

Compact solenoid valves for use in explosive atmospheres and with fuel gases

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Creating precision control circuits for fluidic applications in potentially explosive atmospheres just got a little easier. New, compact solenoid valves conforming to ATEX/IECEx as well as meeting DVGW EN 161 approval for use with fuel gases, have been released by flow control specialist Bürkert. The new versions of its reliable and powerful direct-acting plunger valves offer a range connections and variants to suit many applications.

The 2/2-way Type 7011 with an orifice diameter up to 2.4 mm, and 3/2-way Type 7012 with an orifice diameter up to 1.6 mm are both available in normally open and normally closed configurations. The new valves achieve a compact design thanks to AC08 coil technology that optimises the ratio between the iron circuit and the solenoid coil winding. As a result, the standard version valve featuring a 24.5 mm solenoid coil with encapsulation is among the smallest explosion-proof variations available, enabling the design of more compact control cabinets. In addition, the Type 7011 solenoid design is also one of the smallest gas valves on the market.

Fast operator

When multiple valves are used in combination, the size advantages are even greater thanks to a Bürkert-specific flange variant with a space-saving arrangement of valves on a multiple manifold. Valve switching time performance for the Type 7011

variant ranges from 8 to 15 ms opening, 10 to 17 ms closing. The Type 7012 valve ranges from 8 to 12 ms opening and closing.

Actuation performance is combined with a highly durable design for long-lifetime, reliable operation. The valve body is constructed from brass and stainless steel, combined with FKM/EPDM seals and O-rings. IP65 ingress protection is achieved with the cable plug and ATEX/IECEX cable connection, making the valve impenetrable to dust particles and water jets.

The stopper and core guide tube are also welded together to increase pressure resistance and leak-tightness. As a result of the design updates, the DVGW fuel gas variant can be used with a maximum operating pressure of 42 bar. Meanwhile, the solenoid valves also provide reliability at higher temperature, up to a maximum of 75 °C for the standard versions, or 55 °C for explosion-proof models with a ceiling of more than 60 °C available on request.

Wide-ranging applications

As a result of ATEX/IECEX conformity, the valves safely operate in challenging environments such as pneumatic conveyors. The new valves can also be used with venting technology employed in coal mines through to mills and sugar refineries. The Type 7011/12 solenoids can also be used in applications with gas explosion potential, such as mineral oil extraction, refuelling and storage, as well as gas plants. The protection level also means they're suitable for operation in many applications, from industrial painting lines through to whisky distilleries.

Within fuel gas applications, the valves can be used to regulate industrial burners, such as ignition gas valves, through to moveable and stationary automatic heaters for both industrial and commercial use. Simple and fast to install, the valves can be

fitted to flanges or manifolds, and push-in fittings can be selected for a flexible hose connection.

The solenoid valves are also intended for use in hydrogen fuel cell applications that convert electrochemical energy into electricity, from green energy through to mobile applications. Bürkert provides a complete fuel cell solution including flow control and metering, and the Type 7011 device can be integrated as a highly reliable safety shut-off valve for flammable gases.

Image captions:

Image 1: The type 7011 and 7012 solenoid valves are now available with approvals for potentially explosive atmosphere and fuel gases.

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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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