Forklift Control Valves

Forklift Control Valve - The first automated control systems were being utilized more that two thousand years ago. In Alexandria Egypt, the ancient Ktesibios water clock made in the third century is thought to be the first feedback control device on record. This particular clock kept time by regulating the water level within a vessel and the water flow from the vessel. A common design, this successful equipment 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 so as to carry out specific tasks. A popular style utilized throughout the seventeenth and eighteenth centuries in Europe, was the automata. This machine was an example of "open-loop" control, comprising dancing figures which will repeat the same task over and over.

Closed loop or otherwise called feedback controlled devices comprise the temperature regulator common on furnaces. This was developed during 1620 and attributed to Drebbel. Another example is the centrifugal fly ball governor developed during 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," which was able to explain the instabilities exhibited by the fly ball governor. He used differential equations to be able to describe the control system. This paper demonstrated 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 before by not as dramatically and as convincingly as in Maxwell's analysis.

Within 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 compared to the first fly ball governor. These updated techniques consist of various developments in optimal control during the 1950s and 1960s, followed by advancement in stochastic, robust, adaptive and optimal control techniques in the 1970s and the 1980s.

New applications and technology of control methodology have helped make cleaner auto engines, more efficient and cleaner chemical processes and have helped make communication and space travel satellites possible.

Initially, control engineering was practiced as just a part of mechanical engineering. Control theories were originally studied with electrical engineering since electrical circuits can 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. To be able to implement electrical control systems, the proper technology was unavailable then, the designers were left with less efficient systems and the option of slow responding mechanical systems. The governor is a really efficient mechanical controller that is still often utilized by various hydro plants. Ultimately, process control systems became obtainable previous to modern power electronics. These process controls systems were usually used in industrial applications and were devised by mechanical engineers utilizing pneumatic and hydraulic control devices, many of which are still being utilized today.