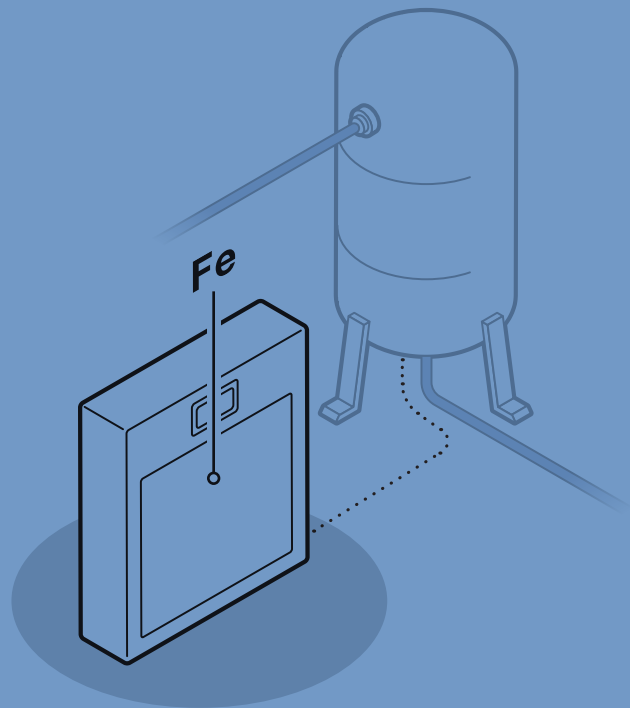




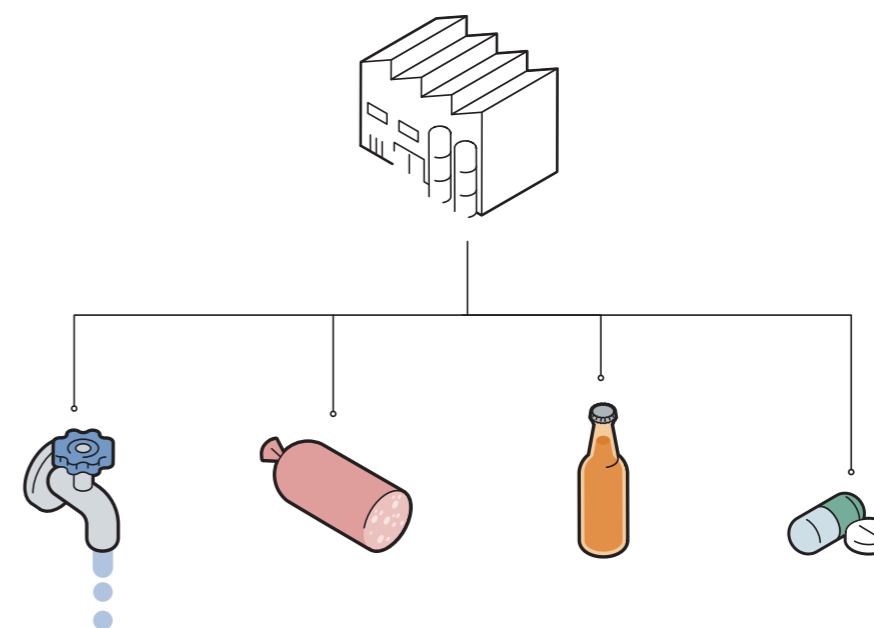
# Reliable water analysis and significant cost savings





**/ Increasing process reliability, reducing costs / An excessively high iron concentration in water can cause long-term sedimentation of iron particles in pipes and valves, thereby leading to a reddish discolouration of water for the end user. Sensor cube MS06 helps to determine the iron content via state-of-the-art flow injection analysis (FIA) – fast, reliable and extremely economical. This allows you to quickly detect excessive iron values in your process water, monitor the load status of your filters and react accordingly. Like all sensor cubes, the iron sensor can be easily integrated into a Bürkert online analysis system – for example the robust control cabinet solution Type 8906.**

When spring water is used for drinking water or food production, controlling the iron content is a key issue. As excessive iron content in drinking water and in food production leads to unsightly cloudiness and discolouration as well as to impaired taste. An iron concentration of 0.5 mg/l can be tasted by humans; the actual limit value, however, is 0.2 mg/l.



Discover more on the following pages about how a Bürkert online analysis system and sensor cube MS06 can help you to economically control the iron content and turbidity in your raw water.



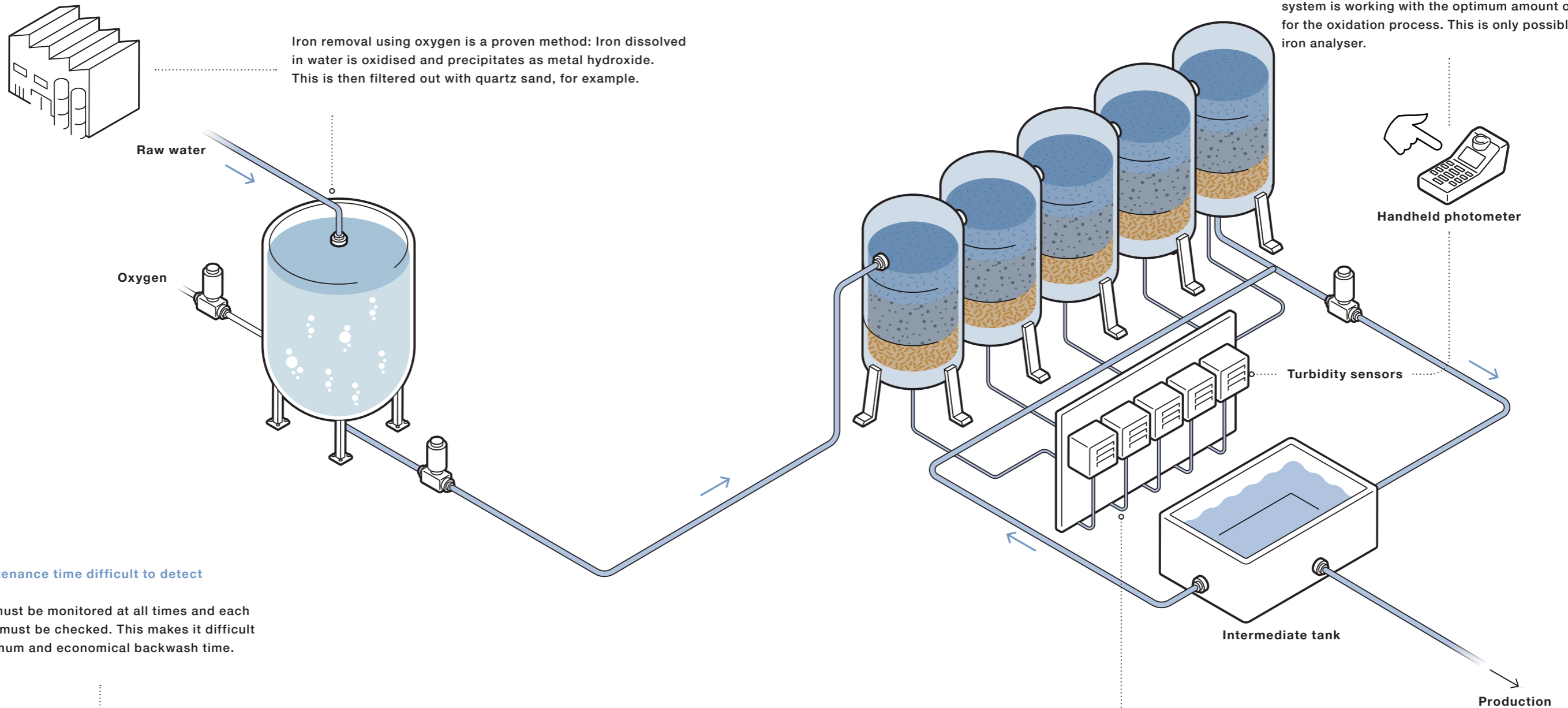
**/ Complex checks with conventional systems /** The highest demands are placed on the quality of water for drinking water and food production, therefore full functionality of the iron removal system must be checked and documented continuously. If the limit value is exceeded, quick intervention is required. With conventional water treatment plants, this demands a great deal of personnel and time.

**Complex process monitoring**

One turbidity sensor is used for each individual filter. Monitoring of the individual sensors requires a high expenditure in terms of time and personnel. Process monitoring is carried out randomly for each individual filter line with the laboratory or handheld photometer.

**Insignificant measurement results**

A turbidity sensor does not show whether the iron removal process is running properly and whether the system is working with the optimum amount of oxygen for the oxidation process. This is only possible with an iron analyser.



**Optimum maintenance time difficult to detect**

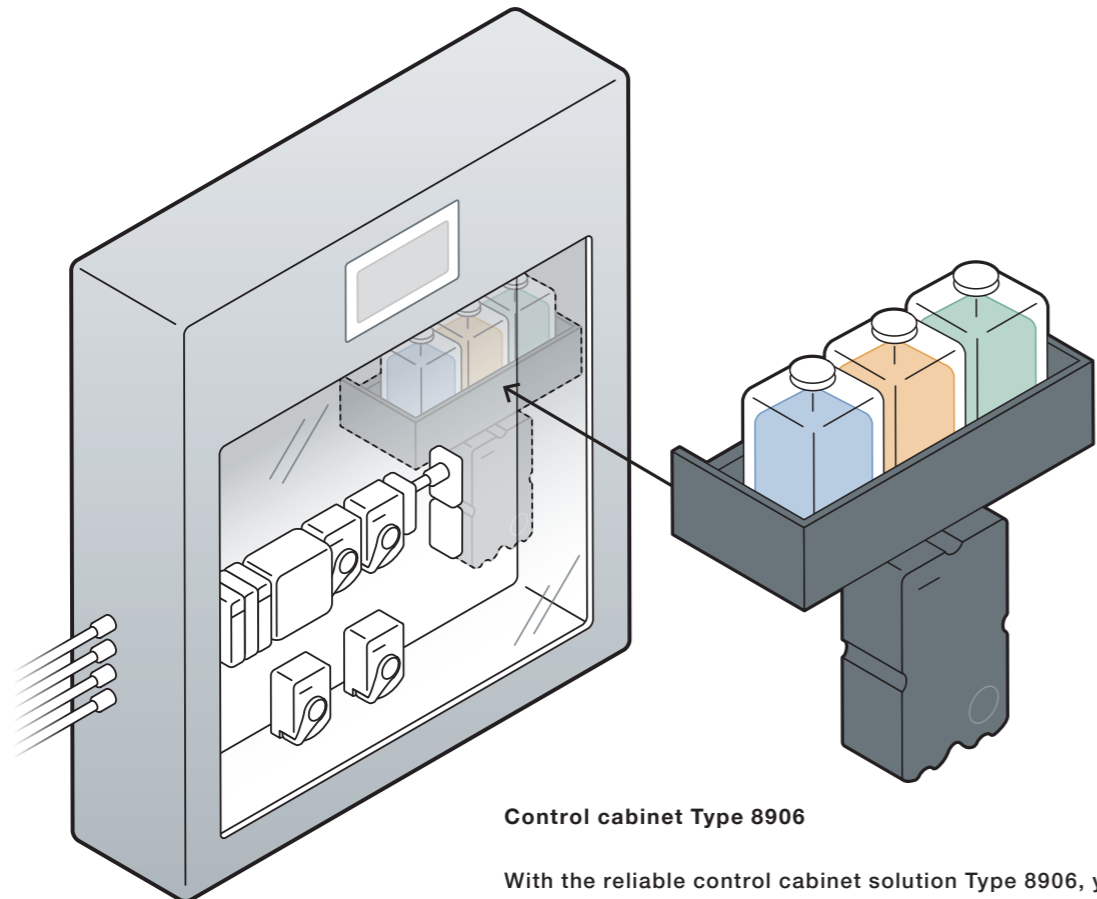
The filter load must be monitored at all times and each individual filter must be checked. This makes it difficult to find the optimum and economical backwash time.

**High maintenance effort**

Each individual sensor must be cleaned regularly and, if necessary, calibrated. This must be done in a decentralised manner at the various stations of the plant. It may be also necessary to temporarily shut down parts of the plant for this purpose.

**/ Achieving more with less sensors / The Bürkert online analysis system offers three major advantages over conventional instrumentation solutions:**

- Firstly, the iron removal process is monitored with a special iron sensor, i.e. sensor cube MS06. Its sensors are based on state-of-the-art flow injection analysis. One sensor is able to monitor multiple filters using the Bürkert sampling system.
- Secondly, the sample water lines can be designed flexibly – in addition to the iron sensor, it is, for example, possible to also integrate sensors for turbidity, conductivity and pH value.
- And thirdly, in combination with Bürkert water sampling, just one sensor unit – consisting of the aforesaid sensors – can monitor up to eight sample water lines.



**Control cabinet Type 8906**

With the reliable control cabinet solution Type 8906, you never lose sight of your measured values. This allows you to carry out maintenance, control and error diagnosis at one location – without having to cover long distances and employ a laboratory. The robust control cabinet protects your sensors and other components against contact, dirt and water to IP65 degree of protection.

Its other advantages include:

- Customised, application-specific sensors
- Automatic cleaning and calibration units
- Compact dimensions
- Lockable on request



**Reduced costs through intelligent cabinet layout**



The sensors in the control cabinet automate the sampling process. Further, the number of sensors required is also reduced. This saves costs when purchasing and operating the sensors.

**Easy and fast installation**



Installation of a Bürkert system Type 8906 in the plant is much easier and faster than installing individual sensors for each sample water line.

**Process reliability**



With the control cabinet solution Type 8906, you have your water quality permanently under control at a central location. A real plus for your process reliability.

**Long maintenance intervals**



Since the maintenance intervals of sensor cube MS06 are very long, your water treatment plant works more economically. Moreover, the sensor cleans and calibrates itself automatically. By the way, other Bürkert sensor cubes are also characterised by their long maintenance intervals.

**Resource-friendly**



Sensor cube MS06 for iron measurement is extremely economical with regard to reagent consumption. This saves costs, reduces waste and therefore conserves resources.

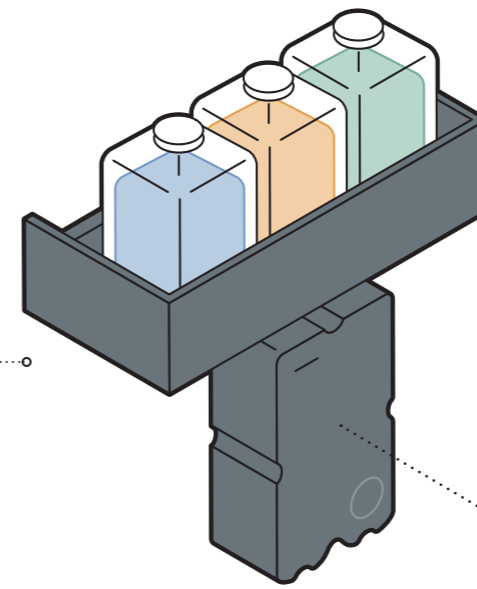
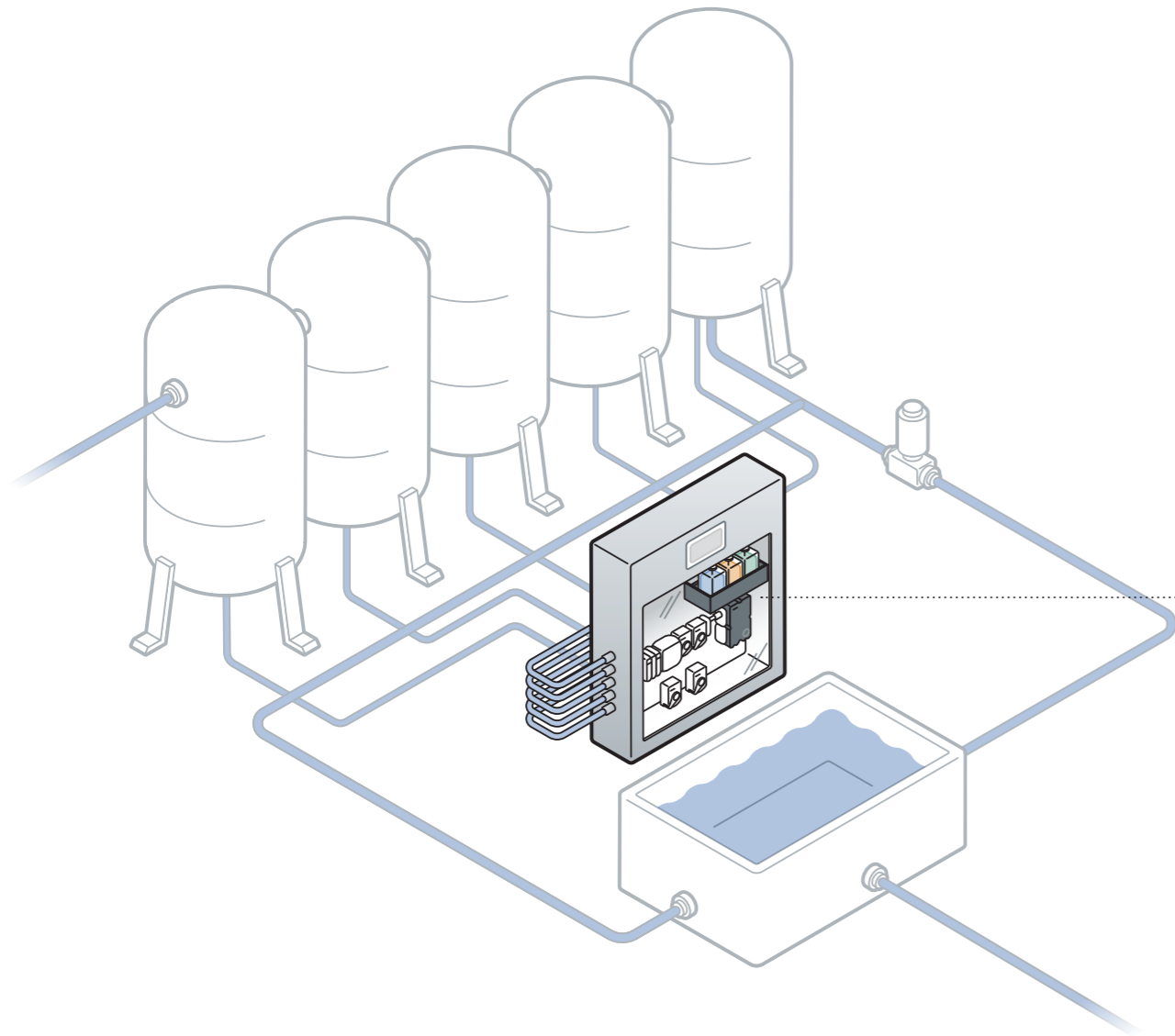
**Customer-specific plant design**



The Bürkert online analysis system can be individually adapted to your plant and integrated with ease. All from a single source: Measurement technology, valve technology and control technology.

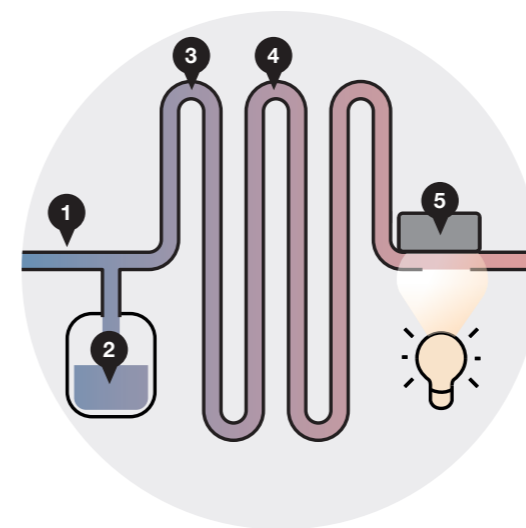
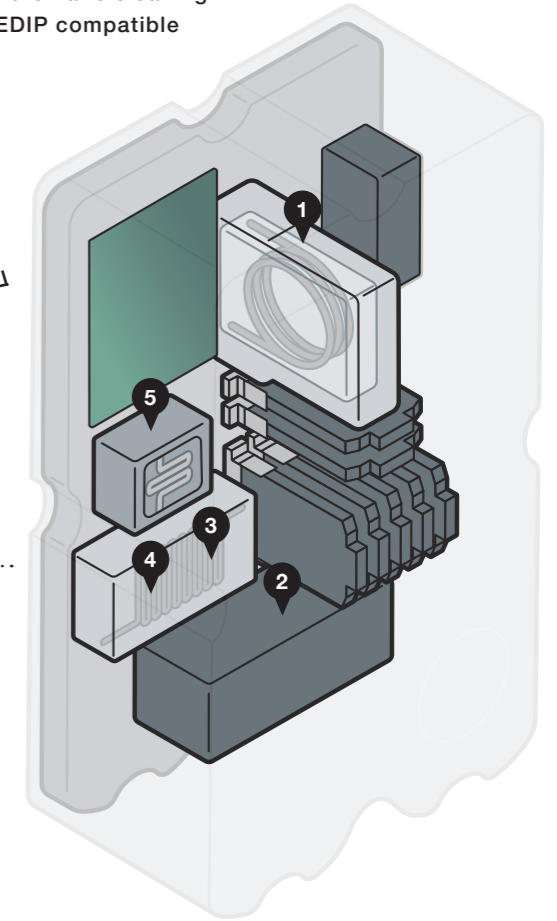
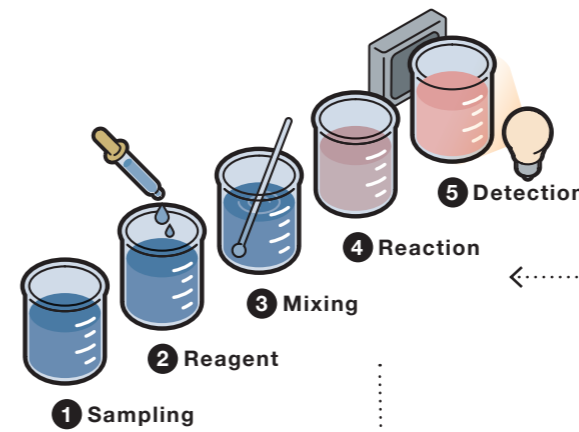
**/ Fully automated and economical iron measurement /** The iron content must be constantly monitored to prevent the limit value being exceeded. The Bürkert sensor cube MS06 for iron measurement analyses the iron content in cycles, operates fully automatically and is characterised by its extremely compact dimensions. Cutting-edge flow injection analysis requires only a few reagents, making the process extremely economical. Highly practical: Barcode-based reagent detection prevents misidentification.

If the iron measurement system is installed in a control cabinet solution such as Type 8906, all the information is stored at one location. This simplifies and speeds up installation and connection as well as maintenance and error diagnosis.



The most important technical data of sensor cube MS06 at a glance:

- Iron detection: 0–2 mg/l, greater detection range on request
- Reagent consumption approx. 50 µl per injection – roughly 5,000 measurements possible
- Measuring interval: 30 min between measurements, one measurement 1 h
- Measurement duration: Approx. 5 min
- Maximum pressure: 1 bar
- Self-calibrating
- Automatic cleaning
- EDIP compatible



**Cutting-edge flow injection analysis**  
The automated analysis of the iron content in sensor cube MS06 works with high-precision microfluidic components. With the help of flow injection analysis, a sample is taken from the flowing medium (1) and a reagent is added (2). Sample and reagent are pumped through the system, mix (3) and react to form a specific dye (4). The iron content is then determined through the photometric analysis of this dye (5).



**/ Various extension possibilities / Reap the full efficiency advantage of the Bürkert online analysis system when using other Bürkert sensor cubes for water analysis in addition to sensor cube MS06 for iron measurement. The robust control cabinet Type 8906 ensures you have everything you need for monitoring, controlling and documenting your water treatment plant at one location.**



**pH measurement:** The pH value is an indicator of the acidic or basic properties of drinking water. This measurement reduces maintenance and calibration effort thanks to ISFET (ion sensitive field effect transistor) technology. It enables stable long-term measurements, especially for drinking water applications.



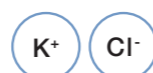
**System modularity**



**Reduced maintenance and calibration**



**Chlorine and chlorine dioxide measurement:** Chlorine is used against harmful microorganisms and to disinfect drinking water. Unlike conventional solutions, the sensor cube measures without an electrolyte, which makes the sensor particularly low maintenance. Independent of the pressure and flow rate, it also guarantees particularly stable measurements. The maintenance effort is low and you only need to replace the measuring cell every two to three years.



**No electrolyte required**



**Min. 6 litres of water for each measurement process**



**ORP measurement:** The ORP value or "redox" measures the oxidation and reduction potential of water as sum parameters. Carrying out the ORP measurement with a sensor cube offers a number of advantages: It is simple to operate and maintain, and the flow of sample water is kept to a minimum with a long operating duration.



**Easy to use**



**Long operating duration**



**Turbidity measurement:** Turbidity is the indicator for content and suspended solids undissolved in water. The sensor cube measures the turbidity in accordance with applicable standards and directives. With inline cuvette measurements, there is little work involved in water preparation. Since only a small amount of sample water is required, the measurement reacts quickly to changes in the sample water.



**Simple water preparation**



**DIN/ISO 7027 or EPA method 180.1**



**Conductivity measurement:** Conductivity is the indicator for ingredients and minerals dissolved in water. The modular, maintenance-free sensor cube is particularly suitable for drinking water. The sensor cube is easy to use, features a resistive two-electrode measuring cell, hot swap and requires only a very small flow of sample water.



**Easy to use**



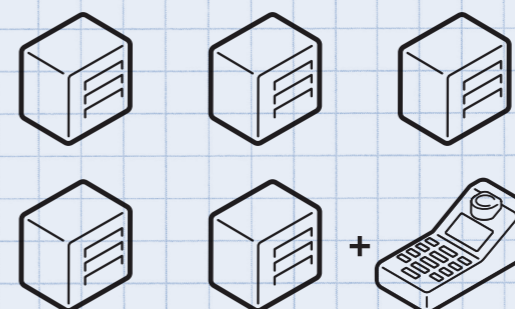
**Maintenance free**



Sample calculation

Invest in your process reliability instead of numerous sensors: Our calculation example shows how you can save on the number of sensors when using sensor cube MS06 and the control cabinet solution Type 8906.

**Conventional valve solution**



**Monitoring of filters with turbidity measurement**  
Continuously, 1 turbidity meter per filter + photometer

5 x turbidity sensor including cleaning **21,310 euros**

Transmitter + photometer for process monitoring **800 euros**

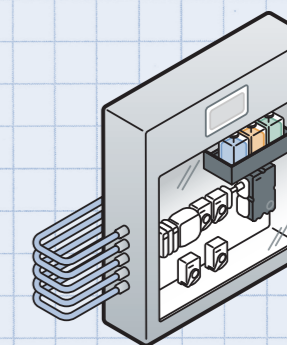
**Subtotal 22,110 euros**

Manual sampling, 1 hour per day, 220 days at 50 euros **11,000 euros**

Maintenance costs + consumables/year\* **2500 euros**

**Sum 35,610 euros**

**Bürkert system solution**



**Filter monitoring using Bürkert control cabinet Type 8906**  
1 x Bürkert iron analyser = 5 x sample water changeover

1 x MS06 iron analyser  
1 x MZ30 calibration and cleaning module  
1 x MS05 turbidity sensor  
1 x cleaning module  
ME21 display with data logger  
5 x sample water changeover

**Subtotal 18,850 euros**

Pump replacement approx. every 2 to 3 years\*\* **700 euros**

Maintenance costs + consumables/year\*\*\* **1500 euros**

**Sum 21,050 euros**



\* Depending on the type of maintenance agreement, estimated at 500 euros a year  
\*\* Depending on the number of samples, within the scope of the maintenance agreement  
\*\*\* Depending on the type of maintenance agreement, number of sample water changeovers and system equipment



## Analysis

**Bürkert Fluid Control Systems**

Christian-Bürkert-Strasse 13-17

74653 Ingelfingen

Germany

Phone: +49 7940 100

Fax: +49 7940 1091204

[info@burkert.com](mailto:info@burkert.com)

[www.burkert.com](http://www.burkert.com)