

Control Valves for Forklift

Control Valve for Forklift - Automatic control systems were initially established over 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 first feedback control tool on record. This clock kept time by means of regulating the water level within a vessel and the water flow from the vessel. A popular style, this successful machine was being made in the same way in Baghdad when the Mongols captured the city in 1258 A.D.

Different automatic machines through history, have been used so as to carry out certain jobs. A popular style used through the 17th and 18th centuries in Europe, was the automata. This particular device was an example of "open-loop" control, featuring dancing figures which would repeat the same task over and over.

Closed loop or likewise called feedback controlled equipments consist of the temperature regulator common on furnaces. This was actually developed in the year 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 the speed of steam engines.

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

In the next one hundred years control theory made huge strides. New developments in mathematical methods made it feasible to more accurately control considerably more dynamic systems compared to the first fly ball governor. These updated techniques include various developments in optimal control in 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 have helped make cleaner auto engines, more efficient and cleaner chemical methods and have helped make space travel and communication satellites possible.

At first, control engineering was practiced as just a part of mechanical engineering. Control theories were firstly studied with electrical engineering since electrical circuits could simply be explained with control theory methods. Now, 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 correct technology was unavailable then, the designers were left with less efficient systems and the choice of slow responding mechanical systems. The governor is a really efficient mechanical controller that is still often utilized by various hydro plants. Eventually, process control systems became accessible before modern power electronics. These process controls systems were often utilized in industrial applications and were devised by mechanical engineers utilizing hydraulic and pneumatic control machines, lots of which are still being used today.