

Forklift Control Valve

Forklift Control Valve - The first mechanized control systems were being utilized over two thousand years ago. In Alexandria Egypt, the ancient Ktesibios water clock built in the third century is thought to be the very first feedback control machine on record. This particular clock kept time by way of regulating the water level inside a vessel and the water flow from the vessel. A popular design, this successful device was being made in the same manner in Baghdad when the Mongols captured the city in 1258 A.D.

Through history, various automatic tools have been utilized to simply entertain or to accomplish specific tasks. A popular European design through the 17th and 18th centuries was the automata. This particular piece of equipment was an example of "open-loop" control, consisting dancing figures that would repeat the same job over and over.

Closed loop or otherwise called feedback controlled equipments include the temperature regulator common on furnaces. This was actually developed during the year 1620 and attributed to Drebbel. One more example is the centrifugal fly ball governor developed in the year 1788 by James Watt and used 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 explaining the exhibited by the fly ball governor. So as to explain the control system, he used differential equations. This paper demonstrated the usefulness and importance of mathematical models and methods in relation to comprehending complex phenomena. It also signaled the beginning of systems theory and mathematical control. Previous elements of control theory had appeared earlier 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 techniques made it possible to more accurately control significantly more dynamic systems compared to the first fly ball governor. These updated methods consist of different developments in optimal control in the 1950s and 1960s, followed by progress in robust, stochastic, 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 a part of mechanical engineering. As well, control theory was initially studied as part of electrical engineering for the reason that electrical circuits could often be simply explained with control theory techniques. At present, control engineering has emerged as a unique discipline.

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