

# Product application for sterile technology

## Bottling infusion solutions



GEMÜ® Marketing-Services  
Subject to alteration / 10-2005 / 88262689 / R. Kroupa

### Application

A German life science specialist designed, constructed and commissioned a complete production line for manufacturing infusion solutions for Russia. The plant consists of water treatment, a preparation system for sodium chloride and glucose solutions and for bottling. According to GMP standards, 2,400 bottles are filled per hour (12-16 million bottles per year). In order to do without fragile and heavy glass bottles, locally manufactured plastic bottles are used which are manufactured using the BFS process.

### Plant design

Infusion container manufacturing is integrated in the bottling system. The Blow-Fill-Seal technology (BFS) forms the container initially from a hot extruded plastic tube, then fills and seals it airtight immediately. In order to ensure continuous flow, the infusion solutions are made available using a regulated volume flow. The process variable is entered and analysed together with the other parameters in a central control system. Dependent on the current operating position, a set value is specified for an electro-pneumatic positioner in order to adapt the valve position to the current respective situation. By doing this, a balance is achieved for the ratio between the requirements and the availability of the solution. Moreover, the buffer container need not be too highly dimensioned. The bottling system also includes an integrated cleaning and sterilisation system.

### Solution

The GEMÜ 687 diaphragm valve is used as a control valve. Due to its functional principle and its special construction it is virtually deadleg-free and is ideally suitable for use in the sterile process. Moreover, diaphragm valves are well-suited for the automatic control of liquid media. They display linear features for a large part of their characteristic curves. The valve version "normally closed" was selected so that if electricity or control pressure fails the piping section is automatically blocked. The GEMÜ 1435 ePos® is used as a positioner. It is attached directly to the valve but it may be mounted separated from the valve. The advantage of this electro-pneumatic positioner is that it is easy to program and has the capability of being able to analyse the control valve independently. Its electronic travel transmission rules out accident danger due to open, moving mechanical parts.

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

Gebr. Müller Apparatebau GmbH & Co. KG · Fritz-Müller-Str. 6-8  
D-74653 Ingelfingen · Tel. +49 (0)7940/123-0 · Fax +49 (0) 7940/123-224  
<http://www.gemu.de> · e-mail: [info@gemu.de](mailto:info@gemu.de)