

Control Valve for Forklift

Control Valve for Forklift - The first mechanized control systems were being utilized over two thousand years ago. In Alexandria Egypt, the ancient Ktesibios water clock built in the third century is thought to be the first feedback control tool on record. This clock kept time by regulating the water level inside 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.

Throughout history, different automatic tools have been utilized so as to accomplish specific tasks or to simply entertain. A popular European style in the 17th and 18th centuries was the automata. This particular machine was an example of "open-loop" control, consisting dancing figures that would repeat the same job again and again.

Closed loop or also called feedback controlled tools comprise the temperature regulator common on furnaces. This was developed in 1620 and attributed to Drebbel. Another example is the centrifugal fly ball governor developed during 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 1868 "On Governors," which could describe the instabilities demonstrated by the fly ball governor. He used differential equations in order to describe the control system. This paper exhibited the usefulness and importance of mathematical models and methods in relation to comprehending complex phenomena. It also signaled the start of systems theory and mathematical control. Previous elements of control theory had appeared before but not as dramatically and as convincingly as in Maxwell's analysis.

In the next 100 years control theory made huge strides. New developments in mathematical methods made it possible to more accurately control considerably 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 development in robust, stochastic, 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.

In the beginning, control engineering was practiced as a part of mechanical engineering. Also, control theory was first studied as part of electrical engineering for the reason that electrical circuits could often be simply explained with control theory methods. Nowadays, control engineering has emerged as a unique practice.

The first control partnerships had a current output that was represented with a voltage control input. In view of the fact that the proper technology to implement electrical control systems was unavailable at that time, designers left with the choice of slow responding mechanical systems and less efficient systems. The governor is a really efficient mechanical controller which is still normally used by various hydro plants. Ultimately, process control systems became available before modern power electronics. These process controls systems were normally utilized in industrial applications and were devised by mechanical engineers making use of hydraulic and pneumatic control equipments, a lot of which are still being used nowadays.