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Control Valves

Control valves are a largely misunderstood aspect of our business. They tend to be either taken for granted or generally overlooked. They seem simple enough in principal but often cause significant problems on the job site if not properly applied, understood and installed.

Control valves really started to come into use in the early 1800's with the need to control steam pressure for industrial and locomotive applications. Although the means of actuation have changed significantly the basic principals adopted then still largely hold true today.

2 Way valves

There are two fundamental types of 2 way control valves, normally open and normally closed. For globe valves these differ in that the actual construction of the body is different in most cases. This was particularly relevant to pneumatic systems where a diaphragm pushed against a spring and stem in only one direction and valves had to be configured to adapt to this limitation. Normally open valves are typically used in cases where failsafe open is required, such as heating valves in northern climates. Normally closed valves are typically used in DHW and cooling applications in northern climates and are often an adaptation of a three way valve. When selecting and sizing a 2 way control valve there are several considerations that must be taken into account. These include style, size, application, type of actuation, flow coefficient and required pressure drop and price, to name a few. Types of actuators vary greatly in their force and speed of operation, with pneumatic being preferred for high force applications and other types being available in a great number of stroke timings and force ratings. In our presentation we will delve into more detail on these important issues.

3 way valves

Three way valves fall into two basic applications, mixing and diverting. Mixing valves take two inputs and blend them together to get one output, whereas a diverting valve takes one input and directs it from one output to another. In the last decade there has been a movement to apply mixing valves wherever possible. Diverting globe valves, due to the flow paths and pressure variations typical with this valve often result in substantially higher costs of manufacturing and thus have declined in use. Butterfly and ball valves though do not suffer the same considerations and are still regularly used for this type of application. During our discussion we will review several applications to help assess which is the best valve for your configuration.

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