

Forklift Control Valve

Forklift Control Valve - The earliest automatic control systems were being used more than two thousand years ago. In Alexandria, Egypt, the ancient Ktesibios water clock constructed in the 3rd century is believed to be the very first feedback control device on record. This particular clock kept time by regulating the water level inside a vessel and the water flow from the vessel. A common design, this successful machine was being made in the same fashion in Baghdad when the Mongols captured the city in 1258 A.D.

Through history, a variety of automatic equipments have been utilized to be able to simply entertain or to accomplish specific tasks. A popular European style during the 17th and 18th centuries was the automata. This device was an example of "open-loop" control, comprising dancing figures that would repeat the same job repeatedly.

Closed loop or feedback controlled devices include the temperature regulator common on furnaces. This was developed in 1620 and accredited 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.

J.C. Maxwell, who discovered the Maxwell electromagnetic field equations, wrote a paper in 1868 "On Governors," that could describe the instabilities exhibited by the fly ball governor. He utilized differential equations so as to explain the control system. This paper demonstrated the importance and helpfulness of mathematical models and methods in relation to understanding complex phenomena. It even signaled the beginning of mathematical control and systems theory. Previous elements of control theory had appeared earlier but not as convincingly and as dramatically as in Maxwell's study.

Within the following one hundred years control theory made huge strides. New developments in mathematical methods made it possible to more precisely control significantly more dynamic systems than the original fly ball governor. These updated techniques comprise various developments in optimal control in the 1950s and 1960s, followed by progress in robust, stochastic, optimal and adaptive control methods 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 performed as just a part of mechanical engineering. Control theories were firstly studied with electrical engineering for the reason that electrical circuits could simply be described with control theory techniques. Currently, control engineering has emerged as a unique discipline.

The very first controls had current outputs represented with a voltage control input. In order to implement electrical control systems, the proper technology was unavailable at that moment, 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 normally used by some hydro factories. Ultimately, process control systems became offered before modern power electronics. These process controls systems were normally utilized in industrial applications and were devised by mechanical engineers making use of pneumatic and hydraulic control devices, many of which are still being used nowadays.