

Control Valve for Forklift

Forklift Control Valve - Automatic control systems were primarily developed more than two thousand years ago. The ancient water clock of Ktesibios in Alexandria Egypt dating to the third century B.C. is believed to be the very first feedback control tool on record. This clock kept time by way of regulating the water level within a vessel and the water flow from the vessel. A common design, this successful tool was being made in the same fashion in Baghdad when the Mongols captured the city in 1258 A.D.

Different automatic machines throughout history, have been utilized to carry out certain jobs. A common desing used throughout the 17th and 18th centuries in Europe, was the automata. This tool was an example of "open-loop" control, comprising dancing figures that will repeat the same job again and again.

Feedback or otherwise known as "closed-loop" automatic control devices comprise the temperature regulator found on a furnace. This was developed in 1620 and accredited to Drebbel. Another example is the centrifugal fly ball governor developed in 1788 by James Watt and used 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 explaining the exhibited by the fly ball governor. To explain the control system, he used differential equations. This paper exhibited the usefulness and importance of mathematical methods and models in relation to understanding complex phenomena. It also signaled the start of systems theory and mathematical control. Previous elements of control theory had appeared before by not as dramatically and as convincingly as in Maxwell's study.

In the next 100 years control theory made huge strides. New developments in mathematical methods made it feasible to more precisely control significantly more dynamic systems as opposed to the first fly ball governor. These updated techniques include various developments in optimal control during the 1950s and 1960s, followed by advancement in stochastic, robust, optimal and adaptive control techniques in the 1970s and the 1980s.

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

Initially, control engineering was practiced 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 techniques. Today, control engineering has emerged as a unique discipline.

The very first controls had current outputs represented with a voltage control input. To be able to implement electrical control systems, the proper technology was unavailable at that time, the designers were left with less efficient systems and the choice of slow responding mechanical systems. The governor is a really effective mechanical controller which is still usually used by some hydro factories. Eventually, process control systems became offered prior to modern power electronics. These process controls systems were often used in industrial applications and were devised by mechanical engineers making use of hydraulic and pneumatic control machines, a lot of which are still being utilized these days.