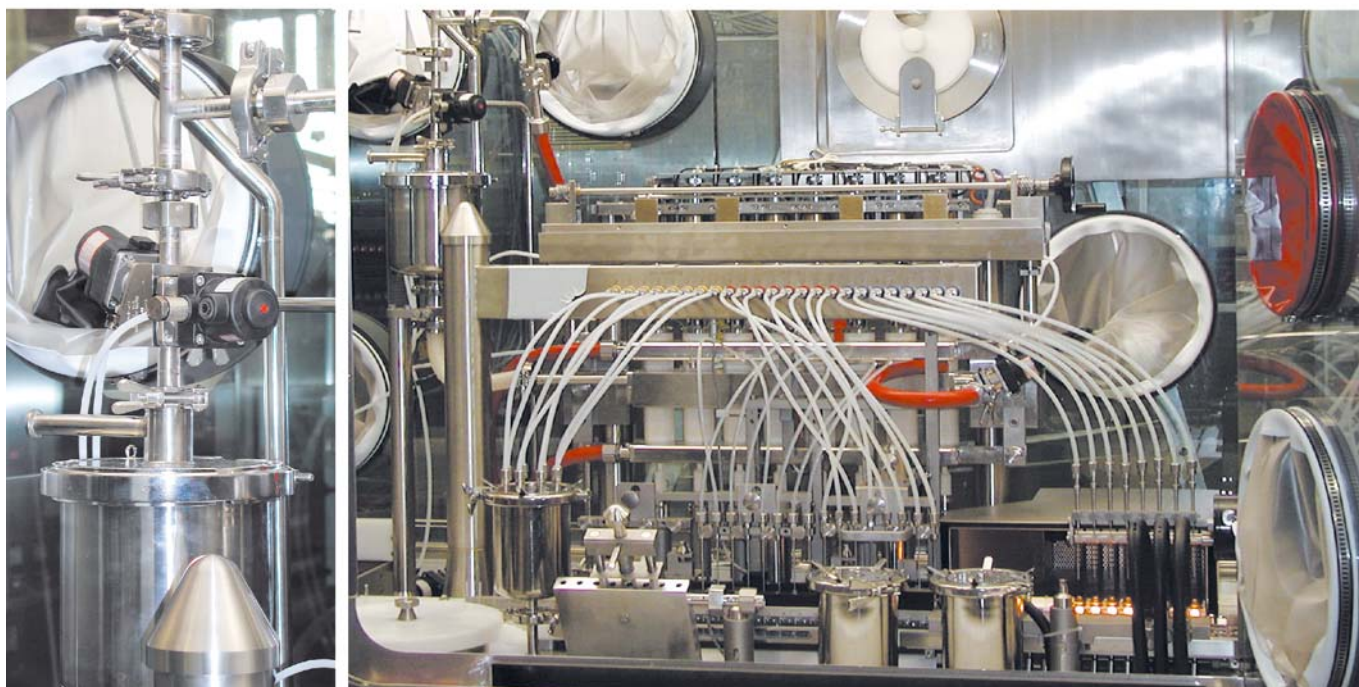


## Equipment for filling liquid drugs



GEMÜ® Marketing-Services  
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### Application

Filling medium and large quantities of an aseptic pharmaceutical product such as rinsing liquid used in operating theatres or blood substitutes is a difficult task, but an even greater challenge for filling machines is the filling of very small quantities. These include portioned active substances which are sometimes freeze-dried in glass containers with a lid or as a liquid in sealed glass ampoules. These mostly contain an active substance such as a medicine for stabilizing blood circulation or a vaccine. As the filling process must take place under special hygienic and aseptic conditions, the filling equipment must either be located in specially protected rooms or, to an increasing degree, directly integrated into a housing. This offers the required safety, is cost effective and the location is selectable.

### Plant Design

As the small glass bottles / ampoules must be cleaned and sterilized immediately before being filled, the filling process always takes place in combination with cleaning and sterilization steps. The filling machines are always equipped with CIP/SIP cleaning units enabling cleaning and sterilization after finishing a filling batch without alteration to the machines. The product is dosed in a preliminary tank / buffer where its level is monitored and taken from there using a piston

dosing pump. It is then injected into the small glass bottles / ampoules via a distribution nozzle. The ampoules are then directly sealed and the small glass bottles are closed by a sterile plug. With the products which are freeze-dried the aseptic plug is placed lightly into the bottle so that it is pulled down into the bottle during the drying process by the vacuum caused by the drying media.

### Solution

GEMÜ valves for Pharma, Food and Biotech applications in straight through design of the small and medium-sized valve series. Depending on the equipment and its layout GEMÜ M600 multi-port valves can also be used at various points, especially in the CIP/SIP equipment and its interfaces, but also in the medium feed area, e.g. for feeding the product into the preliminary tank.



**GEMÜ®** VALVES, ACTUATORS  
AND CONTROL SYSTEMS

GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG · Fritz-Müller-Str. 6-8  
D-74653 Ingelfingen-Criesbach · Telefon +49(0)7940/123-0 · Telefax +49(0)7940/123-224  
e-mail: info@gemue.de · http://www.gemue.de