

Control Valve for Forklift

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

All through history, different automatic equipments have been used to be able to accomplish specific tasks or to simply entertain. A common European style during the seventeenth and eighteenth centuries was the automata. This tool was an example of "open-loop" control, consisting dancing figures that will repeat the same task over and over.

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

The Maxwell electromagnetic field equations, discovered by J.C. Maxwell wrote a paper in the year 1868 "On Governors," which was able to explaining the exhibited by the fly ball governor. To explain the control system, he utilized differential equations. This paper exhibited the importance and helpfulness of mathematical models and methods in relation to comprehending complicated phenomena. It also signaled the beginning of mathematical control and systems theory. Previous elements of control theory had appeared before by not as convincingly and as dramatically as in Maxwell's study.

Within the next 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 comprise various developments in optimal control during the 1950s and 1960s, followed by progress in stochastic, robust, adaptive and optimal control methods during the 1970s and the 1980s.

New technology and applications of control methodology has helped make 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 first studied as part of electrical engineering since electrical circuits can often be simply described with control theory techniques. 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 right technology was unavailable at that moment, the designers were left with less efficient systems and the choice of slow responding mechanical systems. The governor is a very effective mechanical controller that is still often used by some hydro factories. Ultimately, process control systems became offered prior to modern power electronics. These process controls systems were usually utilized in industrial applications and were devised by mechanical engineers utilizing pneumatic and hydraulic control devices, many of which are still being used at present.