

Forklift Control Valve

Control Valves for Forklift - The first automated control systems were being used more than two thousand years ago. In Alexandria, Egypt, the ancient Ktesibios water clock constructed in the 3rd century is considered to be the very first feedback control equipment on record. This clock kept time by means of regulating the water level inside a vessel and the water flow from the vessel. A common design, this successful machine was being made in a similar fashion in Baghdad when the Mongols captured the city in 1258 A.D.

All through history, different automatic tools have been used to be able to accomplish specific tasks or to simply entertain. A common European design in the 17th and 18th centuries was the automata. This tool was an example of "open-loop" control, consisting of dancing figures which will repeat the same job again and again.

Closed loop or likewise called feedback controlled devices include the temperature regulator common on furnaces. This was developed during the year 1620 and attributed to Drebbel. One more example is the centrifugal fly ball governor developed in 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 the year 1868 "On Governors," which could explain the instabilities demonstrated by the fly ball governor. He utilized differential equations 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 start of systems theory and mathematical control. Previous elements of control theory had appeared before 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 accurately control significantly more dynamic systems as opposed to the original fly ball governor. These updated techniques comprise various developments in optimal control in the 1950s and 1960s, followed by development in stochastic, robust, optimal and adaptive control techniques during the 1970s and the 1980s.

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

In the beginning, control engineering was practiced as just a part of mechanical engineering. Control theories were at first studied with electrical engineering as electrical circuits can simply be described with control theory methods. Now, control engineering has emerged as a unique discipline.

The first control relationships had a current output which was represented with a voltage control input. In view of the fact that the proper technology in order to implement electrical control systems was unavailable then, designers left with the alternative of slow responding mechanical systems and less efficient systems. The governor is a very effective mechanical controller that is still often utilized by some hydro factories. Ultimately, process control systems became accessible previous to modern power electronics. These process control systems were often utilized in industrial applications and were devised by mechanical engineers utilizing hydraulic and pneumatic control equipments, many of which are still being used these days.