

Control Valves for Forklift

Forklift Control Valve - The first automatic control systems were being utilized 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 tool on record. This particular 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 a similar way in Baghdad when the Mongols captured the city in 1258 A.D.

Different automatic tools throughout history, have been utilized to accomplish specific tasks. A popular design utilized throughout the seventeenth and eighteenth centuries in Europe, was the automata. This particular device was an example of "open-loop" control, featuring dancing figures that will repeat the same job repeatedly.

Feedback or likewise known as "closed-loop" automatic control machines include the temperature regulator seen on a furnace. This was developed during 1620 and accredited to Drebbel. One more example is the centrifugal fly ball governor developed during 1788 by James Watt and utilized for regulating steam engine speed.

The Maxwell electromagnetic field equations, discovered by J.C. Maxwell wrote a paper in the year 1868 "On Governors," that was able to describe the exhibited by the fly ball governor. To be able to explain the control system, he made use of differential equations. This paper demonstrated the importance and helpfulness of mathematical methods and models in relation to understanding complicated phenomena. It even signaled the start of systems theory and mathematical control. Previous elements of control theory had appeared before 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 feasible to more precisely control significantly more dynamic systems as opposed to the first fly ball governor. These updated techniques consist of various developments in optimal control in the 1950s and 1960s, followed by progress in stochastic, robust, optimal and adaptive control methods 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 performed as just a part of mechanical engineering. Control theories were originally studied with electrical engineering because electrical circuits could simply be described with control theory methods. Nowadays, control engineering has emerged as a unique practice.

The first control relationships had a current output which was represented with a voltage control input. For the reason that the right technology to be able to implement electrical control systems was unavailable at that time, designers left with the option of slow responding mechanical systems and less efficient systems. The governor is a really effective mechanical controller which is still normally used by various hydro factories. Ultimately, process control systems became offered prior to modern power electronics. These process control systems were often used in industrial applications and were devised by mechanical engineers utilizing hydraulic and pneumatic control devices, many of which are still being utilized these days.