

Forklift Control Valve

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

Various automatic equipment throughout history, have been used to accomplish certain jobs. A popular style utilized through the 17th and 18th centuries in Europe, was the automata. This particular machine was an example of "open-loop" control, featuring dancing figures that will repeat the same job over and over.

Closed loop or likewise called feedback controlled tools consist of the temperature regulator common on furnaces. This was actually developed in 1620 and accredited to Drebbel. One more example is the centrifugal fly ball governor developed in the year 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 1868 "On Governors," which was able to explain the exhibited by the fly ball governor. So as to explain the control system, he utilized differential equations. This paper demonstrated the usefulness and importance of mathematical methods and models in relation to comprehending 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.

In the following 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 techniques include various developments in optimal control in the 1950s and 1960s, followed by advancement in robust, stochastic, optimal and adaptive control techniques in the 1970s and the 1980s.

New applications and technology of control methodology has helped produce cleaner engines, with cleaner and more efficient processes helped make communication satellites and even traveling in space possible.

At first, control engineering was performed as just a part of mechanical engineering. Control theories were firstly studied with electrical engineering because electrical circuits can simply be described with control theory techniques. Currently, control engineering has emerged as a unique practice.

The very first controls had current outputs represented with a voltage control input. To implement electrical control systems, the right technology was unavailable at that moment, the designers were left with less efficient systems and the option of slow responding mechanical systems. The governor is a really effective mechanical controller that is still often used by several hydro plants. Eventually, process control systems became available 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 devices, lots of which are still being used today.