

The Watermark

The Newsletter From

Automated Water & Effluent Ltd

Spring 2016

pH Correction Skid.

From time to time we get enquiries for pH correction skids. One customer had purchased an industrial washing machine which used an heated alkali solution for cleaning. After the washing and rinse cycle there was a discharge of waste water. This discharge fell outside the customers agreed consent to discharge limits and the supplier of the washing machine did not see this as a problem and did not wish to help. We designed and built an all polypropylene skid mounted unit with a GRP corrosion resistant ready wired control panel. The pH correction system worked on a batching principal, waiting until a high level was reached before starting a recirculation pump and acid dosing pump, which is controlled by a pH control loop. When the pH is within limits a valve opens allowing the neutralised solution to flow to drain. At a low level in the the tank; the pump stops, waiting for the tank to fill to a high level again. A simple and cost effective system to neutralise small volumes requiring pH correction.



“A” Series Dosing Pump

The range of our black electronic dosing pumps has been extended to include the A+ series which offer increased outputs, while remaining in the same compact housing as the popular C+ series of black electronic dosing pumps. There are 5 pumps in the A+ series ranging from 0 - 1.6 L/Hr against 17 bar (thats 250 PSI) to 0 - 9.3 L /Hr against 3.3 bar. As standard the wetted parts are PVC head, teflon diaphragm & seals with ceramic ball valves, with the option of either PDVF or 316 stainless steel being available at addition cost. The A+ series features manually adjustable stroke length and a manual or automatically adjustable frequency i.e. the number of strokes the pump makes per minute, this gives the user a very wide turndown ratio of the pump output.

If the external pacing option is selected, then the control of the pump output frequency (the number of strokes the pump makes per minute) will be controlled by PFM (pulse frequency modulation). The pump will make one stroke for each volt contact closure (or pulse) that the pump receives. The dose rate can then be adjusted over a 10:1 ratio b means of adjusting the pump stroke length.

The external pacing control is usually from either a water meter or the PFM output from one of our pH controllers models either P7685 or M05-PH.

Our A+ pumps feature metric sized hoses making them easier to install as replacements for existing pumps. Please note not all manufacturers use the same sizes of metric tubing our A+ pumps.



The A+ series use 6 x 8 mm as this offer a lower resistance to flow and allows a higher viscosity solution to be pumped.

Technical Tips

Dosing Pump Installation

We have been supplying dosing pumps for over 30 years with many regular customers who keep coming back to us we are told because of the technical advice, backup and ex stock deliveries. We recently had a customer purchase some pumps and timers a simple and regular application. He had requested a dose rate of 18 to 20 litres per hour so we had recommended the AT4 series of electronic pumps which are supplied with the larger 12mm OD LDPE dosing hose as standard rather than the AT3 Series which has the 6mm OD LDPE tubing

Then the phone call my pump will not pump the chemical nothing is coming out of the injection fitting and the chemical container is full.

After some questions it transpired the chemical reagent has an SG of 1.6 the dosing run is 30 metres long which is no

problem for the AT4 series of pumps so we were puzzled as his problem we had not been told his suction delivery from the chemical container to the position of the dosing pump was in excess of 10 metres.

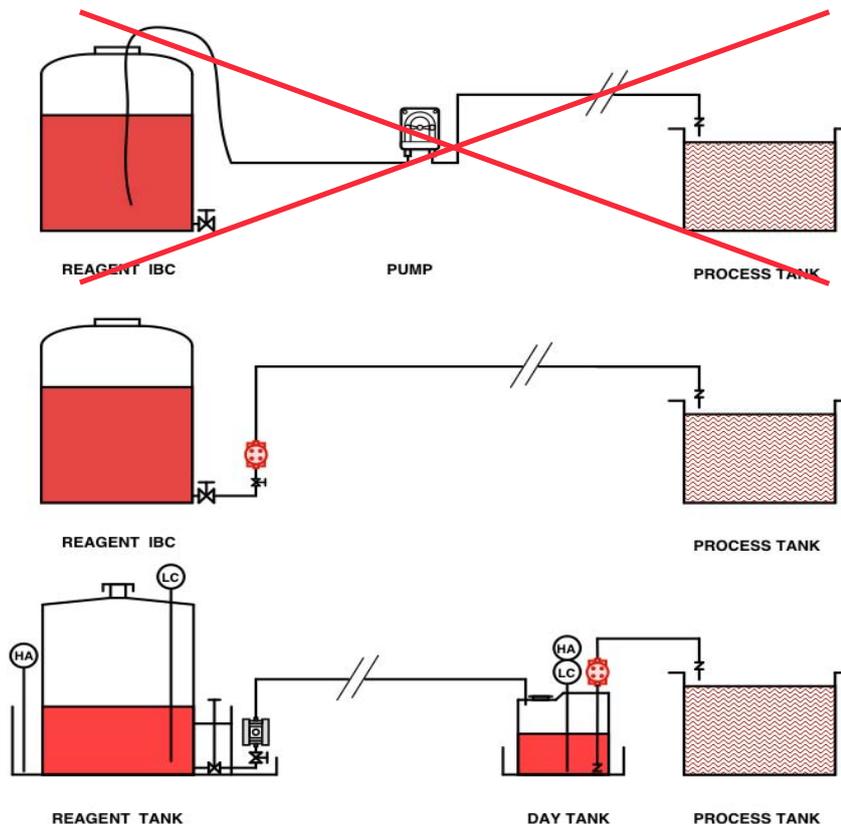
Dosing pumps have a very good delivery - in excess of 15 Bar on some models. A dosing pump with an output of 15 Bar is the equivalent of dosing water 150 metres in the air (where the SG is 1.6 - it is the equivalent of dosing this 93.75 metres into the air). However the suction capabilities of small dosing pumps are limited to 1.0 to 1.5 metres depending upon the model so the pump must be mounted close to the chemical container flooded suction is always good if the installation allows. So we now have a customer half way through an installation not wanting to move the pump outside close to the

chemical container. In our opinion the correct answer to this installation is to install a small chemical day tank and the dosing pump close to the point of use and a transfer pump controlled by level controls to pump from the bulk tank outside to the day tank. The transfer pump could be a cost effective double diaphragm pneumatic pump.

For this installation the customer kept the dosing pumps to use for an other application and purchased our big wheel peristaltic pumps BWP120 with viton tubes which we tested at our works and have proved capable of meeting his requirements as the dosing is on a low duty cycle.

Our recommendations are to always keep your pump suction as short as possible and adhere to the manufacturers specification for installation.

Typical Installation



Long Suction

This was our customers initial installation with a long suction to a peristaltic pump mounted below the liquid level in the IBC.

We do not recommend this installation type. The pump should be installed adjacent to the chemical and above the reagent level so that the chemical is drawn into the pump via suction lift.

Peristaltic pump tubing is a consumable item which normally splits at the end of its working life, so we strongly recommend positioning the pump so it cannot syphon or leak out of the contents of the chemical IBC.

Short Suction Long Delivery

This is a better installation as a dosing pump is used with a flooded suction - so there is no problem in priming the pump.

Diaphragm dosing pumps generally have a poor suction but good delivery pressure depending upon the model selected. We recommend the chemical container be bunded - the pump fitted into a polypropylene housing, and the dosing tube to be double confined.

Bulk Tank & Day Tank

For installations where the chemical is stored outside or some considerable distance away from the point where it is required; the installation of a day tank and transfer pump with level controller is a better installation.

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