

Contamination Control becomes Davey Water Products



Contamination Control has been in business in New Zealand for well over 30 years but now they will operate under a new name after being purchased by Australian pump manufacturer Davey in April 2005.

Davey is an Australian company, established in 1934 and it is a subsidiary of GUD who also own Victa Mowers, Ryco air filters and Sunbeam home appliances among other companies. Davey have long been a reliable name in pumps but they are now adding a wider assortment of water products to their range and are increasingly

offering products for water conservation and rainwater harvesting.

Davey were already Australian distributors for the Steriflo UV products manufactured by Contamination Control and two years ago they purchased the company outright.

While the changeover has been going on it has been business as usual at Contamination Control for the past two years but now the company name will be disappearing as it becomes Davey Water Products in New Zealand and amalgamates with the existing Davey pump business here. The next step in the company's development will be to move to new premises, most likely still in South Auckland where the Contamination Control and Davey staff can be located under one roof.

Steve Warne, technical manager and a former director of the company, has been with Contamination Control for the last 19 years and he says that while the name of the company will change, it will not alter the company's focus and direction – there will still be the same staff and the same dedication to problem solving and customer satisfaction.

"When I started with the company in 1988, we had seven staff and we now have over 60 with an annual turnover of nine million dollars. While we have a change in name, it will still be business as usual. We will still be looking at the same markets with the same capabilities. We still set about providing high quality water for food processing and drinking, as we've always done", Steve says.

Davey has New Zealand branches in Auckland, Wellington and Christchurch with national sales representation. Steve says Simon Fletcher has been appointed as sales manager which is a new role for the combined company. Simon will be in charge of national sales for the company and he is pleased with the prospect of further developing the Davey name and the Davey range, here in New Zealand. In order to support the expanded sales team senior engineer Geoff Dawson has been appointed Technical Development Manager.

Recent projects with Palmerston North and Manukau City Councils, Coca Cola in Christchurch and the Spiers Group in Marton, give every indication that Contamination Control's long commitment to water treatment products in New Zealand will continue well into the future, even if the name has now changed.

To ensure that this is the case Murray Lewis has been appointed senior sales engineer with responsibility for industrial applications. Murray has an extensive background in water treatment and is already proving an asset to the company.

Chlorine safety drives MIOX system purchase

When Palmerston North City Council recently increased the output of its Roberts Line bore water pumping station it also needed to increase the size of the chlorination installation there. The 90kg gas cylinders originally used needed transporting and changing too frequently by operations staff for practical purposes and use of bulk one tonne cylinders was therefore considered. The pumping station was surrounded by fields when it was built in the early 80s but now it is in the middle of a residential suburb and its immediate neighbours are a preschool and a primary school.

Use of bulk gas chlorine cylinders would have required costly site modifications and extensive safety precautions therefore city water engineer Phil Burt considered an inherently safe alternative, a MIOX hypochlorite generator.



MIOX hypochlorite generator

Chlorine safety drives MIOX system purchase cont.

The capital and operating costs of the system compared well to the bulk chlorine upgrade so a system was purchased in early 2007.

The MIOX system uses salt and 12V power to generate liquid chlorine, sodium hypochlorite, at 0.8% strength, which is dilute enough to be non hazardous. The oxidant solution is held in a day tank and dosed by pump into the water instead of the gas chlorine. Capable of generating up to 18kg of chlorine equivalent a day the system has two operating cells and is the largest MIOX system so far installed in New Zealand.

Operation of the system is fully automatic and on demand, when the level in the oxidant tank falls as the hypochlorite is dosed into the water supply the MIOX system operates to refill it.

A small flow of soft water feeds the cells and saturated brine from the salt tank is added to the water as the source of chlorine. The brine flow is controlled to maintain the correct current through the cell.

The operator has to fill the salt tank weekly and checks operating parameters when visiting the plant to ensure that the system is performing correctly.

Leading New Zealand grower chooses Hanovia UV to treat hothouse water supplies

Hanovia UV technology from Davey has been selected by NZ Hothouse, a leading New Zealand provider of fresh produce, to disinfect the water used for soil-less plant cultivation in its glasshouses. Located just South of Auckland, NZ Hothouse has almost 20 hectares of glasshouses on two sites growing tomatoes, peppers and cucumbers for distribution both nationally and internationally.

The source of the water used for growing is a combination of rain water and borehole water, which is stored in large outside holding ponds. The main microbial challenge organisms in the water include fungi such as Pythium, Phytophthora and Fusarium; bacteria such as Clavibacter and viruses such as tomato bronze (wilt) virus and tomato mosaic virus.

No conventional microbiological checks are carried out, but NZ Hothouse uses what are called 'bait' tests with very young plants to see if they fall victim to any of these water-borne pathogens. Two Hanovia PMD200 medium pressure systems are installed – one for each site – treating up to 68m³ water per hour. UV treatment is ideal for this application as it is a completely clean technology that introduces no chemicals or unwanted disinfection by-products into the water and does not alter its pH.

The UV systems feature an automatic wiper which prevents the build-up of deposits on the quartz tube, ensuring optimum UV dose at all times. Photon control panels provide the operators with data on flow rate and UV dose. The control panel can also be operated remotely, allowing the system to run 24 hours a day. Maintenance of the unit is restricted to the replacement of the lamps and a service every year.



Food innovator installs Kinetico water treatment

Speirs Nutritionals is part of the NZ owned Speirs Group and they are gearing up for production of unique tasteless and odourless fish oil nutrient emulsions at their recently opened Marton factory. The Omega 3 contained in fish oils is known to have many health benefits and the ability to include it in foods without the associated fishy taste is an exciting breakthrough.



Kinetico RO System at Speirs

Speirs Foods have been well known for fresh salads for many years but this is an exciting venture into high tech production of 'functional foods' that add value to the products they go into.

Part of the requirement for the new factory is a supply of high quality process water and Contamination Control (now Davey Water Products) are pleased to have been able to assist with suitable equipment.

The requirement for virtually pure water with dissolved solids barely detectable in the treated water and bacteria counts under 10/100mL meant that the key component of the treatment system is a 1200L/hr Kinetico reverse osmosis membrane unit with polishing deionisation afterwards.

Since Marton's water supply can be of variable quality the water feeding the RO system is filtered and softened to protect the RO membranes from fouling or oxidation.

The purified water is held in a storage tank fitted with a roof mounted UV probe. The final stage is a Steriflo UV system on the outlet of the tank as the water is pumped to process use. Speirs Project Manager Mike Roberts has expressed his satisfaction at the assistance received from Davey in the design and implementation of the new water treatment system.

UV installation leads to savings at Manukau City pool

Which municipal swimming pool has the highest bather load in the Southern hemisphere? It is believed to be the 25m leisure pool at Manukau City's Lloyd Elsmore Park Leisure Centre so when Manukau Leisure wanted to evaluate the benefits claimed for Hanovia medium pressure UV systems it would be a demanding site for the test.



Lloyd Elsmore Park Leisure Centre

The Lloyd Elsmore centre is located in Pakuranga and can have up to 1800 people in the pools on a busy day. To encourage pool use Manukau City does not charge for entry.

Of the five pools (lap pool, spa, learners, tots and leisure pool) the leisure pool is by far the busiest and to maintain combined chlorine levels at or below the permitted 2mg/L level constant 'dilution' was required. This dilution water is used to overflow pool water to waste therefore lowering the level of combined chlorine, which is responsible for sore eyes, itchy skin and that bitter 'chlorine' smell associated with busy pools. Chloramines are formed when the chlorine added to the pools to kill bacteria reacts with urine, sunblock and personal hygiene products. The chloramines are also directly linked to asthma attacks in children as they are very unpleasant chemicals which are corrosive to metals. Even stainless steel rusts in pool plant rooms.

Manukau Leisure selected a Hanovia UV system from Contamination Control after a tender process which took into account suppliers experience and technical support as well as price. A 5.5kW system was installed and commissioned in March 2007 to treat all the water flow returning from the filters to the pool. The leisure pool had been using dilution water at a flow of 400-600m³ a week. Within days of the UV system being turned on dilution water was turned off. Despite this the combined chlorine levels fell quickly and since then 0.4mg/L has been a typical reading.

In common with all Hanovia pool installations in New Zealand the effect of the UV system has been to make the pool environment more pleasant, even though only one pool of the five is treated. Customer and staff feedback has been positive and the water savings are adding up to a considerable amount.

Water make up to the pool is now less than 100m³ a week, representing a saving of at least \$1200 a week in water and wastewater charges alone. Heat savings would at least double that which gives the UV system a payback of under a year.

Juice plant water treatment upgrade protects product quality

A household name in New Zealand juice brands regularly found on the supermarket shelf is now owned by a leading multinational beverage provider but it is still bottled in the original East Tamaki plant.

The bottling operation has been updated but the water treatment was still just the original carbon filtration plant which left the water supply at risk of unacceptably high bacteria counts and an improvement in security was required.

Contamination Control have already successfully supplied many beverage manufacturers with mineral water filtration and UV treatment equipment so were requested to provide suitable equipment to improve the quality and security of the water supply used in the juice processing and bottling.

The water treatment system shares a plant room with the boiler and sugar syrup tank so there wasn't a lot of space for new hardware. The treatment selected was one micron cartridge

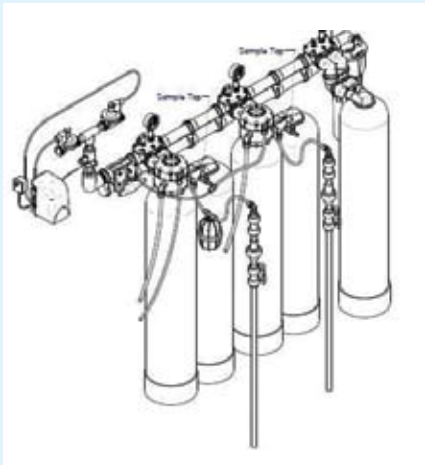
filtration and UV disinfection for a flow rate of up to 40m³/hr. The UV system could be installed on a wall without difficulty but space constraints meant that instead of one large stainless cartridge filter vessel being practical three small units were installed in parallel (see photo) with the added benefit that cartridges can be changed with water still being available for the plant.

Technical management at the plant have been pleased with the quality of the treated water since installation, calling the microbiological results 'the best ever' at the plant. The same upgrade has now been carried out at the Christchurch juice plant with similar equipment.



*Water treatment system
Christchurch juice plant*

DI-in-a-box demystifies demin plants



Industrial water users often require deionised water to prevent the impurities present in water from affecting their products and processes. Such deionisers always require the use of chemicals both acid and caustic for regeneration of the ion exchange resins.

Minimising chemical use and therefore waste volumes is an essential part of the operation of a DI system and this usually requires either extensive manual intervention or complex and expensive electronic controls. In either case considerable operator expertise is needed and the systems are notoriously difficult to operate

Kinetico's new MDI deioniser systems use a basic "DI-in-a-box" approach where all components are supplied in a snap together form. Electricity is not required for control valve operation and throughput between regenerations is determined by Kinetico's established turbine metering systems which have been the key technology behind their ion exchange softening systems for many years. As is usual with Kinetico systems each resin stage is twin tank so treated water is always available even when one tank is regenerating.

A sediment prefilter and carbon chlorine removal vessel provide suitable pre-treatment for municipal water supplies and a conductivity indicator shows that treated water is in specification.

New technology enables UV upgrade for Ruapehu WWTP

Many early UV installations are now reaching the end of their service life or need upgrading to meet more stringent standards or higher flow rates.

Upgrading by replacing existing lamps with similar but more powerful versions is now entirely possible.

The most common lamp in UV systems is the low pressure (LP) type, either at 840mm long or in wastewater 1500mm long. These run at a current of 425mA and can be replaced with virtually identical lamps running at double the current (called high output or LPHO lamps) with almost doubled output, or by amalgam lamps which run at even higher currents with a corresponding increase in output.

Even replacing the common magnetic ballasts with modern electronic types makes a difference. Ruapehu District Council have an elderly horizontal rack UV system at the Hikimutu WWTP and in 2006 the existing control panels with magnetic transformers driving the lamps were replaced.

This was mainly to improve reliability as the control boards operating the systems were no longer available or serviceable. Two new panels were supplied with electronic ballasts and their 'smart' functionality actually simplified the system design and operation.

Another benefit is that the new ballasts achieve at least 10% more output from the lamps (as measured on site) and so enhanced performance. The system is capable of achieving single figure coliform levels per 100mL during normal operation.

However this is the least ambitious upgrade possible as it would have been entirely practical to retrofit higher output lamps if necessary and this is in fact being done for a variety of existing UV installations.

Electronic ballasts at WWTP



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