

## FWO-Control

### - sustainable energy and cost savings especially for feed water boiler -

**FWO-Control provides an efficient way to save energy and costs on feed water boilers. On individual systems, a savings potential of up to 8% of the operating costs of a steam boiler system is demonstrably possible. Irrespective of this, FWO-Control offers an efficiency method within the scope of the energy management system according to ISO 50001.**

FWO-Control analyzes and optimizes the water quality of the boiler feed water. Thanks to continuous monitoring, FWO-Control can react very dynamically to load fluctuations and work very efficiently. Chemicals are only dosed according to qualitative requirements and not according to quantitative specifications. Detected oxygen-free space allows a saving of previous losses of the vaporized steam, under certain conditions up to 80% of the total vapor losses.

To prevent deposits and/or corrosion in boilers, conditioning agents are added. Due to the fully automatic, constant measurement and monitoring of the feed water, instead of a rigid quantity, a quality-related needs-based dosage of the conditioning agents takes place.

This leads to a significant reduction in the used chemicals, with up to 60% savings achieved. The consequence is that a higher thickening is achieved in the steam boiler. This entails a reduction in energy losses and quantities of blowdown.

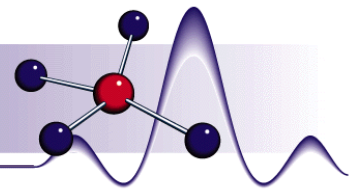
Divided into the three modular sensor units conductivity, pH value and optical oxygen monitoring, it is possible with the FWO-Control to monitor the specified analytical threshold values of the feed water and to continuously regulate the dosing control of alkalization and residual oxygen binding even with changes in the boiler operation. Attention is paid to optimum use of chemicals and an increased thickening factor as the analytical efficiency of boiler operation.

The measured values of pH value, conductivity and residual oxygen content as well as the process values thickening factor, dosage and closing times for the vapor valve and others are stored with a time stamp in an electronic logbook and can be transferred via a data stick to an external PC and evaluated.

Measured values and process data are visualized in the display and the dosing pumps are activated as required and necessary. Optionally, FWO-Control also offers the option of networking with higher-level control centers as well as remote transmission and SMS service alarming. Thanks to the latter, prioritized errors are transmitted to selected persons in charge.

An automatic function check is used to monitor the functionality and to trigger an alarm if errors are detected. This also applies to the connected dosing stations and dosing pumps. Service requests are signaled on the display and managed and processed analogously to the process values.





## TECHNICAL DATA

Dimension in case:	600 x 980 x 220 mm (W x H x D), wall mounted
Weight:	about 35 kg
Surrounding temperature:	5 °C ... 50 °C
Relative humidity:	20 % ... 80 %
Cooling water connection:	shut-off branch ½" internal thread
Cooling medium:	pressurized supplemental water, 1...10 bar, 5...20 °C
Hot and feed water connection:	shut-off branch ¼" internal thread with upstream hot water magnetic filter 100µm
Quality hot and feed water:	pressure afflicted, max. 10 bar, sediment-free
Drainage:	pressure-free, PA-pipes OD 15 und OD 8 mm

## OPERATING DATA

pH measuring range:	6 ... 13 pH (temperature compensated)
Oxygen measuring range:	0,001 mg/l ... oxygen saturation (temperature compensated)
Conductivity measuring range:	10...10.000 µS/cm (temperature compensated)
Measuring cycles:	continuously
Dosing cycles:	depending on threshold values (pH, conductivity, oxygen)
Dosing chemicals:	sodium sulfite, caustic soda, sodium triphosphate (under conditions ammonia, amines)
Sensor control:	automatically
Operating time sensors:	about 6...12 months, no guarantee
Signalizing:	collective alarm dosing stations and sensor service
Control:	vapor valve

## ELECTRICAL CONNECTIONS

Power supply:	power supply unit 230 Volt, 50 Hz (protection class: I )
Operating voltage:	about 20 Watt
Alarm contacts:	potential-free changeover contact, max. 230 Volt, 10 A
Dosing pumps:	active current loop 4..20 mA, max. 500 Ohm (oxygen binders & alkalization)
Collective fault dosing pumps:	potential-free input
Boiler or feed water operation:	query make or break contact, potential-free
Vapor valve:	vapor valve control potential-free changeover contact max. 230 Volt, 10 A, power-off open
Optional:	connection to higher-level control centers
Optional:	remote maintenance with mobile alerting option
Optional:	condensate monitoring