumatic control devices, lots of which are still being used nowadays.