Ultra purification of high purity water / Polisher and distribution

Application
The quality of the high purity water used in the production facilities of a research laboratory where special wafers and test wafers are produced is of paramount importance. The water required is used in the most varied steps of wafer production. The quality of usual high purity water is not sufficient for these special application criteria with regard to particles and harmful ions. As the number of the harmful residual molecules contained in the medium can be too high, the purified water has to be further purified. The water is carried in a ring main, where contamination is prevented. Water that is not used is conveyed back via a buffer container (5 m²) and re-treated. The amount of water used is replaced by adding pre-purified water.

Plant technology
The additional purification process is carried out by using a polisher and secondary ultrafiltration (0.04 µm). The polisher is an ion exchanger filled with a special resin which is equipped with relevant anchor groups and which cannot be regenerated in place. When the resin is saturated, it has to be completely exchanged. To avoid an interruption of the installation, a change-over between two ion exchangers is possible. The secondary ultrafiltration washes out residual particles as well as germs and unwanted molecules. An UV light station is installed before the whole application to avoid organism germination and to reduce the TOC value. The distribution of the ultrapurified water to the different production areas takes place in a closed and minimal deadleg ring main / loop running at usually 4.5 bar.

Solution
GEMÜ valves in PVDF-HP for all treatment processes, distribution and recirculation. The valves are straight through or T design and are manually or pneumatically operated. Sizes are DN 15 to 65.