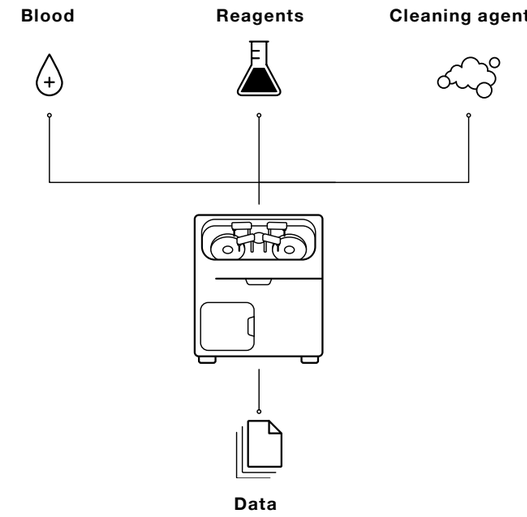
Precise dosing and media protection for accurate test results

bürkert

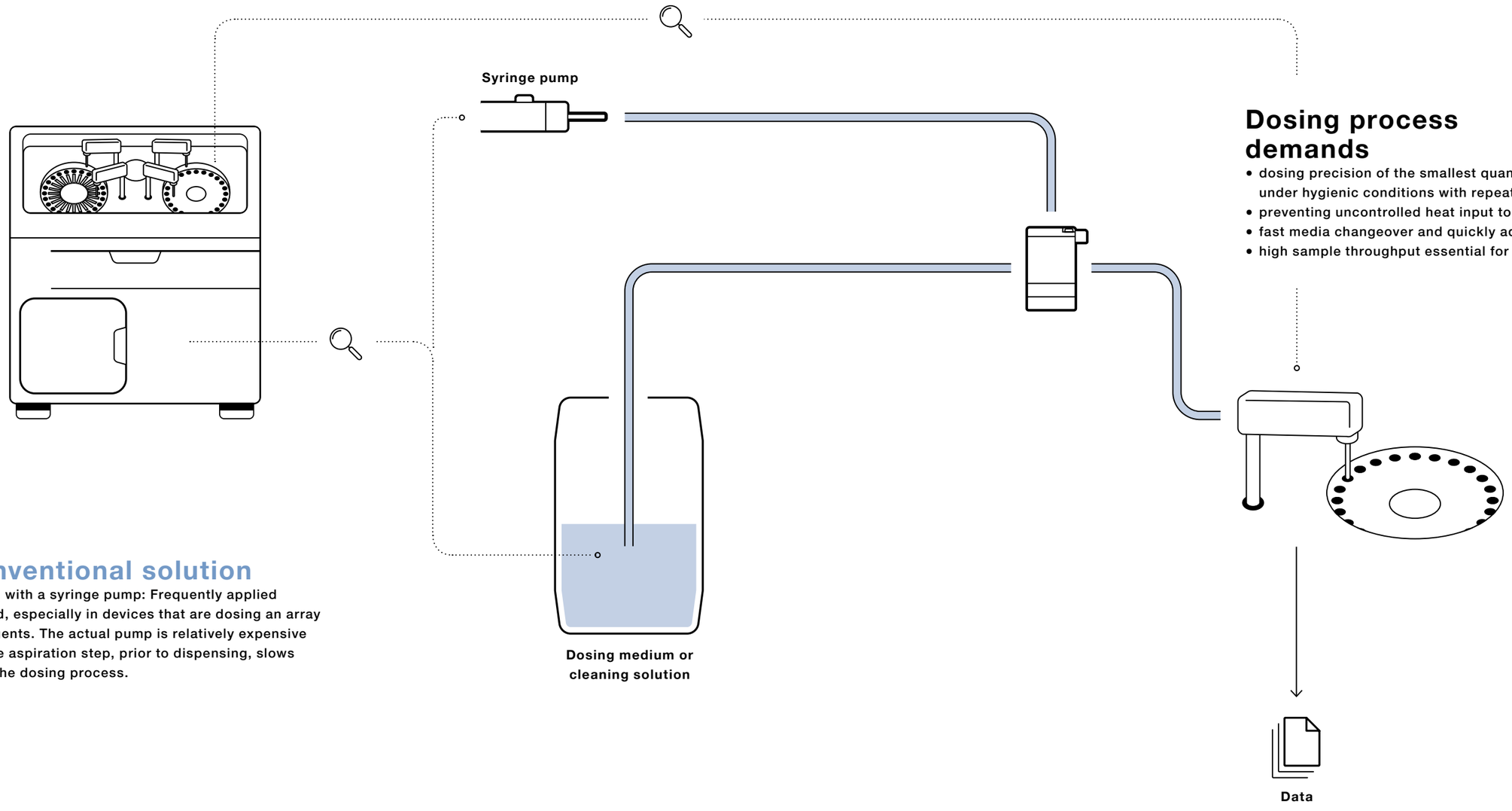
/ The right pressure at the right time / In the laboratory, you analyse samples and reagents where any mistake is absolutely critical. Your analytical device must be capable of dosing the right quantity of media at the right time. Furthermore, the medium must not be damaged during the analysis process. A system solution for the reproducible micro-dosing of samples and reagents meets all your requirements efficiently – and delivers reliable results, even under time constraints.

In the field of in-vitro diagnostics, the analysis of samples and reagents places high demands on the analysis devices. Be it in the field of haematology, clinical chemistry or immunology: Safety and accuracy are the top priorities. At the same time, laboratories must be able to handle high sample throughputs in a short period of time in order to work economically.



Do you want to dose samples and reagents precisely and achieve accurate analysis results quickly? Discover how you can handle these tasks more effectively and efficiently on the following pages.

/ Accurate test results / are the goal. First, the fluidic challenge has to be solved: How do you dose the smallest amounts of liquid quickly and precisely without the risk of contamination?



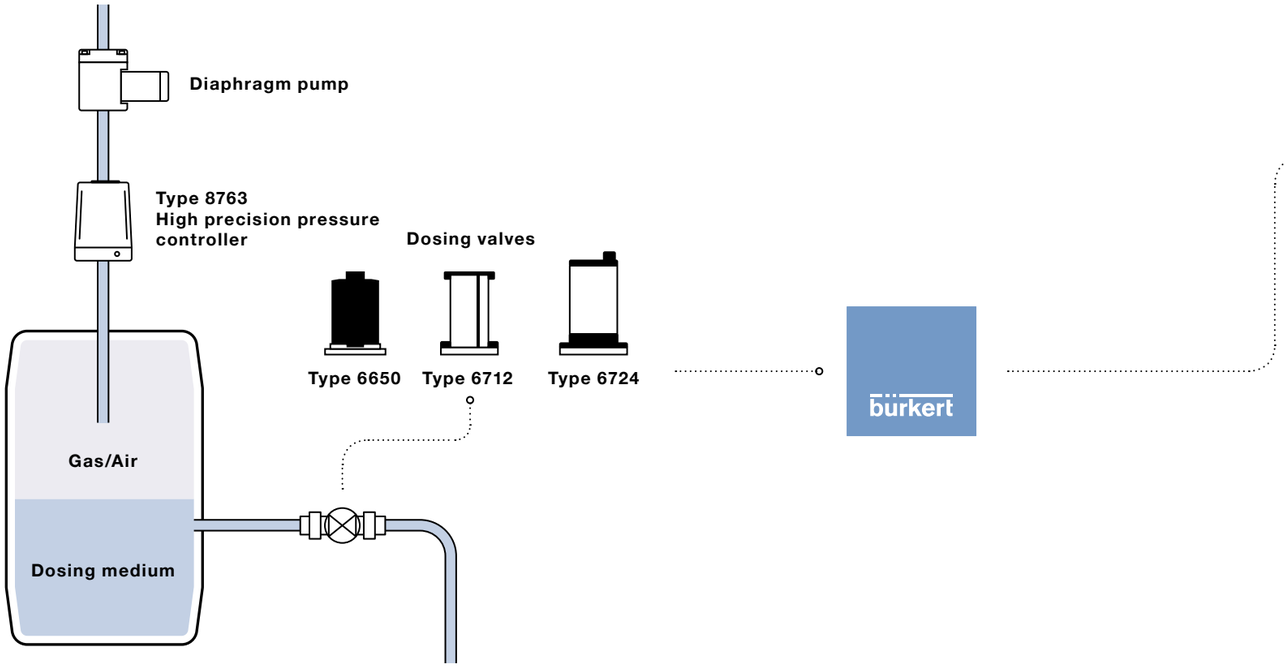
Conventional solution

Dosing with a syringe pump: Frequently applied method, especially in devices that are dosing an array of reagents. The actual pump is relatively expensive and the aspiration step, prior to dispensing, slows down the dosing process.

Dosing process demands

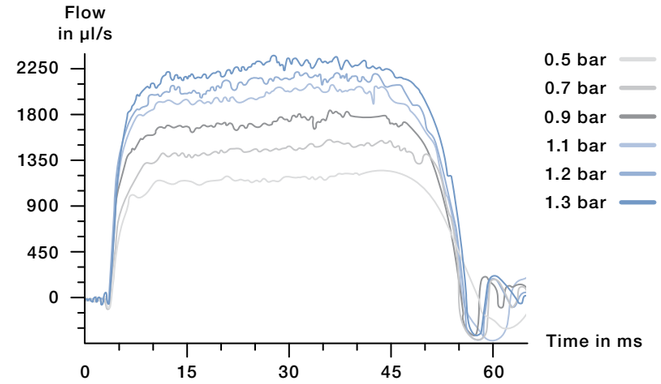
- dosing precision of the smallest quantities of reagents and samples under hygienic conditions with repeatable accuracy
- preventing uncontrolled heat input to ensure media is not harmed
- fast media changeover and quickly adjustable dosing quantities
- high sample throughput essential for effective and efficient work

/ Fast, precise and consistent dosing / Bürkert's time-pressure dosing technology helps to speed up the dosing process and increase the efficiency of your analytical device. In addition, the design of the valve prevents uncontrolled heat input into the medium and helps you achieve accurate test results. Good to know: We adapt Bürkert system solutions to your requirements – or develop an individual solution together with you.



We coordinate the valve and pump as well as the length and diameter of the supply lines, thereby ensuring the valve always switches exactly and in a consistent manner – even after routine replacement of the valve.

Accurate as a Swiss watch and made for the speed of the Autobahn: Regardless of the pressure used to dose a liquid, the valve opens and closes at the same speed, which can be seen using the example of a Type 6650 below. This allows you to increase or decrease pressure levels as required and still have the confidence that your valve is consistently working with high speed and precision.



Accurate test results

Regardless of the pressure, the valves switch extremely fast and with high precision. This prevents overdosing or underdosing - ensuring consistent and reliable results. Your samples stay clean and you receive highly accurate test results.

Increased sample throughput

Time-pressure dosing accelerates your dosing process and allows your analytical device to work more efficiently and effectively. At the same time, dosing is carried out in a reproducible manner along with flexible dosing quantities.

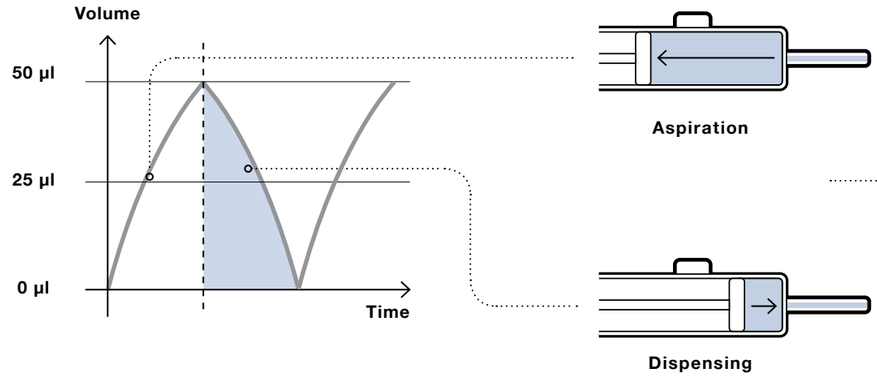
Undamaged media

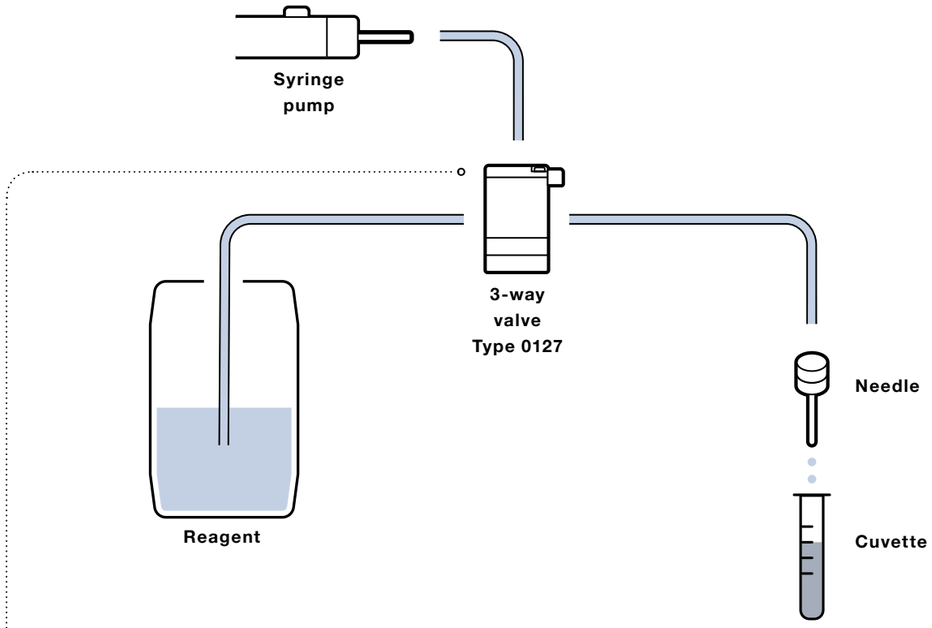
The low power consumption of the valve also means less heat is generated. The design of the valve also ensures that any heat generated is mainly released into the environment. Heat input into the medium is therefore reduced to a minimum.

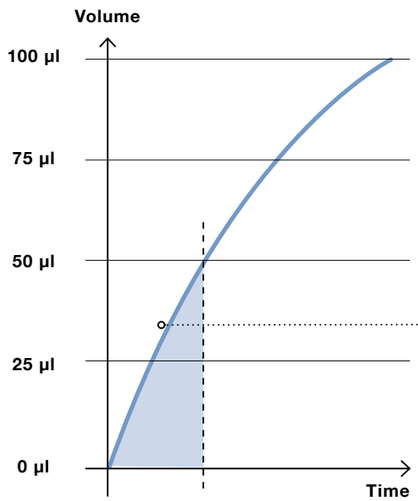
Reliable processes

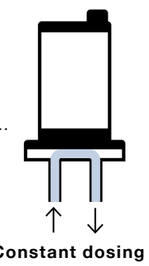
In the system solution, all the components complement each other perfectly. Low manufacturing tolerances ensure the same switching behaviour for all valves – even after replacement.

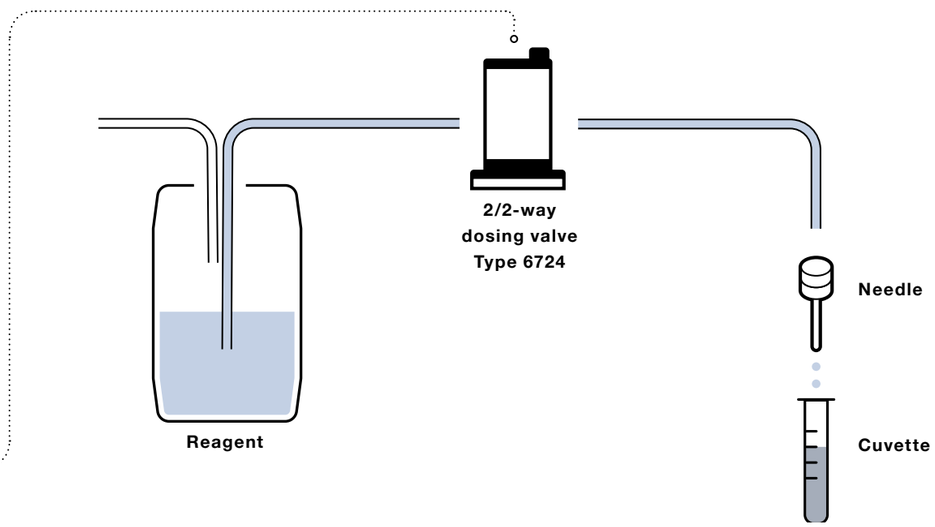
/ Increasing the pressure for more efficiency / To enjoy long-term success on the market, you need two things in particular: A high rate of sample throughput and reliable dosing processes. When using a syringe pump, every intake stroke costs time. In comparison, time-pressure dosing is much more efficient: Due to the pressure in the container, the reagent is ready whenever it is required. As soon as the valve opens, the dosing process is immediately started.



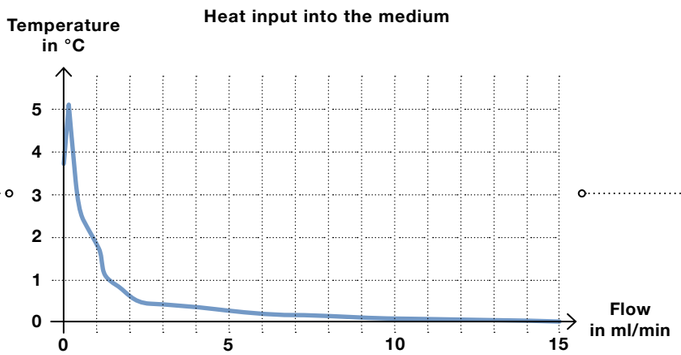






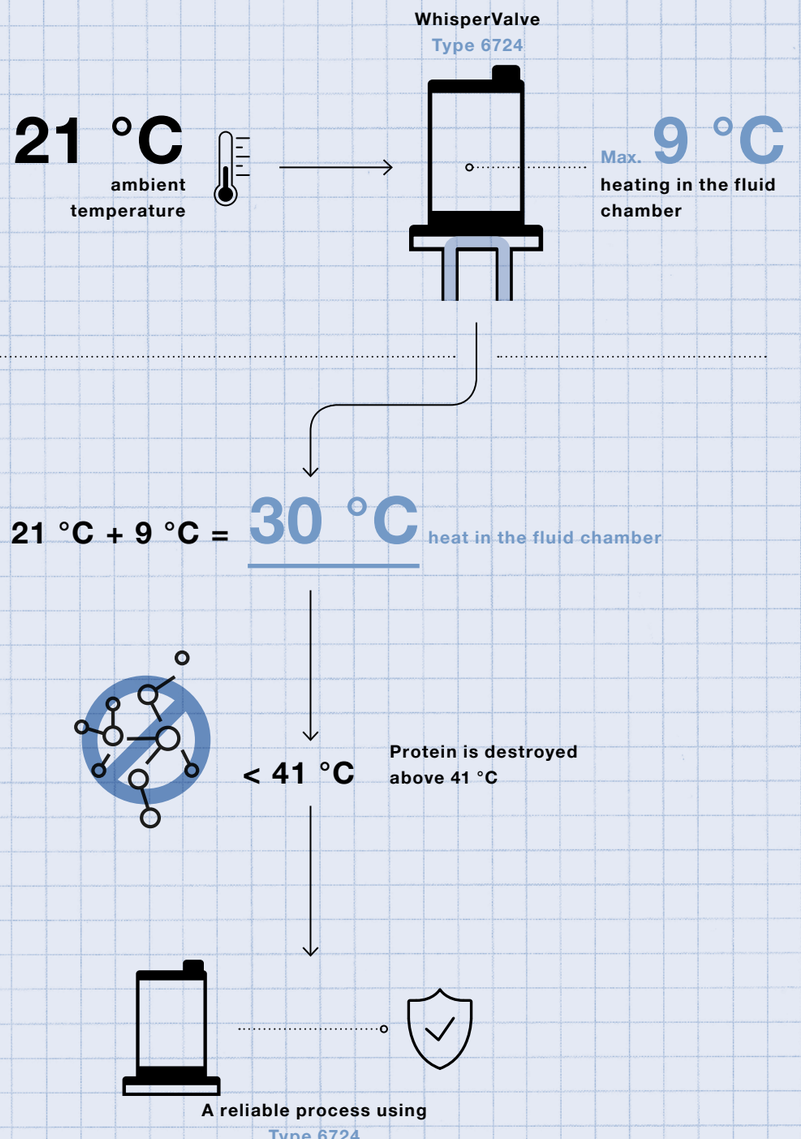


/ Keeping the heat out / Blood and urine samples contain proteins that are destroyed at temperatures above 41 °C. Heat input should therefore be minimised during the dosing process. Not just the room temperature but also heat emitting components in the analytical device have an impact on the results. Therefore: The lower the heat input into the medium, the more scope for other influences and the more reliable the analysis. The Bürkert valve is designed to dissipate heat into the environment – heat input into the medium is kept to a minimum.



Test

The test using the example of the “WhisperValve” (Type 6724) demonstrates how uncontrolled heat input into the medium can be avoided. The measurements were carried out in the fluid chamber under the following basic conditions: free-standing device, coil at top, ambient temperature of 21 °C, 100% duty cycle, 26.4 V (10% overvoltage).



Result: When the medium is stationary, the maximum heat input into the medium is 9 °C. As a result, the temperature in the fluid chamber rises to 30°C and remains safely below 41 °C. **During normal operation, there is flow when the valve is switched on, which causes virtually no heating of the medium.**

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Dosing

Bürkert Fluid Control Systems
Christian-Bürkert-Strasse 13–17
74653 Ingelfingen
Germany

Phone +49 7940 100
Fax +49 7940 1091204

info@burkert.com
www.buerkert.de

Burkert Schweiz AG
Bösch 71
6331 Hünenberg ZG
Switzerland

Phone +41 41 7856666
Fax +41 41 7856633

info.ch@buerkert.com
www.buerkert.ch

Burkert Austria GmbH
Diefenbachgasse 1–3
1150 Vienna
Austria

Phone +43 1 8941333
Fax +43 1 8941300

info@buerkert.at
www.buerkert.at

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