

## Control Valve for Forklift

Forklift Control Valves - Automatic control systems were primarily 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 means of regulating the water level inside a vessel and the water flow from the vessel. A popular design, this successful tool was being made in a similar way in Baghdad when the Mongols captured the city in 1258 A.D.

Various automatic devices through history, have been utilized to be able to accomplish certain tasks. A popular style used throughout the 17th and 18th centuries in Europe, was the automata. This device was an example of "open-loop" control, featuring dancing figures that would repeat the same job repeatedly.

Feedback or otherwise known as "closed-loop" automatic control devices comprise the temperature regulator seen on a furnace. This was actually developed during 1620 and attributed to Drebbel. One more example is the centrifugal fly ball governor developed during 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 can describe the instabilities demonstrated by the fly ball governor. He used differential equations to be able to explain the control system. This paper demonstrated the importance and helpfulness of mathematical models and methods in relation to comprehending complex phenomena. It even signaled the start of systems theory and mathematical control. Previous elements of control theory had appeared earlier by not as convincingly and as dramatically as in Maxwell's study.

In the next 100 years control theory made huge strides. New developments in mathematical techniques made it possible to more accurately control significantly more dynamic systems compared to the first fly ball governor. These updated techniques include 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, more efficient and cleaner chemical methods and have helped make communication and space travel satellites possible.

In the beginning, control engineering was practiced as just a part of mechanical engineering. Control theories were firstly studied with electrical engineering because electrical circuits could simply be explained with control theory techniques. Currently, control engineering has emerged as a unique practice.

The very first control relationships had a current output which was represented with a voltage control input. Since the right technology so as to implement electrical control systems was unavailable at that moment, designers left with the option of slow responding mechanical systems and less efficient systems. The governor is a very effective mechanical controller which is still often used by some hydro plants. Ultimately, process control systems became available prior 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 devices, lots of which are still being utilized these days.