

Control Valves for Forklift

Forklift Control Valve - The first mechanized control systems were being used over two thousand years ago. In Alexandria Egypt, the ancient Ktesibios water clock made in the third century is thought to be the very first feedback control machine on record. This particular clock kept time by way of regulating the water level inside a vessel and the water flow from the vessel. A popular style, this successful tool was being made in the same manner in Baghdad when the Mongols captured the city in 1258 A.D.

All through history, a variety of automatic devices have been used to simply entertain or to accomplish specific tasks. A common European design during the 17th and 18th centuries was the automata. This particular tool was an example of "open-loop" control, consisting dancing figures which would repeat the same job repeatedly.

Closed loop or otherwise called feedback controlled equipments consist of the temperature regulator common on furnaces. This was developed during the year 1620 and attributed to Drebbel. Another example is the centrifugal fly ball governor developed during the year 1788 by James Watt and used for regulating the speed of steam engines.

J.C. Maxwell, who discovered the Maxwell electromagnetic field equations, wrote a paper in 1868 "On Governors," which was able to clarify the instabilities exhibited by the fly ball governor. He used differential equations to be able to describe the control system. This paper demonstrated the usefulness and importance 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 convincingly and as dramatically as in Maxwell's study.

Within the next one hundred years control theory made huge strides. New developments in mathematical techniques made it possible to more precisely control significantly more dynamic systems than the original fly ball governor. These updated techniques include different developments in optimal control in the 1950s and 1960s, followed by development in stochastic, robust, adaptive and optimal control techniques in the 1970s and the 1980s.

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

In the beginning, control engineering was performed as just a part of mechanical engineering. Control theories were firstly studied with electrical engineering because electrical circuits could simply be explained with control theory techniques. Currently, 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 proper technology was unavailable at that moment, the designers were left with less efficient systems and the alternative of slow responding mechanical systems. The governor is a very effective mechanical controller which is still normally used by various hydro factories. Eventually, process control systems became available prior to modern power electronics. These process controls systems were usually utilized in industrial applications and were devised by mechanical engineers making use of pneumatic and hydraulic control equipments, lots of which are still being used today.