bürkert
FLUID CONTROL SYSTEMS

Taking control of automation in the Food & Beverage sector

Increasing competitiveness and higher levels of regulatory compliance are placing greater demands on the food and beverage industry; improving automation levels and plant integration can address these concerns. However, with every installation being unique, creating an automation solution that is specifically matched to the application requires considerable expertise.

The food and beverage industry, along with pharmaceuticals, must maintain some of the highest hygiene standards - whilst also delivering high volume production systems. In addition, competitive forces demand that a business is efficient both in terms of the raw materials consumed and cost of manufacturing. Delivering these objectives is a crucial part of remaining in the industry.

All process manufacturing businesses will have introduced automation to a greater or lesser degree over recent years and many will now be looking at the next step; increasing efficiency and gathering the increasing amounts of data required for effective process management and traceability.

Levels of efficiency are determined by the scale of the production facility, however improving the levels of automation within a process of any scale can deliver improvements to maintenance costs, production costs, reliability and, most importantly, quality.

Improved control and monitoring also reduces wastage of expensive compounds, provides improved production reliability while also delivering the continuous data required to meet regulatory standards. By making significant reductions in costs, a properly engineered production system can deliver high quality products in an efficient process.

Many smaller systems and standalone equipment use a centralised control concept, which is based around a control cabinet that contains all of the necessary components to operate the control valves, including a PLC, network connections, input/output systems and valve islands for example.

In many cases, especially in larger facilities, working towards a decentralized system of process control can provide a number of benefits compared to the more traditional approach. This concept uses intelligent, pneumatically operated process valves at the field level which can be equipped with all the required automation components such as a pilot valve with manual actuation, electrical feedback units and optical status indication, field bus interfaces and even positioners and process controllers.

To bridge the gap between centralised and decentralized automation concepts, flexible pneumatic valve units and compact automation systems can be used. These units are typically wall-mounted directly inside small, hygienically designed cabinets that can be installed close to the process in question. These small, pre-configured and standardised units eliminate the long runs to valves and field devices, and can be easily kept clean.

Each and every one of these scenarios will be unique and that requires the manufacturer of the control panel to take a very individual approach to each project. At Bürkert, a network of specialist design and manufacturing facilities, each known as a Systemhaus has been in operation for several years. Their purpose is to deliver precise fluid control systems designed to meet very specific process requirements and regulatory standards.

The definition of a bespoke control system means that the designers have to start from the ground up, working closely with the client to establish what will be delivered by the new system and how best to achieve it. Often existing technology and components will have to be integrated with unique parts and custom designs in order to achieve the best solution.

The principle of outsourcing this type of project is considered by the vast majority of OEMs as an essential part of manufacturing strategy, one that allows them to remain competitive in a rapidly changing global market. In practical terms this strategy can deliver a number of improvements such as reducing supply chain management costs while improving production agility and the use of internal resources.

Bürkert manufactures over 100,000 different products, typically valves, actuators, sensors, controllers and combined devices. Applying these products to scenarios that require specialist assemblies requires skill and experience as well as an imaginative approach.

The Systemhaus combines all of these attributes and assigns a team that contains all the necessary skills and expertise to design, simulate, prototype, construct and test the finished product. Working closely with the client, this team has the ability to ensure the most efficient methods are used to develop an idea into the completed design.

Using in-house manufacturing facilities enables bespoke components to be created and matched to the application, reducing component count, installation time and cabinet size. Where necessary the control system can be housed in a stainless-steel hygienic EHEDG cabinet, to locate the compact field control box right in the process area, which shortens the distance to the process valves.

Companies in the food & beverage sector are now in a position to reconcile the commercial necessity of a high degree of automation of their production with the requirements of hygiene and safety. Thanks to their modular structure, control panels based on the latest control technology can be adapted to suit many situations and applications, whereby such optimised solutions are always based on high-quality, tried and tested components with a long service life.

Bürkert offers the widest range of equipment to actuate, monitor, network, position and decentralise process control into the field. In Bürkert's central control cabinet solution, each component is the product of cross functional mechanical and electrical engineering innovation and exacting laboratory testing. Combining these products with the design expertise and industry experience of the Systemhaus, ensures the optimum solution is delivered to every client.

About BÜRKERT

Bürkert Fluid Control Systems is one of the leading manufacturers of control and measuring systems for fluids and gases. The products have a wide variety of applications and are used by breweries and laboratories as well as in medical engineering and space technology. The company employs over 2,500 people and has a comprehensive network of branches in 36 countries world-wide.

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