

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 and around the bend.

**We make ideas flow.**

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

**Bürkert Fluid Control Systems**

Christian-Bürkert-Strasse 13-17  
74653 Ingelfingen  
Germany

Tel.: +49 7940 100  
Fax: +49 7940 1091204  
info@burkert.com  
www.burkert.com

**BEST PRACTICE**

**B. Braun Melsungen AG**  
Complex filling processes under control



## HYGIENIC FILLING OF INFUSION SOLUTIONS COOPERATION WITH B. BRAUN

Filling processes in the pharmaceutical industry are often highly complex, as in addition to the technical considerations the demands placed on the applied solutions are very product specific. This was also the challenge which the German company B. Braun Melsungen AG faced. As one of the world's leading manufacturers of medical technology and pharmaceutical products and a provider of health-care services, B. Braun's range includes products and systems for anaesthesia, intensive care and cardiology. Close cooperation with the fluid technology expert Bürkert has resulted in a tailored system solution that satisfies every requirement.

### Accuracy and hygiene are the top priority

It is difficult to imagine modern medicine without infusion therapy; regardless of where you look, whether it is drug delivery, nutritional support, volume replacement therapy or fluid administration, it is an irreplaceable part of the treatment regime. But first of all, the infusion solutions have to be filled into 'bags'. And the required filling process is anything but trivial: Accuracy and hygiene are the top concerns and place huge demands on the components involved in the process. The valve technology in the filling heads, for instance, should not only switch quickly and precisely over long life cycles but should also be easy to clean and sterilise. In addition, there is obviously the need for seamless documentation of the materials and steps required for manufacturing the filling heads and their corresponding certification.

B. Braun Melsungen AG also utilises the know-how of Bürkert to produce infusion solutions. One of the first projects used bellows valves, which were integrated into the outer packaging of the infusion solution bags to dose inert gases. B. Braun also wanted to integrate this technology in the actual filling process to extend the life spans of the filling heads, thereby increasing system productivity.



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### Did you know?

The applied valves have to cope with various media such as glucose, amino acids and fatty acids. Quantities and formats vary according to the batch and high dosing accuracy is mandatory. Bags are generally filled with a volume of between 0.5 and 2.5 litres, and some also have more than one chamber.

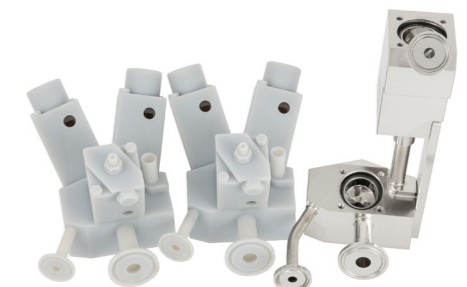
### Use of proven standard components

As a result of joint development work, there are six compact valve blocks, each with four valve functions, available for the filling process. Proven standard components were used to create a tailored system solution that meets the special demands of filling infusion solutions.

The system is designed around a modified pneumatic 2/2-way valve with a bellows-type seal which can be easily incorporated into the system. The inner volumes and flow rates were optimised at the same time to enhance accuracy and enable a defined cleaning process. The convenient space created also allowed for the integration of a pressure sensor in the filling system, thus supporting the implementation of an additional process monitoring option. When handling oxygen-sensitive products as part of the filling process, the required nitrogen supply can be monitored and recorded.

### Partnership as the basis for success

B. Braun's corporate philosophy 'Sharing Expertise' became the motto of the cross-company development team. Encouraged by an atmosphere of mutual trust, the experts exchanged their knowledge. To be able to deliver improvements quickly and effectively and to avoid false investments, CAD data was initially employed to create 3D models using the rapid prototyping process to simulate system installation, execute collision tests and verify the overall design in advance. The new filling system has in the meantime passed all the qualification phases and has been used successfully in practical tests.



### How you benefit from Bürkert solutions for the filling of infusion solutions:



**High-level reliability:** The application of extensively tried-and-tested standard components has proved successful when testing the filling system in real working environments.



**Tested quality:** Thanks to corresponding certification and the seamless documentation of materials and processing steps during production.



**Short implementation times:** Close cooperation with partners during development saves time.



**Increased plant productivity:** Service lives have increased and maintenance costs have dropped significantly. Even extended SIP cycles do not have a long-term negative impact on life spans.



**Extensive application know-how:** Bürkert experts have gained valuable experience through extensive cooperation with the pharmaceutical industry.