

Control Valves for Forklift

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

Different automatic tools throughout history, have been used to complete specific jobs. A popular style utilized during the seventeenth and eighteenth centuries in Europe, was the automata. This tool was an example of "open-loop" control, consisting dancing figures which will repeat the same task over and over.

Feedback or likewise known as "closed-loop" automatic control devices include the temperature regulator found on a furnace. This was actually developed in 1620 and attributed to Drebbel. Another example is the centrifugal fly ball governor developed during the year 1788 by James Watt and utilized 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 explain the instabilities exhibited by the fly ball governor. He made use of differential equations to describe the control system. This paper exhibited the importance and helpfulness of mathematical models and methods in relation to comprehending complicated phenomena. It also signaled the start of systems theory and mathematical control. Previous elements of control theory had appeared before by not as dramatically and as convincingly as in Maxwell's analysis.

Within the next one hundred years control theory made huge strides. New developments in mathematical methods made it feasible to more accurately control significantly more dynamic systems than the first fly ball governor. These updated methods consist of different developments in optimal control in the 1950s and 1960s, followed by progress in stochastic, robust, optimal and adaptive control techniques in the 1970s and the 1980s.

New technology and applications 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.

Initially, control engineering was performed as just a part of mechanical engineering. Control theories were initially studied with electrical engineering for the reason that electrical circuits can simply be described with control theory methods. Today, control engineering has emerged as a unique discipline.

The very first control relationships had a current output that was represented with a voltage control input. For the reason that the correct technology in order 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 really effective mechanical controller which is still normally used by several hydro plants. Ultimately, process control systems became obtainable prior to modern power electronics. These process controls systems were often utilized in industrial applications and were devised by mechanical engineers making use of hydraulic and pneumatic control equipments, lots of which are still being utilized at present.