



## A CASE STUDY LOOKING AT THE SAFE OPERATION WITH OVERPRESSURE

### INTRODUCTION

E.L.B. EX-GERÄTE Bachmann GmbH based in Bensheim, Germany are specialists in offering an extensive range of products that are all certified for use in potentially explosive atmospheres. The company sought help from fluid experts Bürkert for the application of its solenoid applications.



### CHALLENGE

Across the board, many operators are faced with the same problem of finding suitably approved components and control equipment when it comes to automating complex industrial plants 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. In cooperation with the fluid experts at Bürkert, the applied solenoid valves were continuously and optimally modified to the relevant application conditions.

### SOLUTION

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 (pressurised enclosure systems) 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.

Furthermore, 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 interrupt or fault in operation.



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### RESULT

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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. A further advantage is that opening and closing the terminal box only involves loosening one screw instead of the four screws previously required.



### EQUIPMENT SUPPLIED

- Solenoid valves type 6281

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