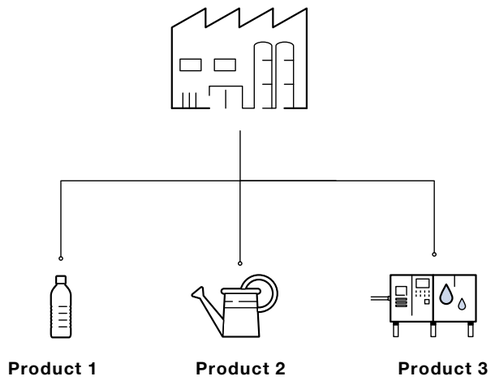
Permanent permeate monitoring for completely reliable water quality

bürkert

/ The safe way to clean water / Pressure pipes equipped with diaphragms are a key factor in nanofiltration or reverse osmosis plants. The pre-filtered water is pumped through the diaphragm at the required pressure. It filters out substances dissolved as ions.

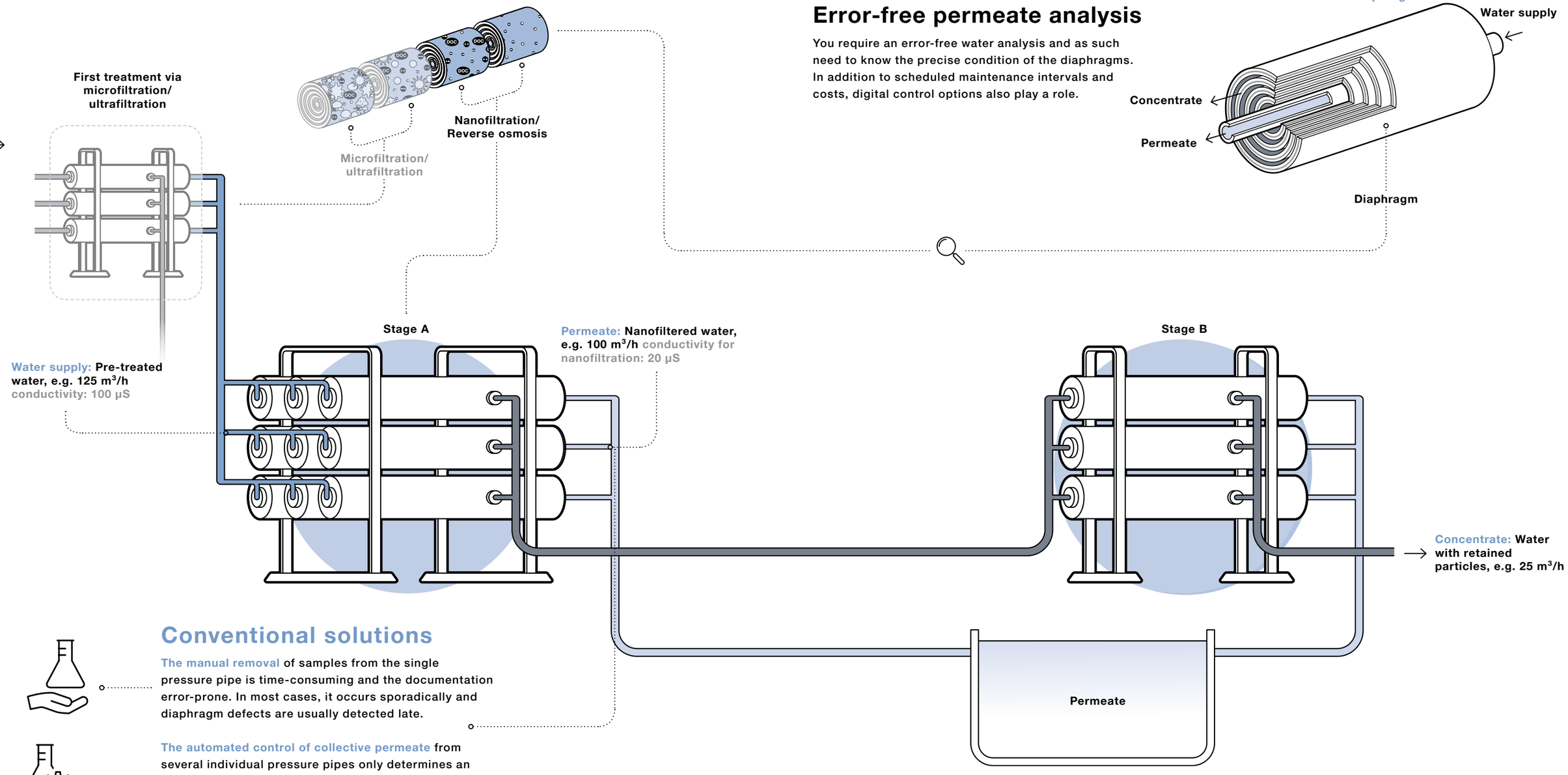
But how do you find the fault if the water quality drops? Parameters such as water conductivity shed light on this: If pollutants pass through the diaphragm, the conductivity increases. At Bürkert, we have developed an automated system that allows you to monitor your permeate at any time and to detect diaphragm defects in the individual pressure pipe at an early stage.

Water treatment or seawater desalination plants operate around the clock to produce clean drinking water or industrial process water. In order for everything to flow as it should, each individual pressure pipe must supply the specified water quality.



Do you want to ensure the quality of your permeate around the clock?
Read how this can also be done in your plant on the following pages.

/ Continuous permeate monitoring / Whoever treats water or constructs plants for this purpose has a lot of responsibility. An automated monitoring system facilitates this by guaranteeing the specified water quality.



Error-free permeate analysis

You require an error-free water analysis and as such need to know the precise condition of the diaphragms. In addition to scheduled maintenance intervals and costs, digital control options also play a role.

Conventional solutions

The manual removal of samples from the single pressure pipe is time-consuming and the documentation error-prone. In most cases, it occurs sporadically and diaphragm defects are usually detected late.

The automated control of collective permeate from several individual pressure pipes only determines an average value. The malfunctioning of individual pressure pipes or diaphragms is not detected.

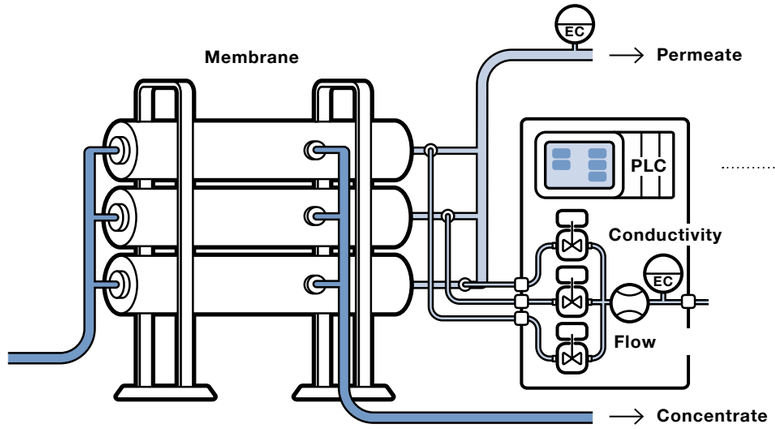
/ Does the permeate always deliver the right quality? / To ensure this question never needs to be asked again, we have developed the Permeate Monitoring System. It automatically monitors the permeate of the individual pressure pipes in reverse osmosis or nanofiltration plants (RO/NF). Locate errors early on and rectify them quickly and preemptively. Be it water treatment or seawater desalination: Once installed, the solution provides you with a quick and easy overview of large plants in particular. As a result, downtime is reduced, while performance is increased and the permeate quality is in the desired range.

Permeate Monitoring System

We configure the Permeate Monitoring System to meet your requirements. Upon request also with software adapted to your needs.

While the permeate is being measured in a pressure pipe, the plant rinses the next sampling line and prepares it for measurement. Sampling of an entire rack is therefore carried out in the shortest time possible.

/ Full picture instead of average values / Each individual pressure pipe has a sampling point for taking samples. Starting from this permeate outlet, the water sample is sent to the Permeate Monitoring System where the values from each pressure pipe are measured. Instead of diluted average values, you receive precise single measurements. If the permeate quality in a pressure pipe drops, you are able to detect potential diaphragm damage at an early stage, thereby preventing downtime.



Status overview

The status of each diaphragm can be viewed at any time on a central display. This allows you to detect the smallest amount of damage and prevent downtime. Authorised users can, for example, call up error messages in real time via the Internet.

Automated measuring

The system automatically and continuously monitors one or several plants, and is supervised by just one person. You determine the frequency of sampling individually.

Maintenance scheduling

By using the trend analysis of the system, you can schedule your maintenance activities. Your total operating costs are reduced and the plant thus pays for itself in a short period of time.

Simple integration

The stand-alone system with its own PLC and software can also be easily integrated into existing plants.

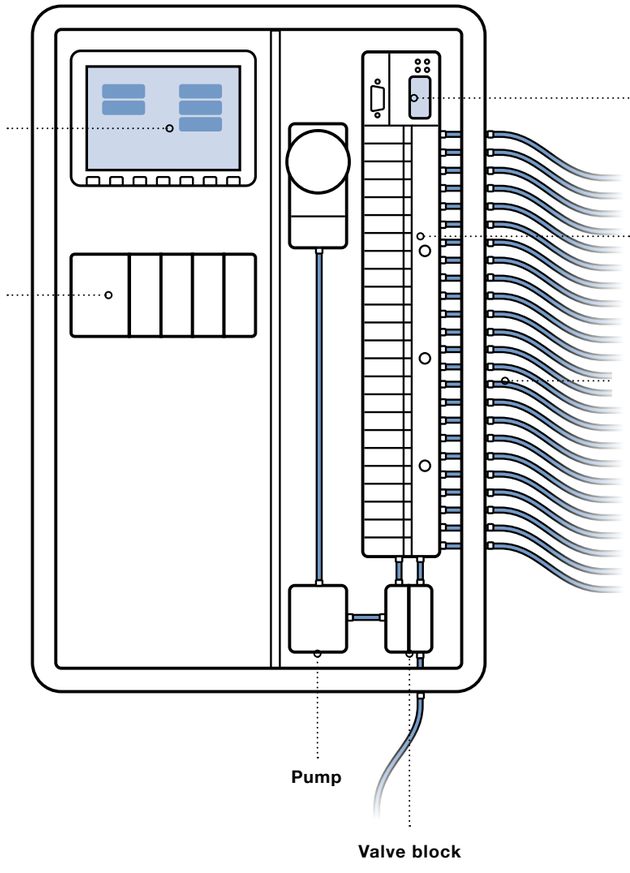
Time-saving sampling

The system rinses and measures at the same time, thus reducing the time required, even though it samples each pressure pipe individually. The measured values are recorded digitally and sent directly to the control system.

Perfect down to the last detail

For example, media-separated valves prevent seawater from reacting with the metal of the valves and falsifying measured values.

/ Automated and adjustable / The Permeate Monitoring System tailored to your plant offers everything you need for reliable and time-saving water quality monitoring. By being connected to the controller (PLC), it ensures your plant is digital. In other words: All relevant data can be viewed at a glance at all times and is fully documented.



Visualisation
via 10” touch display in the control cabinet door or integration possible in the customer’s SCADA system

Controller
PLC with Profinet gateway for communication between the field and the control level and I/Os for integrating external signals

Sampling module
Media-separated valve system with Profinet bus nodes for networking several modules

Sensor module
Flow and conductivity measurement with valve block for switching between measurement and rinsing line as well as optional booster pump

Automated Permeate Monitoring System

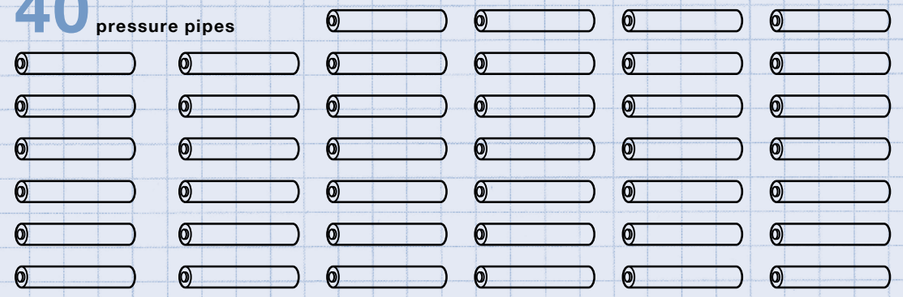
Pump

Valve block

Example calculation

Continuous flow of monitoring data: A water treatment plant with 40 pressure pipes changes over from daily manual sampling and documentation to Bürkert’s automated system. This helps to save nine working hours a month. **In one year that totals 108 hours saved.**

40 pressure pipes



Conventional manual sampling

20 s / pressure pipe
Sampling and measuring

10 s / pressure pipe
Documentation of the measurement

10 s / pressure pipe
Documentation in the control system

40 s / pressure pipe Manual measurement

9 h / month
for sampling and documentation

Bürkert automated sampling

0 h / month
for sampling and documentation

108 h
saved in one year

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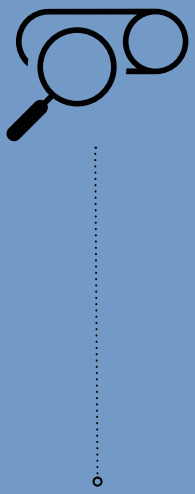

Analysis

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