

# The Watermark

The Newsletter From

**Automated Water & Effluent Ltd**

Autumn 2015

## BOILER & HOT WATER DOSING

As we are entering autumn it's that time of year to think about boilers and LPHW (low pressure hot water systems) which, for our water treater customers, means chemical treatment of the system.

We covered chemical dosing pots in Watermark Autumn 2014, where we introduced the stainless steel chemical dosing pot. As an instrument and dosing company, our preference is to use a controller and dosing pump for this duty. For dosing LPHW systems, there are several methods we are able to cater for.

Flow proportional - for make up water where the make up water line is fitted with a contacting head water meter, used to control a dosing pump with an external pacing control input. Simply do the sums involving the water meter K factor; the pump size determines the desired amount of treatment required, in ppm (parts per million or mg/L).

Conductivity control - where a conductivity cell is installed in the hot water pipework, ideally in a by-pass, so that it can be removed for maintenance and calibration.



The conductivity controller controls the corrosion inhibitor pump so when fresh water is added to the system, this dilutes the chemical concentration causing the conductivity to drop. Switching on the chemical dosing pump to add chemical, increases the conductivity. The conductivity of the chemical reagent added must be considerably higher than the system solution in order for this to work.

Timer control 1 - either on a 7 day timer so inhibitor is added on a regular basis,



eg. every Monday and Thursday for 10 minutes per day.

Timer control 2 - by a shot dose timer where the service chemist analyses the water for inhibitor content and adds a known volume of reagent, by setting the timer to dose for the pre-set time, i.e.. a 6 L./Hr dosing pump, set for a 10 minute shot dose will add 1 Litre of treatment. We are able to supply all of the above as simple dosing stations with a bunded area for the chemical treatment drum.

## SERVICE TEAM STRENGTHENED

**Our service team has been strengthened recently with the addition of Andrew Lomas**

Andrew, along with Service Manager Chris Micheal and engineers Gareth Hardwick and Bill Washbourne bring many years experience to Automated Water and Effluent Ltd.

We are able to offer routine servicing and calibration facilities on site, tailored to our customers requirements, whether it be a buffering service to maintain

optimum efficiency of an effluent treatment plant, calibration of your process line instruments or certification of laboratory pH & conductivity instruments with traceable certification to national standards.

### ENHANCED REPUTATION.

AWE is renowned for it's after sales support and this is further enhanced by our specialist engineers continually attaining SafeContractor and Confined Space Working Scheme accreditations.



Already very active in the food industry for calibration and certification of our instrumentation, we provide national coverage for our complete range of products as well as in-house workshop repair and calibration facilities.

# Technical Tips

## Sensor Installation

We are often asked about the best way to install our sensors. Measuring the pH, Redox or conductivity in a flowing pipe is a common request. First it must be established if the flow is constant and the pipe always full or if the flow can be stopped and the pipe drained for maintenance.

If the process cannot be stopped then we have two options: 1) A retractable sensor like our lock-n-load which will be covered in another article or 2) A by-pass system. A by-pass system needs to be installed at the same time as the pipe work, or during a plant shut-down.

A by-pass system essentially consists of three valves in the line so the flow travels past the sensor or is diverted so there is no flow past the sensor. A drain valve should be fitted so the pressure in the line can be relieved and the pipe work drained before removing the sensor (see drawing).

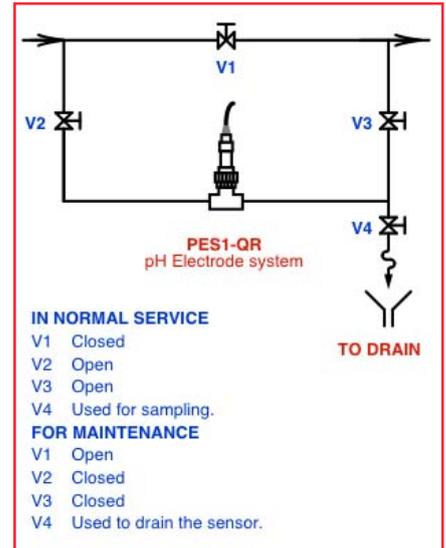
Before draining and removing a sensor, please ensure all the required Health & Safety precautions and risk assessments etc. are adhered to, for your site conditions.



Typical installation of our PES2-QR inline pH electrode system with quick release fitting, where the pipework cannot easily be drained for calibration.

The sensor can then be removed, examined, cleaned and calibrated as required, or if a replacement is required this can be fitted.

The sensor can then be refitted, please check that the drain valve is closed, and then open the valve to re-introduce flow past the sensor before closing the by pass valve, so as not to stop the solution flow.



Many of our pH and Redox electrodes have a quick release union type fitting for easy removal without tangling the cables. Insertion conductivity cells have a demountable connector which can be removed to save disconnecting the cable.

We like to keep things simple. as the simpler they are, the more reliable they are.

## THE GRAPEVINE

Recently, a regular end user customer of ours came to us with a problem with his polypropylene vee notch tank. It was a strange shape and looking worse for wear. On checking our records we had supplied this tank over 20 years ago with a flow meter, pH meter recorder and auto sampler flow proportional composite sampler.

We know this customer has recently installed a heat exchanger to reduce the temperature of his effluent discharge and recover some of the wasted energy he had been losing down the drain.

So the original polypropylene vee notch tank has stood the test of time very well considering the elevated temperature it had been subjected to.

The customer required a custom sized Vee notch tank double quick, to fit during his summer shutdown. This we were able to supply in time for his shutdown. As part of the process involves the use of some detergents the waste water can produce foam so the first compartment of the vee notch tank

has a bolt-on lid (customer will bore a hole at the correct position for the inlet



pipe). This will help to eliminate the foam in the first chamber.

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