

Forklift Control Valve

Forklift Control Valves - The first automatic control systems were being used more than two thousand years ago. In Alexandria, Egypt, the ancient Ktesibios water clock made in the third century is thought to be the first feedback control equipment on record. This particular clock kept time by way of 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.

All through history, a variety of automatic devices have been utilized to be able to simply entertain or to accomplish specific tasks. A popular European style in the 17th and 18th centuries was the automata. This particular tool was an example of "open-loop" control, featuring dancing figures that will repeat the same task repeatedly.

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

J.C. Maxwell, who discovered the Maxwell electromagnetic field equations, wrote a paper in the year 1868 "On Governors," that could describe the instabilities exhibited by the fly ball governor. He utilized differential equations to explain the control system. This paper exhibited the usefulness and importance of mathematical methods and models in relation to understanding complicated phenomena. It even 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 study.

In the next 100 years control theory made huge strides. New developments in mathematical methods made it possible to more precisely control considerably more dynamic systems than the first fly ball governor. These updated methods consist of various developments in optimal control during the 1950s and 1960s, followed by progress 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 processes and have helped make space travel and communication satellites possible.

Initially, control engineering was carried out as just a part of mechanical engineering. Control theories were originally studied with electrical engineering as electrical circuits can simply be explained with control theory techniques. Now, 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 moment, designers left with the option of slow responding mechanical systems and less efficient systems. The governor is a very efficient mechanical controller which is still often utilized by some hydro factories. Ultimately, process control systems became accessible prior to modern power electronics. These process control systems were often utilized in industrial applications and were devised by mechanical engineers using pneumatic and hydraulic control devices, many of which are still being used at present.