

Stainless steel diaphragm valve GEMÜ 650TL

Areas of application

- Pharmaceutical, biotechnology and cosmetics industries
- Foodstuffs and beverages

Features

- Hermetic separation between medium and actuator
- Ergonomic handwheel
- Additional pneumatic actuator for closing from a central control system
- CIP/SIP capable
- Optional flow direction and mounting position

High operational safety in pharma water systems

GEMÜ has developed a manual diaphragm valve with an integrated pneumatic actuator for use in ring mains. The valve can only be operated manually, if a control medium is applied to the actuator. This function means that manual sampling and tapping can be prevented through process monitoring.

In a pharmaceutical production process, it is necessary to sanitise* and maintain aseptic conditions throughout the storage and distribution system of the pharma water installation at regular intervals during periods of production downtime. Due to the low investment and operating costs involved, chemical sanitisation using ozone and thermal sanitisation using hot water or steam are the sanitisation measures most commonly used in industrial processes.

To be able to check the quality of ultra-pure water, it is necessary to carry out regular checks at precisely defined sampling points (and at all POUs*) in the individual distributor loops. Pharmaceuticals standards require that quality-related measurement variables such as bacteria count, conductance and TOC* values be considered. This data is acquired from samples taken in each of the individual distributor loops using sampling valves.

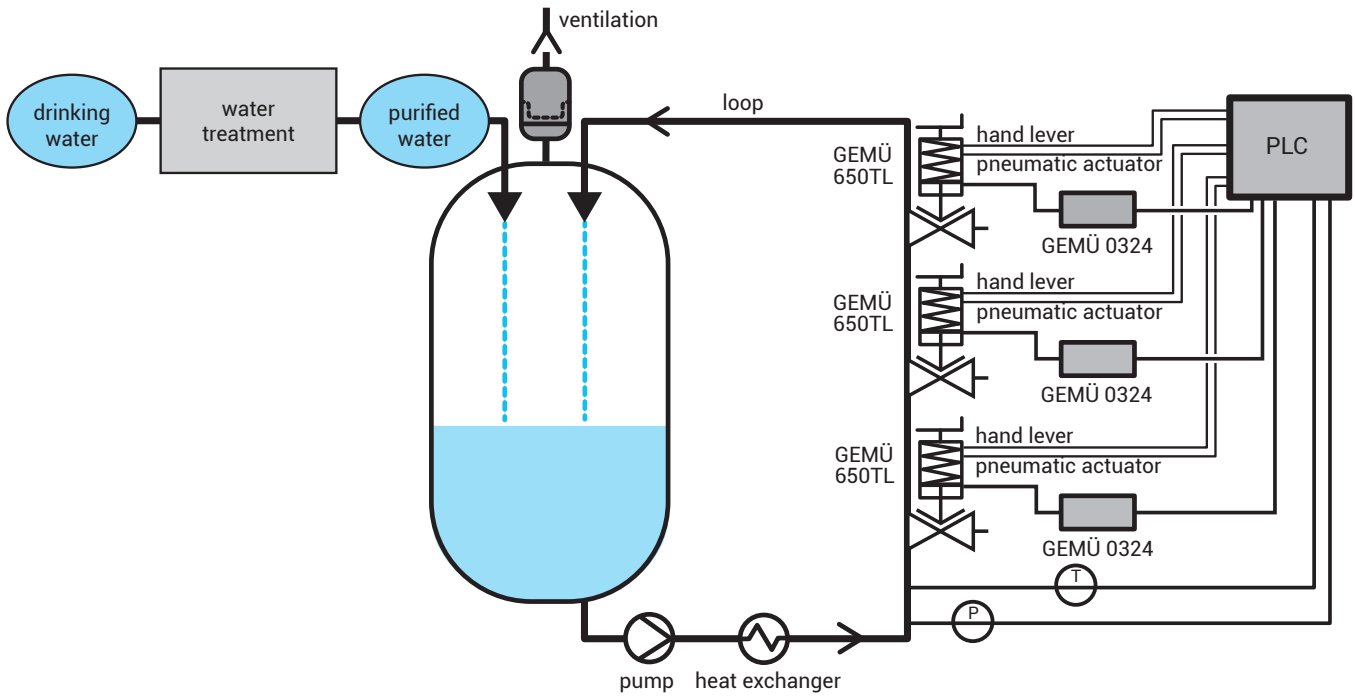


GEMÜ solution protects staff and plant

After the system has been sanitized, for example using hot water, it may be the case that, at the time of the sampling, the temperature in the loop exceeds a specified limiting value and thus exposes the employees to an imminent risk of scalding. It is therefore necessary to use the process monitoring system (PLC) to lock the sampling valve in order to prevent manual sampling. For this purpose, a temperature sensor within the supply system detects the temperature that is transferred to the process monitoring system.

GEMÜ solution translates into quality assurance

In addition to high temperatures, specified quality para-meters such as conductance, TOC value or pressure may be exceeded or not reached. In cases where there are quality-relevant deviations, the sampling points and the POU with the GEMÜ 650TL are locked using the central control system. This allows a quality-critical removal to be prevented. As soon as the values lie within the specified limits again, the sampling points and the POU can be released again by the control system.



If the temperature is above the specified limit, the compressed air supply is interrupted for all valves which were previously opened manually and the valves move to in the closed position. However, the handwheel remains in the open position and must be turned clockwise manually to the closed position. This prevents the working medium from flowing out uncontrollably at the tapping points when the valve is pressurised again.
Two proximity switches enable both the position of the pneumatic actuator and that of the handwheel to be retrieved and sent to the plant control system. In this case, the plant control system only re-enables pneumatic actuation of the valve when the proximity switches deliver the information “Handwheel position closed.”.

* Explanations:
Sanitisation = Reduction in the bacteria count (as opposed to sterilisation, in which the micro-organisms are completely killed off);
TOC value = sum parameter denoting the total amount of organically bound carbon in a sample
POU = Point of Use

Description

For use in ring mains, this manual diaphragm valve has an integrated pneumatic actuator.The valve can only be operated manually, if a control medium is applied to the actuator. Using this function any manual sampling or tapping can be prevented by the process monitoring system.



Technical specifications

- **Media temperature*:**
  -10 to 100 °C
- **Sterilization temperature:**
  max. 150 °C
- **Ambient temperature:**
  0 to 60 °C
- **Operating pressure*:**
  0 to 10 bar
- **Nominal sizes*:**
  DN 4 to 25
- **Body configurations:**
  2/2-way body | i-body | Multi-port body | Tank valve body | T-body | Welding configuration
- **Connection types:**
  Clamp | Spigot | Threaded connection
- **Connection standard:**
  ANSI | ASME | BS | DIN | EN | ISO | JIS | SMS
- **Body materials:**
  1.4435 (316L), block material | 1.4435 (316L), forged material | 1.4435 (BN2), block material | 1.4435 (BN2), forged material | 1.4435, investment casting material | 1.4539 (904L), forged material
- **Diaphragm materials:**
  EPDM | PTFE/EPDM
- **Conformities*:**
  3A | CRN | EAC | FDA | Oxygen | Reg. (EU) No. 10/2011 | Regulation (EC) No. 1935/2004 | Regulation (EC) No. 2023/2006 | TA Luft (German Clean Air Act) | USP

* depending on version and/or operating parameters

Applications

- For use as a tapping valve in WFI loops

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