

Control Valve for Forklift

Forklift Control Valve - The earliest automatic control systems were being utilized more than 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 tool on record. This clock kept time by means of regulating the water level in a vessel and the water flow from the vessel. A popular design, this successful device was being made in a similar fashion in Baghdad when the Mongols captured the city in 1258 A.D.

Throughout history, a variety of automatic equipments have been used so as to accomplish specific tasks or to simply entertain. A common European design throughout the 17th and 18th centuries was the automata. This particular tool was an example of "open-loop" control, comprising dancing figures which would repeat the same task repeatedly.

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

The Maxwell electromagnetic field equations, discovered by J.C. Maxwell wrote a paper in the year 1868 "On Governors," that was able to explain the exhibited by the fly ball governor. To be able to describe the control system, he used differential equations. This paper demonstrated the importance and helpfulness of mathematical methods and models in relation to comprehending complex phenomena. It likewise signaled the beginning of systems theory and mathematical control. Previous elements of control theory had appeared earlier but not as convincingly and as dramatically as in Maxwell's analysis.

In the next one hundred years control theory made huge strides. New developments in mathematical techniques made it feasible to more accurately control significantly more dynamic systems compared to the original fly ball governor. These updated techniques consist of various developments in optimal control during the 1950s and 1960s, followed by advancement in robust, stochastic, adaptive and optimal control methods in 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.

At first, 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 explained with control theory methods. Today, 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 proper technology was unavailable then, the designers were left with less efficient systems and the choice of slow responding mechanical systems. The governor is a really efficient mechanical controller which is still usually used by various hydro plants. Ultimately, process control systems became obtainable before modern power electronics. These process control systems were usually utilized in industrial applications and were devised by mechanical engineers utilizing hydraulic and pneumatic control machines, many of which are still being used these days.