

Control Valves for Forklift

Control Valve for Forklift - The earliest 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 considered to be the first feedback control machine on record. This clock kept time by regulating the water level within a vessel and the water flow from the vessel. A common style, this successful equipment was being made in a similar manner in Baghdad when the Mongols captured the city in 1258 A.D.

A variety of automatic equipment throughout history, have been utilized to be able to carry out certain jobs. A common desing utilized during the 17th and 18th centuries in Europe, was the automata. This particular device was an example of "open-loop" control, consisting dancing figures which will repeat the same task repeatedly.

Closed loop or otherwise called feedback controlled machines include the temperature regulator common on furnaces. This was actually developed in 1620 and accredited to Drebbel. Another example is the centrifugal fly ball governor developed in the year 1788 by James Watt and used for regulating steam engine speed.

The Maxwell electromagnetic field equations, discovered by J.C. Maxwell wrote a paper in 1868 "On Governors," that was able to describing the exhibited by the fly ball governor. To describe the control system, he utilized differential equations. This paper demonstrated the usefulness and importance of mathematical models and methods in relation to comprehending complex phenomena. It likewise signaled the start of systems theory and mathematical control. Previous elements of control theory had appeared before by not as dramatically and as convincingly as in Maxwell's study.

In the next one hundred years control theory made huge strides. New developments in mathematical techniques made it feasible to more accurately control considerably more dynamic systems as opposed to the original fly ball governor. These updated techniques consist of different developments in optimal control during the 1950s and 1960s, followed by development in stochastic, robust, adaptive and optimal control methods in the 1970s and the 1980s.

New technology and applications of control methodology has helped produce cleaner engines, with cleaner and more efficient processes 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 at first studied with electrical engineering for the reason that electrical circuits can simply be explained with control theory techniques. Today, control engineering has emerged as a unique practice.

The very first controls had current outputs represented with a voltage control input. To be able to implement electrical control systems, the correct technology was unavailable then, the designers were left with less efficient systems and the alternative of slow responding mechanical systems. The governor is a really efficient mechanical controller that is still usually utilized by some hydro plants. Eventually, process control systems became offered before modern power electronics. These process controls systems were usually used in industrial applications and were devised by mechanical engineers making use of hydraulic and pneumatic control devices, many of which are still being utilized these days.