

Bypass Panel System (BPS)

Extends the service life of your measurement probes

Can be integrated into ALL ETL systems for inlet, aeration, and outlet of wastewater treatment plants

Application

Reliable monitoring of water and wastewater quality is a key component of environmental management, regulatory compliance, and the operational control of municipal and industrial wastewater treatment plants. In practice, however, measuring probes are often directly exposed to the harsh conditions of wastewater, including high concentrations of solids, fouling, and corrosive constituents. These influences lead to deposits forming on the probes and significantly impair their service life, measurement accuracy, and operational reliability.

To address these challenges, ETL Verfahrenstechnik GmbH has developed the Bypass Panel System (BPS). The BPS panel is an add-on module that can be seamlessly integrated into the proven ETL systems.

The BPS panel is designed so that probes no longer come into direct contact with raw wastewater, but only with already filtered wastewater (permeate). Probes that are typically installed directly in the basin can instead be placed into specially designed probe chambers within the BPS panel.

These probe chambers can be individually adapted to the length and diameter of the respective probes. By eliminating direct contact with raw wastewater, probe service life is significantly increased, maintenance effort is reduced, and the continuity of measurement values is greatly improved.

Field trials conducted over a period of three months at a municipal wastewater treatment plant impressively confirmed the performance of the BPS panel. Throughout the entire test phase, a stable permeate flow was continuously provided. Cleaning of the installed probes was NOT required, as only filtered wastewater was used.



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Operating principle

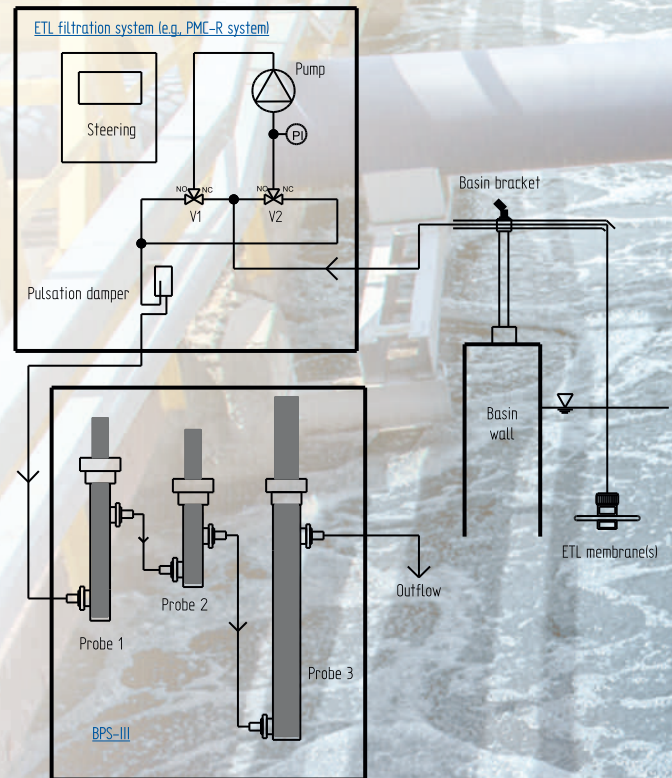
After installing the probes in the BPS panel, the ETL system draws wastewater from the basins or canals using a membrane pump through one or more membranes. The resulting permeate is conveyed via a hose line (pressure side) into the BPS panel. The filtered wastewater then continuously flows through the probe chambers in which the probes are installed and subsequently returns to the basins or canals via the overflow of the last probe chamber.

The number and dimensions of the probe chambers in the BPS panel are flexible and can be adapted to the required quantity as well as the type/manufacturer of the probes.

System cabinet

The submerged ETL membranes are connected via a suction line to the membrane pump integrated in the control cabinet. By generating a vacuum, permeate is withdrawn through the membranes and transported via a pressure line to the BPS panel.

An automatic backwash using different media (air, permeate, chemicals) can be adjusted depending on the respective operating conditions and the ETL system used. The applied vacuum can be read on a pressure gauge and serves as an indicator of fouling. All ETL systems therefore ensure a continuous and reliable supply of sample to the measuring probes.



Advantages

- customizable sensor chambers for various probe sizes and measurement parameters (e.g., pH, COD/BOD, ammonium, nitrate, and many more)
- easy integration of probes from different manufacturers
- precise, stable, and reliable measurement data
- significantly extended maintenance intervals
- increased probe service life
- reduced fouling and clogging issues
- lower maintenance requirements & high operational reliability
- periodic automatic backwashing using air, permeate, and chemicals (depending on operating conditions)
- reduced operating costs
- suitable for long-term continuous operation

Technical data

Operating data

- membrane area: 10 cm² to 2,000 cm² (depending on requirements)
- operating temperature: -20 °C to +45 °C
- pore size: 0.45 µm to 200 µm (depending on requirements)
- dimensions of probe chambers: customizable to customer specifications

Materials

- base plate: PVC
- hoses: PE
- seals: EPDM, FKM
- pump: PP, FKM, PTFE
- probe chamber: Transparent PVC
- membrane material: Ceramic, PE, metal mesh

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