

Accurate and reliable solenoid valves help hatchery achieve quality and uniformity

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To produce a high number of chicks within a short time frame, chicken and poultry farmers and breeders use hatchery systems that allow them to control the quantity, quality, and liveability of the chicks. One important aspect of these systems is temperature control during the incubation period, which can be achieved through the use of reliable solenoid valves.

EmTech Hatchery Systems, based in Somerset, designs and manufactures large scale egg incubators for chickens and other types of poultry. Used around the world, the incubators are a vital part of the process in rearing poultry for meat, as well as eggs, which can also be used in research for the development of vaccines. The key requirement of the breeders and farmers using these machines is to achieve the shortest hatching window. This ensures that as many eggs as possible hatch within a short time period, which is important for achieving uniformity and quality as well as high welfare standards for the new-born chicks.

Typically, hatching takes place over 18 days' setting, followed by a three-day hatching window. The crucial factor in minimising the time period is controlling temperature variation, and EmTech's machines are designed not to exceed 0.6°C. While the temperature bandwidth begins at around 0.1°C early in the incubation

process, as embryos develop they emit heat. Controlling the temperature and ensuring a maximum variation of 0.6°C achieves a hatching window of just 12 to 24 hours that produces well-conditioned, unstressed chicks.

Accurate temperature control is achieved with a PLC system that commands a bi-directional paddle fan, via a cold air system. To achieve consistent and reliable air regulation, the hatchery depends on a series of solenoid valves provided by fluid control specialist, Bürkert.

“The most important requirements for our customers are the quality, uniformity, and welfare of chicks that our hatchery systems help produce,” says Paul Jennings, Technical Design Manager for EmTech. “To achieve this, maintaining a short hatch window through close temperature control is vital. EmTech has worked with Bürkert for many years, because their solenoid valves are tried and tested to provide reliability and consistency over long-term use.”

While EmTech designs a variety of hatchery systems, its flagship is the PrimoTech, a single-stage machine, which means that eggs are set in a single batch for consistency. This method also enables a thorough clean-down after each hatch. The system features between two and 24 trolleys, each containing trays of eggs that achieves a total capacity between 9,072 and 162,432 eggs. Each pair of trolleys sit beside a specially designed tapered blade paddle fan that circulates cool air, controlled by a variable speed drive and PLC. Cold air is provided through a series of copper coils that contain cold water refrigerant, and a combination of solenoid valves is used to control cold air supply to the trolleys.

The brass and stainless steel solenoid valve body ensures long-term, corrosion-free use, and the elastomer seals, involving FKM and EPDM, maintain integrity across near constant use in hatcheries around the world.

“While our systems achieve accurate temperature regulation through key factors including PLC control, trolley position and air flow, as well as our specially designed fan, they depend on reliable solenoid valve operation,” says Dan Pedler, Hatchery Designer for EmTech. “Our systems are installed in countries around the world, and whatever the conditions, Bürkert valves give the reliable control our customers need.”

While Bürkert’s expertise enables hatcheries to optimise quality, welfare, and yield of hatcheries, the company’s origins also began in hatcheries. In the testing environment of post-war Germany, Christian Bürkert, founder of the Bürkert enterprise, developed his own hatchery system to fulfil the demand for food from the occupying American forces. Setting up business in his mother’s cellar, he acquired a lathe and press which he used to machine material from a crashed military aircraft to develop an incubator. Designing his own thermostat to regulate the incubator’s temperature, this device formed the basis of many of Bürkert’s later devices for gas and liquid flow control.

Today, Bürkert supplies EmTech with approximately 1,300 solenoid valves per year, typically 24VDC models, as well as 230V valves required for customer upgrades implemented by EmTech on older, third-party machines. Another advantage of the Bürkert solenoid valve is its flexible compatibility, enabling integration across various machine types. This is also combined with dependable availability and competitive value.

Image captions:



Image 1: EmTech Hatchery Systems, based in Somerset, designs and manufactures large scale egg incubators for chickens and other types of poultry.

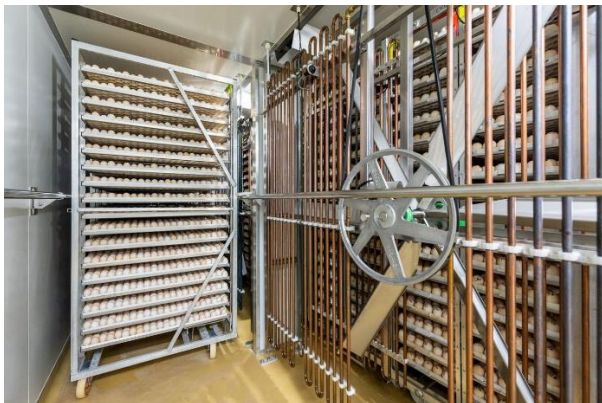


Image 2: EmTech Hatchery Systems, based in Somerset, designs and manufactures large scale egg incubators for chickens and other types of poultry.



Image 3: Today, Bürkert supplies EmTech with approximately 1,300 solenoid valves per year, typically 24VDC models, as well as 230V valves required for customer upgrades implemented by EmTech on older, third-party machines.

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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 2,200 people and has a comprehensive network of branches in 35 countries world-wide.

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