

Control Valves for Forklift

Control Valve for Forklift - The earliest automated control systems were being used over two thousand years ago. In Alexandria Egypt, the ancient Ktesibios water clock built in the 3rd century is considered to be the very first feedback control equipment on record. This particular clock kept time by means of regulating the water level within a vessel and the water flow from the vessel. A popular style, this successful equipment was being made in a similar way in Baghdad when the Mongols captured the city in 1258 A.D.

Throughout history, different automatic machines have been used to accomplish specific tasks or to simply entertain. A popular European design all through the seventeenth and eighteenth centuries was the automata. This machine was an example of "open-loop" control, featuring dancing figures which would repeat the same job over and over.

Closed loop or likewise called feedback controlled machines 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 1868 "On Governors," which can describe the instabilities demonstrated by the fly ball governor. He used differential equations to explain the control system. This paper demonstrated the importance and helpfulness of mathematical methods and models in relation to understanding complicated phenomena. It even signaled the start of systems theory and mathematical control. Previous elements of control theory had appeared earlier by not as dramatically and as convincingly as in Maxwell's study.

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 than the first fly ball governor. These updated methods include various developments in optimal control during the 1950s and 1960s, followed by progress in stochastic, robust, adaptive and optimal control methods in the 1970s and the 1980s.

New technology and applications of control methodology have helped produce 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 a part of mechanical engineering. In addition, control theory was firstly studied as part of electrical engineering since electrical circuits could often be simply explained with control theory methods. Currently, control engineering has emerged as a unique practice.

The very first control relationships had a current output which was represented with a voltage control input. For the reason that the right technology in order to implement electrical control systems was unavailable then, designers left with the choice of slow responding mechanical systems and less efficient systems. The governor is a really effective mechanical controller which is still usually utilized by some hydro factories. Eventually, process control systems became offered previous to modern power electronics. These process controls systems were normally used in industrial applications and were devised by mechanical engineers making use of hydraulic and pneumatic control machines, many of which are still being utilized these days.