

Control Valve for Forklift

Forklift Control Valve - Automatic control systems were primarily established over two thousand years ago. The ancient water clock of Ktesibios in Alexandria Egypt dating to the 3rd century B.C. is considered to be the 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 tool was being made in a similar manner in Baghdad when the Mongols captured the city in 1258 A.D.

Throughout history, various automatic machines have been utilized in order to simply entertain or to accomplish specific tasks. A popular European style throughout the 17th and 18th centuries was the automata. This particular piece of equipment was an example of "open-loop" control, comprising dancing figures which would repeat the same job repeatedly.

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

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

New developments in mathematical techniques and new control theories made it possible to more accurately control more dynamic systems as opposed to the first model fly ball governor. These updated methods include different developments in optimal control during the 1950s and 1960s, followed by advancement in stochastic, robust, adaptive and optimal control techniques during the 1970s and the 1980s.

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

At first, control engineering was carried out as a part of mechanical engineering. Additionally, control theory was firstly studied as part of electrical engineering in view of the fact that electrical circuits can often be simply described with control theory methods. Now, control engineering has emerged as a unique discipline.

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 alternative of slow responding mechanical systems. The governor is a very efficient mechanical controller which is still often used by various hydro plants. In the long run, process control systems became available prior to modern power electronics. These process controls systems were normally used in industrial applications and were devised by mechanical engineers using hydraulic and pneumatic control machines, a lot of which are still being utilized today.