How to select a Valve Controller

Process manufacturers are faced with multiple considerations when choosing a valve controller or switchbox that will best meet their application needs. Key aspects to consider include product endurance in demanding application environments, agency certifications, ease of installation, maintenance requirements, and product support.

The following tips will help you optimize valve controller selection, as well as maximize product performance and value:

Tip 1: Choose products engineered for endurance

Reliability and durability are extremely important when choosing a discrete valve controller. Today's valve controllers need to be rugged to withstand demanding plant conditions. Look for products that have been tested for endurance in extreme hot and cold temperatures and are proven to resist deterioration or chipping, even in corrosive environments or abusive conditions.

Reputable manufacturers will provide endurance testing for millions of cycles to ensure that product performance is reliable. Choosing products that are tested tough increases life-cycle performance and reduces potential replacement or maintenance costs. Endurance tests may include testing in dust chambers to ensure the product is dust tight, testing against intense water pressure blasts, or even complete submersion.

Products should be tested against hundreds of corrosive and caustic chemicals with various exposure times, temperatures, and concentrations, and need to be proven impact- and step resistant. It is important to understand how a product\ performs in extreme conditions to have confidence that it has been designed for durability.

Standard materials of construction should include aluminum, stainless steel, and engineered resin enclosures, and options for special coating to handle unusually harsh environments. Ideally, seek suppliers that proactively design products to pass the intense testing criteria of the various major certification agencies, and have the vision to anticipate trends and future requirements.

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Tip 2: Seek savings beyond downtime

Sometimes it's the little things that make a difference. For example, having two dedicated conduit entries on your valve controller enables thru wiring. This is especially helpful when installing bus networks such as AS-Interface, which requires drop downs for each slave. Be careful not to sacrifice conduit entries for mounting solenoids as this limits the ease of wiring.

Space is always a key consideration. Consider the total installed space, including the width and height of the valve controller, as well as attachments such as brackets or solenoids. Also consider the height of the visual indicator, as it may be susceptible to breakage if it is not proportional to the product. The overall space required can be minimized by choosing features such as direct mounting, which can often save as much as 3 inches in height and eliminate the cost of mounting brackets. Integrated solenoids are an excellent choice as well. They not only save space but eliminate the need for additional junction boxes and ease the installation process. Integrated solenoids are great for Class I Division 1 applications, because they eliminate the need for explosion-proof protection in the coils, and provide extra protection for pilots and electrical components within the enclosure housing.

Tip 3: Demand product flexibility

It is important to seek discrete valve controller suppliers that offer enough options to satisfy complex application needs. Suppliers with comprehensive solutions will offer all major fieldbus protocols such as Foundation Fieldbus, Profibus, DeviceNet, and AS-Interface, as well as all major sensor options such as GO Switch leverless limit switches, Pepperl + Fuchs proximity sensors, 4-20mA transmitters, and mechanical limit switches. In addition, full-line suppliers will have the right pilot valve options to satisfy all application needs, including solenoid valves with low power consumption, a variety of flow (Cv) rates, materials of construction to handle most chemicals and caustics, and a wide selection of pneumatic accessories such as speed controls and manual overrides.

Tip 4 : Identify suppliers with global certifications

Many process manufacturers have plant operations located around the world. As plants expand globally, there is increased need around the world for products with multiple certifications. Choosing products with global certifications makes it easier to standardize across plants worldwide, and thus positions operations for greater efficiencies and reduced costs. Standardized plants that operate the same regardless of location help improve product quality and service levels, reduce operations and training costs, and increase purchasing leverage.

Global process manufacturers should seek suppliers with all major agency certifications (UL/CSA, c-ULus, CENELEC/ATEX, CE Mark, etc.), ideally in the same model. The reduction to a single part number can significantly increase cost savings. Suppliers should also offer solutions for all major hazardous area classifications, including Zone 0 (Intrinsically Safe), Zone 1 (Flameproof/Explosion Proof), and Zone 2 (Non-Incendive), as well as General Purpose applications. It is important to choose a supplier that is aware of global certification requirements and offers products to meet these varying needs.

Time Well Spent

Process design engineers often leave it up to their valve and actuator suppliers to provide whatever type of limit switchboxes or discrete valve controllers the suppliers may recommend. It's important to be selective and choose suppliers that are experienced, with products that are globally certified, endurance tested, and have reputable manufacturing support. Being informed and proactive is imperative. Clearly specifying desired features that will enhance performance, save space, support standardization, ease installation and maintenance, and reduce investment in unnecessary components will assure these benefits are realized consistently. It will be time well spent, and will instill confidence in your operation for years to come

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