

Control Valves for Forklift

Control Valves for Forklift - The earliest automatic control systems were being used over two thousand years ago. In Alexandria Egypt, the ancient Ktesibios water clock made in the third century is considered to be the first feedback control tool on record. This particular clock kept time by means of regulating the water level in a vessel and the water flow from the vessel. A popular design, this successful equipment was being made in a similar manner in Baghdad when the Mongols captured the city in 1258 A.D.

Through history, various automatic machines have been used to accomplish specific tasks or to simply entertain. A popular European style throughout the seventeenth and eighteenth centuries was the automata. This tool was an example of "open-loop" control, consisting dancing figures which will repeat the same task over and over.

Closed loop or feedback controlled tools include the temperature regulator common on furnaces. This was actually developed in the year 1620 and accredited to Drebbel. Another 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 the year 1868 "On Governors," that was able to explain 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 complicated phenomena. It also signaled the beginning of systems theory and mathematical control. Previous elements of control theory had appeared earlier but not as convincingly and as dramatically 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 compared to the original fly ball governor. These updated techniques consist of different developments in optimal control in the 1950s and 1960s, followed by development in stochastic, robust, optimal and adaptive control techniques in the 1970s and the 1980s.

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

Originally, control engineering was performed as just a part of mechanical engineering. Control theories were firstly studied with electrical engineering in view of the fact that electrical circuits can simply be described with control theory techniques. Today, control engineering has emerged as a unique practice.

The very first controls had current outputs represented with a voltage control input. So as 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 normally used by some hydro plants. In the long run, process control systems became offered prior to modern power electronics. These process controls systems were usually used in industrial applications and were devised by mechanical engineers utilizing hydraulic and pneumatic control machines, lots of which are still being utilized nowadays.