

WE LEARN FROM YOU EVERY DAY –  
AND THINK OUTSIDE THE BOX.

When it comes to dealing with liquids and gases, Bürkert has become a sought-after partner all over the world. Why? Probably because we have been learning for and from our customers for more than 70 years now. This enables us to always think that crucial step ahead – or even sideways.

**We make ideas flow.**

For your added value. Let us prove it to you – we look forward to your challenge.

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**BEST PRACTICE**

**E.L.B. EX-GERÄTE Bachmann GmbH**

Solenoid valves for control cabinets in hazardous locations



## SAFE OPERATION WITH OVERPRESSURE COOPERATION WITH E.L.B. EX-GERÄTE BACHMANN

Many operators are faced with the problem of finding suitably approved components and control equipment when it comes to automating complex industrial plant in explosion-proof areas. In many cases, it is not possible to place control units such as large control cabinets in safe areas due to the distances involved – they need to be close to the process. Pressurised housings or control cabinets offer a solution that can meet the relevant ATEX requirements – a task for E.L.B. EX-GERÄTE Bachmann GmbH based in Bensheim, Germany. In cooperation with the fluid experts at Bürkert, the applied solenoid valves were continuously and optimally adjusted to the relevant application conditions.

### Pressurised enclosure systems for greater flexibility

Pressurised enclosure systems (Ex p) are a practical explosion-protection method which is suitable for devices not approved for use in explosion-risk areas. Once installed inside a pressurised housing in accordance with IEC 60079-2, these devices can then be used directly in hazardous locations. To prevent the ingress of a potentially explosive atmosphere into the housing, a protective gas such as air or an inert gas is maintained at an overpressure inside the housing relative to the surrounding atmosphere. With the Ex p ignition protection type, the regulation and monitoring of overpressure in the control cabinet plays a crucial role in explosion protection and, therefore, in the safety of the overall plant. Given that they are responsible for supplying the protection gas, the valves must also contribute to safety and hence perform two tasks simultaneously: Rinsing the entire housing volume when the control cabinet doors are opened, e.g. for maintenance work, and maintaining the overpressure in the housing during operation in explosive atmospheres.

Bachmann has been working closely with Bürkert for more than ten years. The solenoid valves applied as rinsing valves were continuously and optimally adjusted for use inside pressurised control cabinets.



### Did you know?

In contrast to proportional valves, the applied solenoid valves facilitate control of the pressurised enclosure. Due to the basic principle of proportional valves, the gas quantity always depends on the ambient conditions, which ultimately requires the use of a closed control circuit.

### Proven, economical and safe

The new solenoid valves Type 6281 are a result of the close cooperation. They are equipped with ATEX-certified solenoid valve coils Type AC10. Beneath the valve seat there are two adjustable throttles. This means that the valve closes as soon as the rinsing process has been successfully completed. However, adjustable throttles allow the user to open the valve block to a defined degree and set it to the specific gas quantity required to maintain the overpressure in the control cabinet. The pressure in the Ex p housing is continuously monitored. If it drops below a minimum or exceeds a maximum level, a warning message is generated. The setting for the leakage value can then be changed accordingly. A further advantage: The valves run without power during normal plant operation, i.e. they only need electrical energy during the rinsing process but not to maintain the overpressure – and this helps to prevent additional heat development in the control cabinet. The overpressure in the control cabinet is maintained in the event of a voltage failure because the mechanically set leakage value is retained. The solenoid valves are thus fail-safe. Even a defective valve will not trigger an interruption or fault in operation.

### Terminal box for flexible assembly and reduced effort

The previous terminal box of the Ex solenoid coils has been completely redesigned. It is not only more compact, but can be rotated by 90 degrees by the user with the help of a specially developed tool. Thanks to this flexibility, the number of variants is reduced, which streamlines the order management and stock-keeping processes. A further advantage is that opening and closing the terminal box only involves loosening one screw instead of the four screws previously required. According to Steffen Bachmann, Managing Director of E.L.B. EX-GERÄTE Bachmann GmbH, “this saves an enormous amount of time and effort. After all, we install around 1,000 of these valves each year. The terminalbox can be easily accessed, the lid can be easily opened, thus reducing the amount of effort required.”



### How you benefit from Bürkert solenoid valves for use inside pressurised control cabinets:



**Increased process reliability:** The pressure in the Ex p housing is continuously monitored. An error message is generated if the value drops below or exceeds the minimum and maximum pressure respectively.



**Reliable operation:** The solenoid valves are fail-safe. The overpressure in the control cabinet is maintained in the event of a voltage failure. In normal operation, they run without power, which helps to prevent additional heat development in the control cabinet.



**Simple assembly:** Opening and closing the terminal box only involves loosening one screw. Furthermore, it can be rotated by 90 degrees.



**Certified components:** The solenoid valves are approved for use in explosion-proof plants not only throughout Europe but also in Asia and Australia.